

Torres Rojas, Genara

Subject: FW: Freedom of Information Online Request Form

From: Dunlap, David [<mailto:dunlap@nytimes.com>]
Sent: Monday, August 11, 2014 11:15 AM
To: Duffy, Daniel
Cc: Dumas, Erica
Subject: Re: Freedom of Information Online Request Form

Dear Mr. Duffy,

Thank you so much for advising me timely that my request had exceeded the number of characters permissible for an online FOI request.

Here is that request again, with the missing "ern Dist." at the end. It is otherwise identical to the one you received online.

(2003) Staff summary, synopsis and/or evaluation of the three architecture/engineering respondents to the RFQ/RFP. Any other pertinent documents explaining the rationale for choosing the Downtown Design Partnership.

(2003) Contract between the Port Authority and the Downtown Design Partnership for professional architectural and engineering services, plus amendments and riders.

(2005) Contract between the Port Authority and Phoenix Constructors for general contracting and construction management, plus amendments and riders.

(2008) Report(s) of the Transportation Hub Design Alternatives Working Group.

(2009) Port Authority's notice to Phoenix Constructors of its intent to remove Phoenix from the Hub project, while allowing the constituent companies to bid on future work.

(2009) Request by Governor Paterson and the Port to the FTA for \$671 million in additional financing for the Hub.

(2011) Port's answer to the complaint in Urssa v. DCM Erectors, US District Court, Southern Dist.

David W. Dunlap
The New York Times
212.556.7082
dunlap@nytimes.com

THE PORT AUTHORITY OF NY & NJ

November 19, 2014

FOI Administrator

Mr. David W. Dunlap
The New York Times
620 Eighth Avenue
New York, NY 10023

Re: Freedom of Information Reference No. 15206

Dear Mr. Dunlap:

This is a response to your August 11, 2014 request, which has been processed under the Port Authority's Freedom of Information Code (the "Code") for copies of "(2003) Staff summary, synopsis and/or evaluation of the three architecture/engineering respondents to the RFQ/RFP. Any other pertinent documents explaining the rationale for choosing the Downtown Design Partnership. (2003) Contract between the Port Authority and the Downtown Design Partnership for professional architectural and engineering services, plus amendments and riders. (2005) Contract between the Port Authority and Phoenix Constructors for general contracting and construction management, plus amendments and riders. (2008) Report(s) of the Transportation Hub Design Alternatives Working Group. (2009) Port Authority's notice to Phoenix Constructors of its intent to remove Phoenix from the Hub project, while allowing the constituent companies to bid on future work. (2009) Request by Governor Paterson and the Port to the FTA for \$671 million in additional financing for the Hub. (2011) Port's answer to the complaint in *Urssa v. DCM Erectors*, US District Court, Southern Dist."

In an effort to provide available documents as quickly as possible, we previously provided material responsive to your request and available under the Code in connection with the Port Authority's notice to Phoenix Constructors and Governor Paterson's request to the FTA and the Port Authority's answer to the complaint in *Urssa v. DCM Erectors*. Please be advised that material responsive to your request for the Contracts between the Port Authority and Downtown Design Partnership and Phoenix Constructors and the Report of the Transportation Hub Design Alternatives Working Group and available under the Code can be found at <http://www.panynj.gov/corporate-information/foi/15206-WTC-2.pdf>.

Certain portions of the material responsive to your request are exempt from disclosure pursuant to exemption (1) (2.b.) and (4) of the Code.

Sincerely,



Daniel D. Duffy
FOI Administrator

225 Park Avenue South, 17th FL
New York, NY 10003
T: 212 435 3642 F: 212 435 7555

**WTC DESIGN
&
CONSTRUCTION ANALYSIS**

HUB WORKING GROUP



STEERING COMMITTEE REPORT

SEPTEMBER 25, 2008

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I. INTRODUCTION

September 25, 2008

HUB WORKING GROUP

FINAL REPORT

INTRODUCTION

In July, 2008, the Port Authority formed four working groups to study options for improving the schedule and cost performance of four key elements of the World Trade Center Project; 1) the Greenwich Street Corridor, 2) the Transportation HUB, 3) the Memorial and, 4) the VSC. These initiatives were undertaken following the PA's acknowledgement of serious cost overruns and extensive projected delays on all four projects. The recommendations of these Working Groups is intended to provide data to the Steering Committee for decision making and to give PA Executive Director Chris Ward input for his report to Governor Paterson at the end of September.

This report contains the final recommendations of the HUB Working Group. In addition to the material presented to the Steering Committee in mid-September 2008, we have included additional detailed drawings and other supporting material that was not part of the presentation.

The HUB Working Group included representatives of all the major stakeholders in these projects:

- City of New York
- Port Authority
- FTA
- Memorial
- MTA
- Silverstein Properties

The group utilized the following four primary outside consultants to provide expert design and construction input:

- Constructability, Cost and Schedule - Turner
- Structural - LERA
- MEP - AKF
- Architecture – Beyer, Blinder, Belle

From time to time, the design group sought advice from specialty consultants in specific technical areas, e.g., Weidlinger (blast design/criteria), DVS (security criteria), and ARUP (CFD modeling).

While the HUB Working Group was developing alternative concepts, there were parallel efforts underway by the Calatrava/DDP team and a PA Engineering Department team, which focused on the West Bathtub portion of the PATH HUB. The HUB Working Group was asked to comment on these efforts and compare them to the concepts developed by the HUB Group. It should be noted that the charter¹ of each group was different and, therefore, there

¹ The respective charter of each group can be summarized as follows:

- **DDP/CALATRAVA** – Save as much of the existing design as possible while improving schedule and cost performance.
- **Port Authority** – Minimize design breakage while improving schedule and cost performance.
- **HUB Working Group** – No boundaries on concepts to be considered, save hundreds of millions dollars and help neighboring projects meet their schedules

should be no surprise that their recommendations are quite different. The recommended concept of the HUB Working Group has four basic elements:

- Add columns/caissons under the 1 Line Box, eliminating very heavy and difficult to construct trusses.
- Make Oculus 25% smaller and simplify design
- Save existing structure in the West Bathtub and simplify the roof structure.
- Revise and relocate MEP systems.

These concepts and the resulting cost and schedule benefits are described in more detail in this report. Collectively, these four elements have the following benefits:

- The Memorial Plaza slab is available May 2010, which meets their schedule.
- The PATH HUB Oculus is completed by June, 2012.
- The West Bathtub portion of the HUB is completed by December 2012.
- There are savings in excess of \$500+ million compared to the base design estimate.
- The structure is much simpler/less risky.
- There is created an additional 15,000 s.f. of retail and an additional 62,000 s.f. of program space on the B4 level.

In our opinion, the only possible negative to the concept described above relates to the architectural design of the passenger mezzanine in the West Bathtub. While the dramatic design and clear span has been modified for the sake of schedule, cost and constructability, we fully anticipate that whenever executed, the design would provide an attractive and compatible design solution to this ceiling.

And, finally, the HUB Working Group recommends careful reviews of practices and procedures, regardless of which scheme is selected. In our opinion, it would be a serious mistake to continue “business as usual” in light of the results to date.

Respectfully Submitted

HUB WORKING GROUP

II. STEERING COMMITTEE PRESENTATION SEPTEMBER 25, 2008

**WTC DESIGN AND CONSTRUCTION ANALYSIS
HUB WORKING GROUP
RECOMMENDATIONS**



**STEERING COMMITTEE PRESENTATION
SEPTEMBER 25, 2008**

HUB WORKING GROUP

CHARTER

- NO LIMITS ON CONCEPTS TO BE CONSIDERED
- SHAKE OFF OLD “BAGGAGE” AND ATTITUDES
- THE INTERESTS OF ALL STAKEHOLDERS MUST BE CONSIDERED

OBJECTIVES

- SUBSTANTIAL REDUCTIONS IN COST (HUNDREDS OF MILLIONS)
- SHORTEN SCHEDULE TO SUPPORT DESIRED SCHEDULES OF NEIGHBORING PROJECTS (DELIVER THE MEMORIAL PARK BY 9/11/2011)
- IMPROVE FUNCTIONALITY / PEOPLE FLOW
- PRESERVE ABOVE GRADE OCULUS GENERAL CONCEPT

HUB WORKING GROUP

TEAM / PARTICIPANTS

- PORT AUTHORITY
- CITY OF NEW YORK
- MEMORIAL
- MTA
- LMCCC
- FTA
- SILVERSTEIN PROPERTIES
- CONSULTANTS
 - TCCo – Constructability, Cost, Schedule
 - Beyer Blinder Belle – Architecture
 - LERA – Structure
 - AKF – Mechanical Engineering

HUB WORKING GROUP RECOMMENDATIONS

CONCEPT	\$/Million COST SAVINGS*
1. ADD COLUMNS UNDER THE 1 LINE BOX (IN LIEU OF TRUSS)	75
2. SAVE EXISTING STRUCTURE IN WEST BATHTUB. EXTEND EXISTING COLUMNS UP. SIMPLIFY ROOF STRUCTURE	200
3. MAKE OCULUS SMALLER AND SIMPLIFY DESIGN	215
4. REVISE & RELOCATE MEP SYSTEMS	25
5. VALUE OF NEW PROGRAM SPACE ON LEVEL B4 (62,000GSF)	25
6. VALUE OF ADDITIONAL RETAIL SPACE (15,000GSF)	35
TOTAL	575
GREENWICH BENEFIT FOR “NO ROOF REMOVAL”	60

* Savings based on Turner estimate;
Compared against “Hub Cost Summary – 90% Fitout & Structure to Grade / 50% Oculus”;
Net of redesign costs

HUB WORKING GROUP SCHEDULE SUMMARY

SCHEDULE MILESTONE	HUB WORKING GROUP SCHEME	RE-MODIFIED DDP/CALATRAVA SCHEME*
1. MEMORIAL PLAZA STRUCTURE COMPLETE	May 2010	November 2010 Partial August 2011 Complete
2. WEST BATHTUB COMPLETE	December 2012	May 2014
3. OCULUS TO GRADE	July 2011	?
4. OCULUS COMPLETE	June 2012	May 2014

* DDP/Calatrava Scheme Completion dates based on 3-page handout distributed by the PA on 9-23-08.

**RECOMMENDATION
ADD COLUMNS UNDER THE
NO. 1 LINE BOX**

- **IMPROVES GREENWICH STREET AND MEMORIAL SCHEDULES**
- **SOLVES SUBWAY ACCESS ISSUES**
- **IMPROVES CONSTRUCTION LOGISTICS**

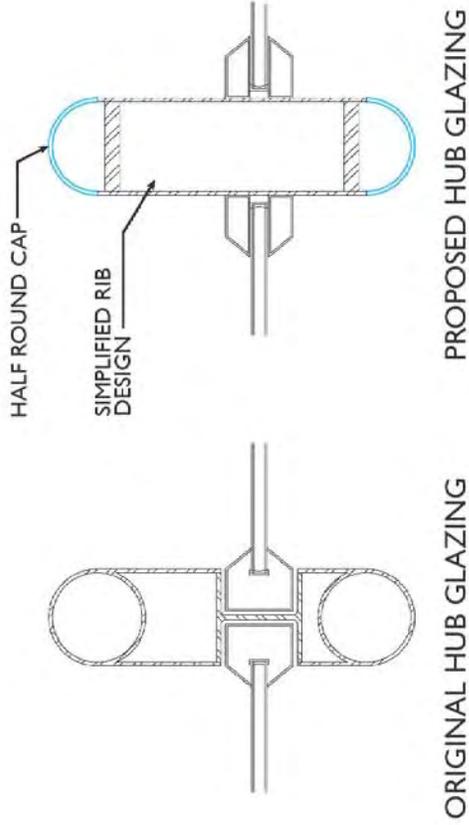
EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

RECOMMENDATION MAKE OCULUS SMALLER AND SIMPLIFY DESIGN

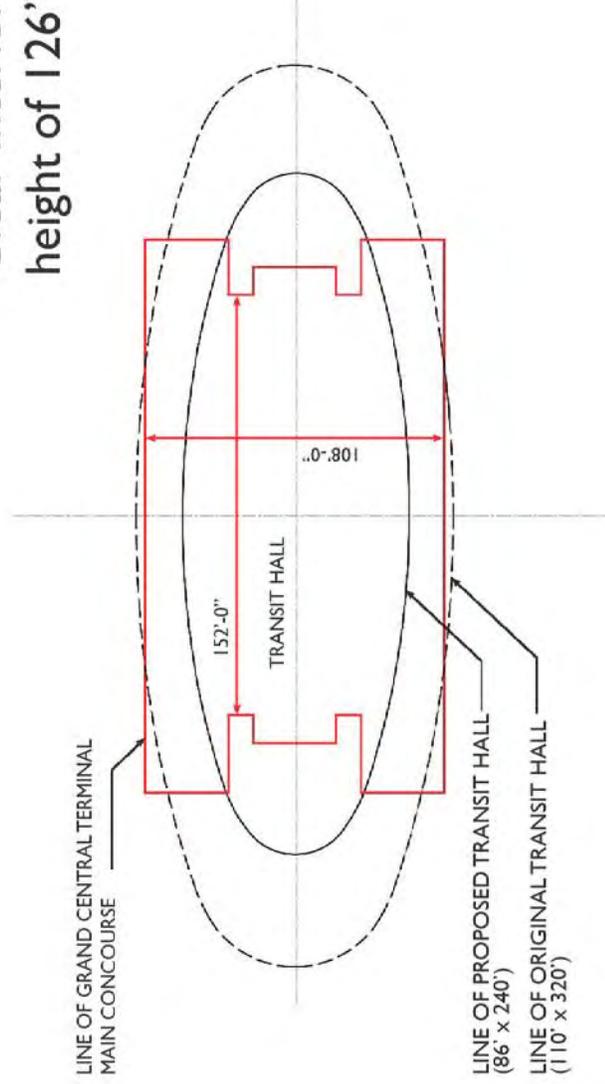
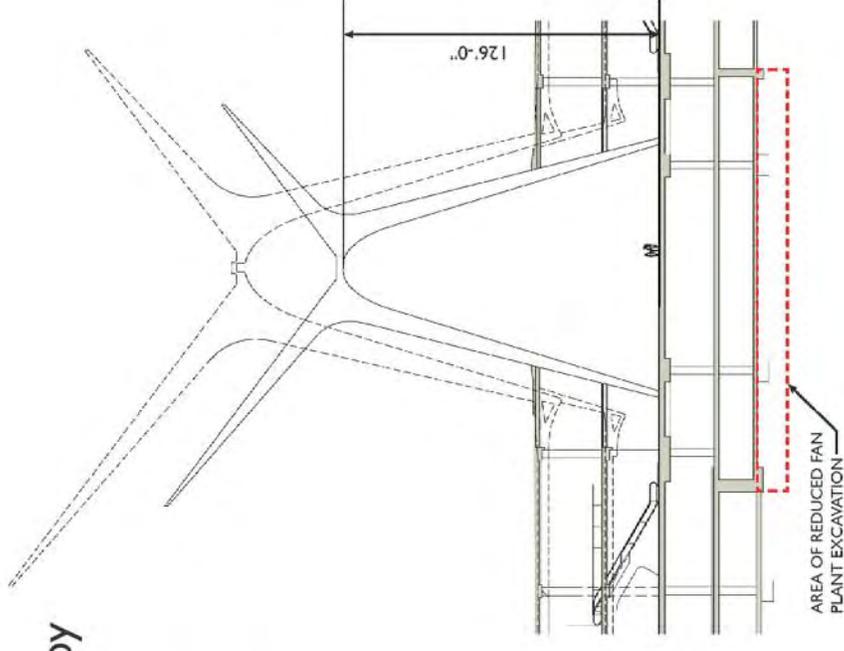
- **REDUCE ABOVE-GRADE STRUCTURE BY 25% IN BOTH THE X & Y AXES; RETAINS BASIC EXTERIOR DESIGN. PROPOSED “REDUCED” HUB IS STILL 10 STORIES HIGH AND ALMOST AS LONG AS A FOOTBALL FIELD.**
- **REDUCTION IN ABOVE GRADE FOOTPRINT FACILITATES MORE AREA BEING AVAILABLE FOR CONSTRUCTION LOGISTICS**
- **INCREASE SPACING OF RIBS & REDUCE QUANTITY**
- **SIMPLIFY PROFILES OF RIBS, RESULTING IN QUICKER FABRICATION AND ERECTION**
- **OCULUS STRUCTURE TO BE SUPPORTED ON MORE CONVENTIONAL BELOW GRADE STRUCTURE, INSTEAD OF CANTILEVERED STRUCTURE**
- **ELIMINATION OF SKYLIGHT AT TOP RESULTS IN A SIMPLE “A-FRAME” STRUCTURE THAT IS EASIER TO ERECT; RESULTS IN FEWER SHORING TOWERS & BETTER SITE LOGISTICS**

OCULUS & GRAND CENTRAL COMPARISON



Oculus reduced by
25% in plan,
50% in volume

Clear interior
height of 126'



OCULUS SIZE REDUCTION COMPARISON



EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

RECOMMENDATION
SAVE EXISTING STRUCTURE IN
WEST BATHTUB

- **RETAIN AS MUCH OF EXISTING STRUCTURE AS POSSIBLE**
- **EXISTING COLUMNS & FOOTINGS CONTAIN SUFFICIENT CAPACITY FOR BUILD-OUT ABOVE**
- **EXTEND EXISTING COLUMNS UP TO SUPPORT NEW SLABS & PLAZA**
- **FACILITATES FASTER CONSTRUCTION OF PLAZA LEVEL; MAJOR TIME AND COST SAVINGS; CRITICAL TO MEETING MEMORIAL SCHEDULE (JUNE 2010 STRUCTURE COMPLETED FOR SEPTEMBER 2011 OPENING)**
- **ALLOWS PROGRAM RELOCATION THAT WILL HELP GREENWICH ST. SCHEDULE**
- **RETAIN AS MUCH OF EXISTING PLATFORMS AS POSSIBLE; RECONFIGURE PATH PLATFORM "A" TO ACCOMMODATE LEVEL OF SERVICE IN PROGRAM**

SECURITY STRATEGY

DESIGN APPROACH

- ALTERNATIVE LOAD PATH (ALP)
- AVOIDANCE OF DISPROPORTIONATE PROGRESSIVE COLLAPSE
- STRATEGIC ROUTING OF MEP SYSTEMS

EXEMPTION (4)

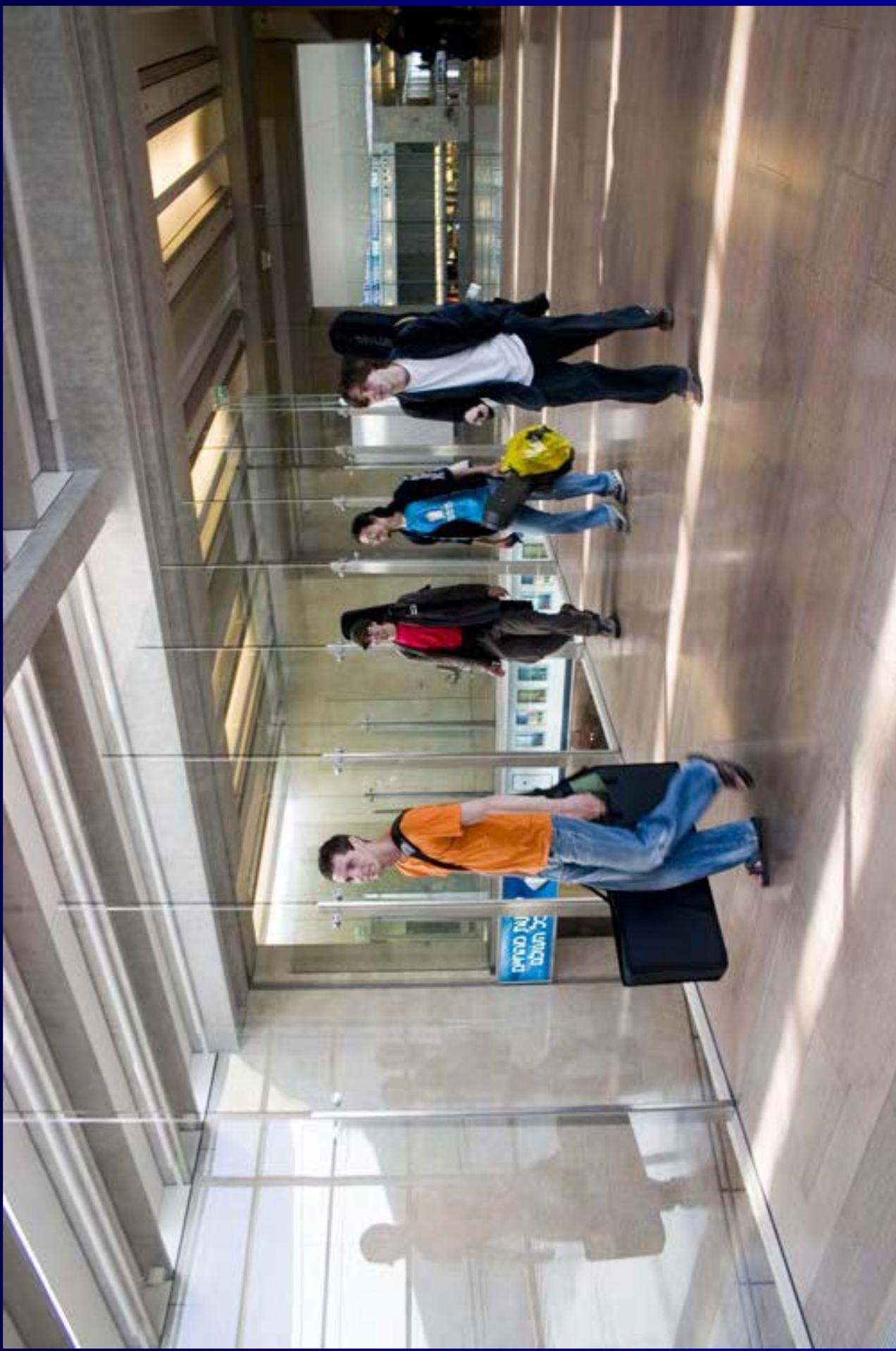
DRAWINGS OF NON-PUBLIC AREAS

COMPARATIVE IMAGES



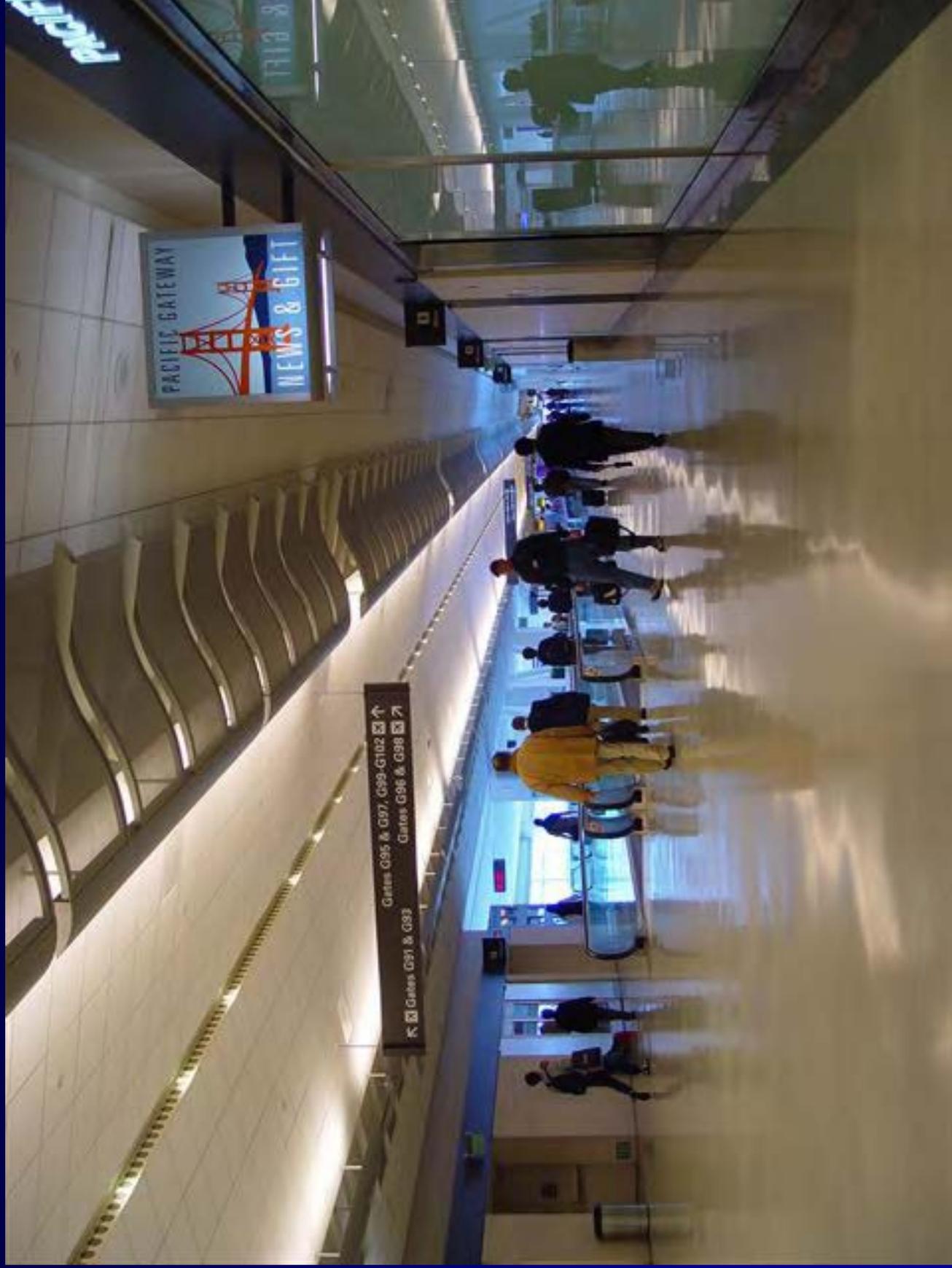
CEILING HEIGHTS AND POTENTIAL CEILING TREATMENTS

COMPARATIVE IMAGES



4 METER CEILING HEIGHT – BEN GURION AIRPORT

COMPARATIVE IMAGES



15 FOOT CEILING HEIGHT – SFO AIRPORT

COMPARATIVE IMAGES



14 FOOT CEILING HEIGHT -- ATLANTA AIRPORT

RECOMMENDATION REVISE & RELOCATE MEP SYSTEMS

- **RELOCATE FAN ROOM FROM EAST BATHTUB (UNDER OCULUS) TO NEW FAN ROOM IN WEST BATHTUB**
- **ELIMINATES THE NEED FOR THE B4 LEVEL FAN ROOM AND EXPENSIVE ROCK EXCAVATION BELOW THE B4 LEVEL, FACILITATING EARLIER COMMENCEMENT OF OCULUS SUPERSTRUCTURE WORK**
- **RESULTS IN INDEPENDENT MECHANICAL SYSTEMS FOR THE EAST & WEST BATHTUBS**
- **MORE EFFICIENT SYSTEM SINCE FAN ROOM WOULD NOW BE ADJACENT TO AREA SERVED**
- **SHORTER DISTRIBUTION RESULTS IN BETTER EQUIPMENT PERFORMANCE & EFFICIENCIES**
- **ELIMINATES THE NEED FOR A LARGE SERVICE TUNNEL CONNECTING EAST & WEST BATHTUBS**

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

RE-DESIGN EFFORT

APPROXIMATE AREA OF WORK

• WEST BATHTUB:	230,000
• EAST BATHTUB:	490,000
• <u>No.1 UNDERPASS:</u>	<u>12,000</u>
• TOTAL	732,000

ESTIMATED NUMBER OF DRAWINGS

• GENERAL	20
• CIVIL	30
• ARCHITECTURAL:	480
• STRUCTURAL:	300
• MEPF:	295
• SECURITY:	60
• SIGNAGE:	50
• <u>MISCELLANEOUS:</u>	<u>50</u>
• TOTAL:	1285

ESTIMATED EFFORT TO COMPLETE THE DOCUMENTS

- MANHOURS: 115,000
- 60 PEOPLE OVER A 12 MONTH DOCUMENTATION DURATION

HUB WORKING GROUP

PREMISE

- MUST LOOK AT NEW WAYS TO EXPEDITE PROCESSES AND DECISION MAKING:
 - EXPEDITED REVIEWS OF MILESTONE SUBMISSIONS
 - IMPLEMENT TRADITIONAL CONSTRUCTION FAST-TRACK STRATEGIES
 - STREAMLINE THE PROCUREMENT PROCESS

REDESIGN TIME

WEST BATHTUB (including re-coordination)

- ARCHITECTURAL 10 MONTHS
- STRUCTURAL
 - STEEL 3 MONTHS
 - CONCRETE 6 MONTHS
- MECHANICAL
 - PRE-PURCHASE EQUIPMENT 4 MONTHS
 - COMPLETE 10 MONTHS

OCULUS (including re-coordination)

- ARCHITECTURAL 12 MONTHS
- STRUCTURAL
 - STEEL 8 MONTHS
 - CONCRETE 6 MONTHS
- MECHANICAL 9 MONTHS

COST ESTIMATES SUMMARY - \$/BN

	<u>DDP</u>	<u>TURNER</u>
<u>BASE DESIGN</u>		
TOTAL	3.8	4.2+
ALLOCATION	(0.3)-(0.9)?	(0.3)-(0.9)?
NET	2.9-3.5	3.3-3.9+
<u>OPTION 1</u>		
NEW DDP/CALATRAVA CONCEPT	(0.10)*	-
NEW TOTAL	2.8-3.4	-
<u>OPTION 2</u>		
HUB WORKING GROUP CONCEPT	-	(0.58)
NEW TOTAL	-	2.72-3.32+

* DDP/Calatrava Scheme Savings based on 3-page handout distributed by the PA on 9-23-08.

HUB WORKING GROUP: SUMMARY

ISSUE	IMPACTS
<ul style="list-style-type: none"> ○ Schedule 	<ul style="list-style-type: none"> ▪ Surest approach to delivering Memorial Plaza on time ▪ Saves 30 Months on West Bath tub Schedule ▪ Saves 15 Months on the Oculus Schedule ▪ Big Help to the Greenwich Street Schedule
<ul style="list-style-type: none"> ○ Cost 	<ul style="list-style-type: none"> ▪ Saves \$575 Million from the Baseline Estimate
<ul style="list-style-type: none"> ○ Risk 	<ul style="list-style-type: none"> ▪ Reduces cost, schedule, and constructability risks by dramatically simplifying the systems ▪ Eliminates expensive fan room that requires a great deal of rock excavation
<ul style="list-style-type: none"> ○ Benefit to Other Projects 	<ul style="list-style-type: none"> ▪ Saves costs for neighboring Projects ▪ Helps all neighboring project schedules ▪ Improves MTA access ▪ Potentially reduces PATH shutdowns
<ul style="list-style-type: none"> ○ Program 	<ul style="list-style-type: none"> ▪ PATH pragmatic requirements will be met ▪ Increases Retail Area by 15,000 SF ▪ Reduces almost 25,000 cu.yds. of rock excavation on the B4 Level under the Oculus by relocating Fan Rooms to upper levels, and to the West Bath tub
<ul style="list-style-type: none"> ○ Design 	<ul style="list-style-type: none"> ▪ Keeps the basic Exterior Design of the Oculus ▪ Changes the architecture of the West Bath tub Passenger Mezzanine
<ul style="list-style-type: none"> ○ Redesign 	<ul style="list-style-type: none"> ▪ The redesign effort is manageable and factored into the Cost Savings and Schedule Reduction estimates

HUB WORKING GROUP

CLOSING SUMMARY:

- SAVINGS OF WELL OVER \$500M
- MOST POSITIVE APPROACH TO DELIVERING THE MEMORIAL PLAZA ON TIME
- OVERALL SCHEDULE REDUCTION ON THE WEST BATHTUB AND OCULUS
- REDUCES RISK
- HELPS LOGISTICS

WTC DESIGN AND CONSTRUCTION ANALYSIS
HUB WORKING GROUP



STEERING COMMITTEE PRESENTATION
SEPTEMBER 25, 2008

III. RECOMMENDATIONS

RECOMMENDATION “A”:

ADD COLUMNS UNDER THE NO. 1 LINE BOX

- **IMPROVES GREENWICH STREET AND MEMORIAL SCHEDULES**
- **SOLVES SUBWAY ACCESS ISSUES**
- **IMPROVES CONSTRUCTION LOGISTICS**

RECOMMENDATION “B”:

MAKE OCULUS SMALLER AND SIMPLIFY DESIGN

- **REDUCE ABOVE-GRADE STRUCTURE BY 25% IN BOTH THE X & Y AXES**
- **RETAINS BASIC EXTERIOR DESIGN. PROPOSED “REDUCED” HUB IS STILL 10 STORIES HIGH AND ALMOST AS LONG AS A FOOTBALL FIELD.**
- **REDUCTION IN ABOVE GRADE FOOTPRINT FACILITATES MORE AREA BEING AVAILABLE FOR CONSTRUCTION LOGISTICS**
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- **ELIMINATION OF SKYLIGHT AT TOP RESULTS IN A SIMPLE “A-FRAME” STRUCTURE THAT IS EASIER TO ERECT; RESULTS IN FEWER SHORING TOWERS & BETTER SITE LOGISTICS**

RECOMMENDATION “C”:

SAVE EXISTING STRUCTURE IN WEST BATHTUB

- **RETAIN AS MUCH OF EXISTING STRUCTURE AS POSSIBLE**
- **EXISTING COLUMNS & FOOTINGS CONTAIN SUFFICIENT CAPACITY FOR BUILD-OUT ABOVE**
- **EXTEND EXISTING COLUMNS UP TO SUPPORT NEW SLABS & PLAZA**
- **FACILITATES FASTER CONSTRUCTION OF PLAZA LEVEL; MAJOR TIME AND COST SAVINGS; CRITICAL TO MEETING MEMORIAL SCHEDULE (JUNE 2010 STRUCTURE COMPLETED FOR SEPTEMBER 2011 OPENING)**
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- **RETAIN AS MUCH OF EXISTING PLATFORMS AS POSSIBLE; RECONFIGURE PATH PLATFORM “A” TO ACCOMMODATE LEVEL OF SERVICE IN PROGRAM**

RECOMMENDATION “D”:

REVISE & RELOCATE MEP SYSTEMS

- RELOCATE FAN ROOM FROM EAST BATHTUB (UNDER OCULUS) TO NEW FAN ROOM IN WEST BATHTUB
- ELIMINATES THE NEED FOR THE B4 LEVEL FAN ROOM AND EXPENSIVE ROCK EXCAVATION BELOW THE B4 LEVEL, FACILITATING EARLIER COMMENCEMENT OF OCULUS SUPERSTRUCTURE WORK
- RESULTS IN INDEPENDENT MECHANICAL SYSTEMS FOR THE EAST & WEST BATHTUBS
- MORE EFFICIENT SYSTEM SINCE FAN ROOM WOULD NOW BE ADJACENT TO AREA SERVED
- SHORTER DISTRIBUTION RESULTS IN BETTER EQUIPMENT PERFORMANCE & EFFICIENCIES
- ELIMINATES THE NEED FOR A LARGE SERVICE TUNNEL CONNECTING EAST & WEST BATHTUBS

IV. ARCHITECTURAL DIAGRAMS

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

V. STRUCTURAL DIAGRAMS

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

VI. MECHANICAL DIAGRAMS

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

VII. ESTIMATES & SCHEDULES

WTC Transportation Hub Estimate Review

New York, New York

22 July 2008

	Quantity	UM	DDP Unit Price	DDP Price Adjusted	TCCO Proposed UP	Direct Work Potential Impact	percent variance	percent of total
Oculus								
Steel (including premiums)	10,600	TONS	7,048.00	7,682.32	20,000.00	\$130,567,000	160.3%	42.2%
Concrete	6,684	CY	1,044.00	1,137.96	1,700.00	\$3,757,000	49.4%	3.9%
Masonry	4,280	SF	22.41	24.43	45.00	\$88,000	84.2%	0.1%
Oculus Glazing	27,325	SF	207.00	225.63	450.00	\$6,131,000	99.4%	3.2%
Storefront	996	SF	95.00	103.55	175.00	\$71,000	69.0%	0.1%
Skylight	3,374	SF	399.00	434.91	1,000.00	\$1,907,000	129.9%	0.8%
Moveable Roof Hydraulic System	1	LS	10,700,000.00	11,663,000.00	???			6.0%
						\$142,521,000	143.1%	56.3%
1 Line								
Steel Truss	2,400	TONS	8,760.00	9,548.40	12,000.00	\$5,884,000	25.7%	37.5%
Balance of steel	3,596	TONS	4,480.00	4,883.20	6,500.00	\$5,814,000	33.1%	28.7%
Concrete	10,268	CY	1,305.00	1,422.45	1,700.00	\$2,850,000	19.5%	23.9%
						\$14,548,000	28.8%	90.1%
Structure to Grade East Bath Tub								
Rock Excav - blast	29,754	CY	221.54	241.48	330.00	\$2,634,000	36.7%	6.2%
Rock Excav - non-blast	9,150	CY	444.29	484.28	450.00	(\$314,000)	-7.1%	3.8%
footings	2,334	CY	632.51	689.44	850.00	\$375,000	23.3%	1.4%
Slabs - on deck?	5,950	CY	1,057.98	1,153.20	1,500.00	\$2,063,000	30.1%	5.9%
Slabs - Formed?	20,802	CY	1,583.82	1,726.36	2,000.00	\$5,692,000	15.9%	30.9%
Concrete walls/columns	4,502	CY	2,156.80	2,350.91	2,350.00	(\$4,000)	0.0%	9.1%
Structural steel	2,076	TONS	6,698.65	7,301.53	6,500.00	(\$1,664,000)	-11.0%	13.0%
						\$8,782,000	11.7%	70.3%
Structure to Grade West Bath Tub								
track bed footings	1,595	CY	460.49	501.94	850.00	\$555,000	69.3%	0.3%
CP utility tunnel complete	1,743	CY	977.82	1,065.82	1,500.00	\$757,000	40.7%	0.8%
foundation concrete balance	3,983	CY	1,017.99	1,109.61	1,000.00	(\$437,000)	-9.9%	1.9%
superstructure concrete total	30,067	CY	1,593.62	1,737.05	1,750.00	\$389,000	0.7%	22.3%
steel - box girder (incl erection steel)	1,982	TONS	12,192.41	13,289.73	12,000.00	(\$2,556,000)	-9.7%	11.2%
steel - verendeel trusses (incl erection steel)	1,672	TONS	14,371.53	15,664.97	17,500.00	\$3,068,000	11.7%	11.2%
steel - arches (incl erection steel)	2,762	TONS	14,906.75	16,248.36	17,500.00	\$3,457,000	7.7%	19.2%
Steel - balance	3,362	TONS	7,897.80	8,608.61	7,500.00	(\$3,727,000)	-12.9%	12.4%
						\$1,506,000	0.9%	79.3%
Fitout - Architectural								
Painted Steel Floor Rail	2,168	LF	224.00	244.16	250.00	\$13,000	2.4%	0.7%
Painted metal cladding	16,801	SF	46.00	50.14	75.00	\$418,000	49.6%	1.1%
Demountable acoustic metal panels	60,600	SF	40.00	43.60	50.00	\$388,000	14.7%	3.4%
Masonry Walls	177,960	SF	26.00	28.34	45.00	\$2,965,000	58.8%	6.5%
Storefronts	8,206	SF	97.00	105.73	225.00	\$979,000	112.8%	1.1%
Glass railing	6,619	LF	406.00	442.54	550.00	\$711,000	24.3%	3.8%
GWB partitions (Incrated soffits & duct enclosures)	470,672	SF	11.00	11.99	16.00	\$1,887,000	33.4%	7.2%
GWB ceilings	51,055	SF	12.78	13.93	15.00	\$55,000	7.7%	0.9%
ACT ceilings	18,718	SF	6.20	6.76	10.00	\$61,000	48.0%	0.2%
Metal panel ceiling	167,058	SF	40.38	44.01	50.00	\$1,000,000	13.6%	9.4%
Seamless flooring	84,010	SF	3.78	4.12	9.00	\$410,000	118.4%	0.4%
						\$8,887,000	35.8%	34.6%
Fitout mechanical								
Fire protection								
Sprinkler heads	5,146	EA	392.06	427.28	600.00	\$889,000	40.4%	8.9%
						\$889,000	44.1%	8.9%
Plumbing - No significant differences								
HVAC								
Ductwork	2,024,638	LBS	9.66	10.53	11.00	\$953,000	4.5%	22.1%
CHW/HW Piping 16"	280	LF	324.72	353.94	340.00	(\$4,000)	-3.9%	0.1%
CHW/HW Piping 10"	880	LF	185.71	202.42	206.00	\$3,000	1.8%	0.2%
CHW/HW Piping 8"	915	LF	144.93	157.97	171.00	\$12,000	8.2%	0.1%
CHW/HW Piping 6"	9,720	LF	108.74	118.53	130.00	\$112,000	9.7%	1.2%
CHW/HW Piping 4"	6,879	LF	67.37	73.43	95.00	\$148,000	29.4%	0.5%
CHW/HW Piping 3"	7,456	LF	57.87	62.86	86.00	\$173,000	36.8%	0.5%
CHW/HW Piping 2-1/2"	5,648	LF	52.73	57.48	85.00	\$155,000	47.9%	0.3%
CHW/HW Piping 2"	8,862	LF	35.80	39.02	79.00	\$354,000	102.4%	0.4%
CHW/HW Piping 1-1/2"	14,512	LF	27.12	29.56	73.00	\$630,000	146.9%	0.4%
CHW/HW Piping 1"	2,027	LF	19.32	21.06	62.00	\$83,000	194.4%	0.0%
Fuel oil Piping 6"	1,130	LF	108.74	118.53	130.00	\$13,000	9.7%	0.1%
Fuel oil Piping 4"	1,130	LF	67.37	73.43	95.00	\$24,000	29.4%	0.1%
Fuel oil Piping 3"	1,463	LF	57.67	62.86	86.00	\$34,000	36.8%	0.1%
Fuel oil Piping 2-1/2"	452	LF	52.73	57.48	85.00	\$12,000	47.9%	0.0%
Fuel oil Piping 2"	1,082	LF	35.80	39.02	79.00	\$43,000	102.4%	0.0%
						\$2,745,000	11.8%	26.3%
Fitout Electrical								
6" RGS conduit	3,900	LF	211.00	229.99	347.27	\$457,000	51.0%	1.0%
5" RGS conduit	34,000	LF	104.57	113.98	190.00	\$2,585,000	66.7%	4.4%
4", 3", 2 1/2", 2", 1 1/2", 1 1/4", 1", 3/4" RGS Conduit	232,895	LF	80.62	87.88	85.33	(\$592,000)	-2.9%	23.2%
500KCMIL wire	245,180	LF	19.90	21.69	26.00	\$1,056,000	19.9%	6.0%
						\$3,506,000	12.5%	34.6%
OTHER ISSUES						Direct Work	Total	
Oculus DEDUCT in current 50% Estimate						\$68,000,000		\$142,800,000
Fireproofing?								
Premiums associated with architectural details?								
Premiums associated with perceived PA/WTC site restrictions?								
Escalation?								
Logistics/Hoisting/Protection?								

WTC Transportation Hub Estimate Review - Hub Group

New York, New York

VE Summary 8/18/08, revised 9/10/08

	DDP Unit Price	ICCo Unit Price	Project Cost DDP Total	Project Cost ICCo Total
Fix the Oculus, No movement			(\$45,712,000)	(\$82,374,000)
Reduce Oculus size by 25%			(\$50,151,000)	(\$114,783,000)
Eliminate Skylight			(\$6,779,000)	(\$13,139,000)
Eliminate Hanging Structure			(\$7,523,000)	(\$18,806,000)
Reduce # of Ribs only	w/Reduced Size	w/Reduced Size		
Shorten Ribs (Rafters)	w/Reduced Size	w/Reduced Size		
Add columns under the 1 Line Box			(\$36,504,000)	(\$45,878,000)
Add columns to roof structure over west bathtub Option 8.1 (Keep existing PATH Structure)			(\$162,304,000)	(\$178,023,000)
Relocate West Fan Room			(\$25,670,000)	(\$25,670,000)

MAXIMUM SAVINGS WITH ALL OPTIONS

(\$334,643,000) (\$478,673,000)

WTC Transportation Hub Estimate Review - Hub Group

New York, New York
VE Summary 8/18/08, revised 9/10/08

				DDP		ICCG		Project Cost		Project Cost	
				Unit Price	Unit Price	Unit Price	Unit Price	DDP Total	ICCG Total	DDP Direct Work	ICCG Direct Work
delete verandeel trusses	(1,672)	TONS	\$15,000.00	\$17,500.00	\$ (26,083.000)	\$ (29,260.000)					
delete arches	(2,762)	TONS	\$16,250.00	\$17,500.00	\$ (44,863.000)	\$ (46,335.000)					
add new roof structure	56,000	SF	\$298.00	\$298.00	\$16,688.000	\$16,688.000					
delete demo	1	LS	\$4,000,000.00	\$4,000,000.00	\$ (4,000.000)	\$ (4,000.000)					
Floodout upper Mezz floor	1	LS	\$4,000,000.00	\$4,000,000.00	\$ (4,000.000)	\$ (4,000.000)					
Delete Track Platform Structure											
delete partial new Foundations	1	LS	\$3,000,000.00	\$3,000,000.00	\$ (3,000.000)	\$ (3,000.000)					
delete Platform Conc Walls	1	LS	\$6,670,000.00	\$6,670,000.00	\$ (6,670.000)	\$ (6,670.000)					
delete Platform Conc Slabs	1	LS	\$5,240,000.00	\$5,240,000.00	\$ (5,240.000)	\$ (5,240.000)					
Delete platform Precast	1	LS	\$6,500,000.00	\$6,500,000.00	\$ (6,500.000)	\$ (6,500.000)					
reduce balance of steel (30%)	(1,009)	TONS	\$8,608.00	\$7,500.00	\$ (6,682.000)	\$ (7,585.000)					
MEP Phasing reductions	1	LS	\$4,000,000.00	\$4,000,000.00	\$ (4,000.000)	\$ (4,000.000)					
Encase Columns	56,000	SF	\$63.00	\$63.00	\$3,528.000	\$3,528.000					
Lower Roof/MER Slab	56,000	SF	\$117.00	\$117.00	\$6,552.000	\$6,552.000					
Add Bracing	56,000	SF	\$13.00	\$13.00	\$728.000	\$728.000					
Raise Mezz Slab	56,000	SF	\$34.00	\$34.00	\$1,904.000	\$1,904.000					
Add BI Ductwork for Smoke Exhaust	240,120	LBS	\$15.00	\$15.00	\$3,602.000	\$3,602.000					
Insulation	36,000	SF	\$20.00	\$20.00	\$720.000	\$720.000					
Relocate A Platform at Track Level	1	ALLOW	\$25,000.00	\$25,000.00	\$5,000.000	\$5,000.000					
Remove 5 columns at A Platform	1	ALLOW	\$1,000,000.00	\$1,000,000.00	\$1,000.000	\$1,000.000					
<hr/>											
Add columns to roof structure over west bathiub Option 8.1 (Keep existing PATH Structure)											
Relocate West Fan Room											
Relocate west fan room	1	LS	\$14,503,000.00	\$14,503,000.00	\$ (14,503.000)	\$ (14,503.000)					
Delete Concrete ducts to west fan room											
Relocate West Fan Room											
<hr/>											
MAXIMUM SAVINGS WITH ALL OPTIONS											

MAXIMUM SAVINGS WITH ALL OPTIONS

(\$163,238,000)

(\$334,643,000)

(\$478,673,000)

Turner Construction Company

Relocate West Fan Room

New York, New York

Conceptual Assessment 9-10-08

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<u>BUILDING SYSTEM</u>	<u>CURRENT SYSTEM TOTALS</u>	<u>62,000 GSF \$/SF</u>
EXCAVATIONS AND FOUNDATIONS	(\$8,508,200)	(\$137.23)
STRUCTURAL FRAME	(\$12,139,000)	(\$195.79)
ROOFING AND WATERPROOFING	\$0	\$0.00
EXTERIOR WALL	\$0	\$0.00
INTERIOR PARTITIONS & FINISHES	\$3,720,000	\$60.00
SPECIALTIES	\$0	\$0.00
EQUIPMENT & FURNISHINGS	\$0	\$0.00
VERTICAL TRANSPORTATION	\$0	\$0.00
PLUMBING	\$0	\$0.00
FIRE PROTECTION	\$0	\$0.00
H.V.A.C.	\$2,423,400	\$39.09
ELECTRICAL	\$0	\$0.00
SUBTOTAL:	(\$14,503,800)	(\$233.93)
SITE WORK	\$0	\$0.00
DEMOLITION & JOINING	\$0	\$0.00
HOISTING & PUBLIC PROTECTION	\$0	\$0.00
TOTAL: DIRECT COST	(\$14,503,800)	(\$233.93)

Relocate West Fan Room

New York, New York

Conceptual Assessment 9-10-08

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Ranking	BUILDING SYSTEM	Quantity	Unit	Unit Cost	Estimate	Intermediate Totals	CURRENT SYSTEM TOTALS
1	EXCAVATIONS AND FOUNDATIONS						
2							
3	Earthwork						
4							
5	Delete Fan Room - stop excavation at Elev +237 (car parking)						
6	Rock Excavation	(18,235)	CY	\$400.00	(\$7,294,100)		
7	Line drill, etc		Included		\$0		
8	Delete Pipe Tunnel - stop excavation at Elev +237 (car parking)						
9	Rock Excavation	(1,129)	CY	\$400.00	(\$451,800)		
10	Line drill, etc		Included		\$0		
11	Subtotal: Earthwork					(\$7,745,900)	
12							
13	Foundations						
14			No Change		\$0		
15					\$0		
16					\$0		
17					\$0		
18							
19	Subtotal: Foundations					\$0	
20							
21	Basement Walls						
22	Delete Foundation Walls at Fan Rm	(296)	CY	\$1,500.00	(\$444,700)		
23	Delete Foundation Walls at Pipe Tunnel	(212)	CY	\$1,500.00	(\$317,600)		
24	Subtotal: Basement Walls					(\$762,300)	
25							
26	Pits						
27					\$0		
28	Subtotal: Pits					\$0	
29							
30	Slab-On-Grade						
31			w/elev 237				
32					\$0		
33							
34	Subtotal: Slab-On-Grade					\$0	
35							
36	Waterproofing						
37					\$0		
38	Subtotal: Waterproofing					\$0	
39							
40	EXCAVATIONS AND FOUNDATIONS						(\$8,508,200)
41							
42	STRUCTURAL FRAME						
43	Deck and Deck Fill						
44							
45	Delete OA Shaft to Tower 3				\$0		
46	Horizontal duct		w/HVAC		\$0		
47	Vertical Conc Duct	(603)	CY	\$2,000.00	(\$1,206,700)		
48	Shaft Liner		w/HVAC		\$0		
49	Delete SX Shaft to Tower 4				\$0		
50	Horizontal duct	(369)	CY	\$2,000.00	(\$738,500)		
51	Vertical Conc Duct	(188)	CY	\$2,000.00	(\$376,500)		
52	Shaft Liner		N/A		\$0		
53	Delete Spill Air Shaft to Tower 2				\$0		
54	Horizontal duct	(204)	CY	\$2,000.00	(\$407,800)		
55	Vertical Conc Duct (2 sides only)	(309)	CY	\$2,000.00	(\$617,600)		
56	Shaft Liner		N/A		\$0		
57	Delete Supply & rtn ducts to Train Hall				\$0		
58	Horizontal supply duct	(235)	CY	\$2,000.00	(\$470,600)		
59	Horizontal return duct	(122)	CY	\$2,000.00	(\$244,700)		
60	Vertical Conc Duct	(147)	CY	\$3,000.00	(\$440,000)		
61	Shaft Liner		N/A		\$0		
62	Delete Horizontal ducts in train Hall				\$0		
63	Supply Ducts	(267)	CY	\$15,000.00	(\$4,011,800)		

Turner Construction Company

Relocate West Fan Room

New York, New York

Conceptual Assessment 9-10-08

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<u>Ranking</u>	<u>BUILDING SYSTEM</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Estimate</u>	<u>Intermediate Totals</u>	<u>CURRENT SYSTEM TOTALS</u>
64	exhaust Ducts	(486)	CY	\$15,000.00	(\$7,294,100)		
65	Add Back supply & exhaust duct in Train Hall				\$0		
66	Supply Ducts Galv at 600LF 98x60	42,000	LBS	\$12.50	\$525,000		
67	Insulation	17,000	SF	\$4.00	\$68,000		
68	Exh duct 10ga Black Iron	166,750	LBS	\$15.00	\$2,501,300		
69	Cal Sil Insulation	28,750	SF	\$20.00	\$575,000		
70							
71	Subtotal: Deck and Deck Fill					(\$12,139,000)	
72							
73	Columns, Girders, and Beams						
74					\$0		
75					\$0		
76					\$0		
77					\$0		
78							
79							
80	Subtotal: Columns, Girders, and Beams					\$0	
81							
82	Fireproofing						
83					\$0		
84							
85	Subtotal: Fireproofing					\$0	
86							
87	STRUCTURAL FRAME						(\$12,139,000)
88							
125	ROOFING AND WATERPROOFING						\$0
126							
180	EXTERIOR WALL						\$0
181							
182	INTERIOR PARTITIONS & FINISHES						
183	Partitions						
184					\$0		
185					\$0		
186					\$0		
187					\$0		
188							
189	Subtotal: Partitions					\$0	
190							
227							
228	Ornamental Iron						
229					\$0		
230							
231	Subtotal: Ornamental Iron					\$0	
232							
233	Stairs						
234					\$0		
235					\$0		
236	Subtotal: Stairs					\$0	
237							
238	Premiums						
239	Fitout Allowance for new space at elev 237	62,000	SF	\$60.00	\$3,720,000		
240							
241	Subtotal: Premiums					\$3,720,000	
242							
243	INTERIOR PARTITIONS & FINISHES						\$3,720,000
244							
269	SPECIALTIES						\$0
270							
293	EQUIPMENT & FURNISHINGS						\$0
294							
313	VERTICAL TRANSPORTATION						\$0
314							
344	PLUMBING						\$0

Turner Construction Company

Relocate West Fan Room

New York, New York

Conceptual Assessment 9-10-08

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Ranking	BUILDING SYSTEM	Quantity	Unit	Unit Cost	Estimate	Intermediate Totals	CURRENT SYSTEM TOTALS
345							\$0
351	FIRE PROTECTION						
352							
353	H.V.A.C.						
354	HVAC						
355					\$0		
356	Delete OA Shaft to Tower 3				\$0		
357	Horizontal duct	(16,000)	LBS	\$11.00	(\$176,000)		
358	Insulation	(6,600)	SF	\$3.00	(\$19,800)		
359	Vertical Conc Duct					w/struct	
360	Shaft Liner(20ga, 2" insulated)	(15,386)	SF	\$15.00	(\$230,800)		
361	Delete SX Shaft to Tower 4				\$0		
362	Horizontal duct					w/struct	
363	Vertical Conc Duct					w/struct	
364	Shaft Liner				\$0		
365	Delete Spill Air Shaft to Tower 2				\$0		
366	Horizontal duct					w/struct	
367	Vertical Conc Duct (2 sides only)					w/struct	
368	Shaft Liner				\$0		
369	Delete Supply & rtn ducts to Train Hall				\$0		
370	Horizontal supply duct					w/struct	
371	Horizontal return duct					w/struct	
372	Vertical Conc Duct				\$0		
373	Shaft Liner				\$0		
374	Add SX Fans	190,000	CFM	\$15.00	\$2,850,000		
375							
376							
377							
378	Subtotal: HVAC					\$2,423,400	
379							
380	H.V.A.C.						\$2,423,400
381							
438	ELECTRICAL						\$0
439							
440	SUBTOTAL:						(\$14,503,800)
441							
485	SITE WORK						\$0
486							
502	DEMOLITION & JOINING						\$0
503							
514	HOISTING & PUBLIC PROTECTION						\$0
515							
516							
517	TOTAL: DIRECT COST				(\$14,503,800)	(\$14,503,800)	(\$14,503,800)
518							



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
A0100100	Completion of Hub Oculus 50 Percentile	0		31DEC14*
A0100110	Completion of Hub Oculus 90 Percentile	0		31JUL15*
Baseline HUB Scheme				
A020100	East Bathtube Demo @ Hub (Started May 08)	9	01SEP08*	31MAY09
A020110	Excavation of Rock MEP Area	4	01JUN09	30SEP09
A020120	Struc Build out of MEP Area	9	01JAN10	30SEP10
A020140	Car Park Level @ Grade	6	01FEB10	31JUL10
A020130	Set & Install MEP Equipment	12	01JUL10	30JUN11
A020150	Struc @ Bus Level 256	7	01AUG10	28FEB11
A020160	Struc @ 274 Level	9	01MAR11	30NOV11
A020170	Struc to 296 Level	6	01DEC11	31MAY12
A020180	Build East West Arch Girders	4	01JAN12	30APR12
A020190	Struc Mezz @ 306	3	01MAR12	31MAY12
A020210	Build Oculus to H2O Tight	16	01MAR12	30JUN13
A020200	Plaza Level	2	01MAY12	30JUN12
A020220	Complete Finishes in Oculus	15	01OCT12	31DEC13
A020230	Construct Plaza	5	01AUG13	31DEC13
SIMPLIFIED OCULUS				
A1001210	Review and Decide	3	01OCT08*	31DEC08
A1001220	Redesign	8	01JAN09	31AUG09
A1001230	Bid & Award Structure	3	01APR09	30JUN09
A1001000	Excavate to Subgrade @ Elev 240'	0		31MAY09*
A1001010	Excavate/FRP Figs	2	01JUL09	31AUG09
A1001020	FRP Slab @ 252	5	01SEP09	31JAN10
A1001030	FRP Slab @ 274	5	01JAN10	31MAY10
A1001150	RP Concrete Slab 242	5	01APR10	31AUG10
A1001040	FRP Slab @ 296	5	01MAY10	30SEP10
A1001170	Install MEP Systems	20	01JUN10	31JAN12
A1001050	FRP Slab @ 306	5	01SEP10	31JAN11
A1001190	Interior Finishes	23	01OCT10	31AUG12
A1001060	FRP Plaza Struc Slab	7	01JAN11	31JUL11
A1001180	Install Vertical Transportation Systems	12	01JUN11	31MAY12
A1001070	Erect Oculus Rib Shoring Frame	1	01JUL11	31JUL11
A1001240	Plaza Structure West Bath tub Complete	0		31JUL11
A1001080	Erect Oculus Ribs	2	01AUG11	30SEP11
A1001090	Finalize Connections	2	01SEP11	31OCT11
A1001130	Install Upper Wings	1	01NOV11	30NOV11
A1001160	Install Plaza	15	01NOV11	31JAN13
A1001140	Finalize Upper Wing Connections	1	01DEC11	31DEC11
A1001100	Install Horizontals	2	01JAN12	29FEB12
A1001110	Install Glass	2	01FEB12	31MAR12
A1001120	Final Seals	2	01MAR12	30APR12
A1001200	Oculus Open to Public	0		30JUN12

Start Date: 01SEP08
 Finish Date: 31JUL15
 Data Date: 01SEP08
 Run Date: 18SEP08 15:59

Legend:
 Early Bar: Green
 Progress Bar: Blue
 Critical Activity: Red

Sheet 1 of 2
 HUBB
 Turner Construction Company
 Hub and 1-Line Special Studies
 Classic Schedule Layout

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Date	Revision	Checked	Approved



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
A0100100	Completion of Hub Oculus 50 Percentile	0		31DEC14*
A0100110	Completion of Hub Oculus 90 Percentile	0		31JUL15*
Baseline HUB Scheme				
A020100	East Bathtube Demo @ Hub (Started May 08)	9	01SEP08*	31MAY09
A020110	Excavation of Rock MEP Area	4	01JUN09	30SEP09
A020120	Struc Build out of MEP Area	9	01JAN10	30SEP10
A020140	Car Park Level @ Grade	6	01FEB10	31JUL10
A020130	Set & Install MEP Equipment	12	01JUL10	30JUN11
A020150	Struc @ Bus Level 256	7	01AUG10	28FEB11
A020160	Struc @ 274 Level	9	01MAR11	30NOV11
A020170	Struc to 296 Level	6	01DEC11	31MAY12
A020180	Build East West Arch Girders	4	01JAN12	30APR12
A020190	Struc Mezz @ 306	3	01MAR12	31MAY12
A020210	Build Oculus to H2O Tight	16	01MAR12	30JUN13
A020200	Plaza Level	2	01MAY12	30JUN12
A020220	Complete Finishes in Oculus	15	01OCT12	31DEC13
A020230	Construct Plaza	5	01AUG13	31DEC13
SIMPLIFIED OCULUS				
A1001210	Review and Decide	3	01OCT08*	31DEC08
A1001220	Redesign	8	01JAN09	31AUG09
A1001230	Bid & Award Structure	3	01APR09	30JUN09
A1001000	Excavate to Subgrade @ Elev 240'	0		31MAY09*
A1001010	Excavate/FRP Figs	2	01JUL09	31AUG09
A1001020	FRP Slab @ 252	5	01SEP09	31JAN10
A1001030	FRP Slab @ 274	5	01JAN10	31MAY10
A1001150	RP Concrete Slab 242	5	01APR10	31AUG10
A1001040	FRP Slab @ 296	5	01MAY10	30SEP10
A1001170	Install MEP Systems	20	01JUN10	31JAN12
A1001050	FRP Slab @ 306	5	01SEP10	31JAN11
A1001190	Interior Finishes	23	01OCT10	31AUG12
A1001060	FRP Plaza Struc Slab	7	01JAN11	31JUL11
A1001180	Install Vertical Transportation Systems	12	01JUN11	31MAY12
A1001070	Erect Oculus Rib Shoring Frame	1	01JUL11	31JUL11
A1001240	Plaza Structure West Bath tub Complete	0		31JUL11
A1001080	Erect Oculus Ribs	2	01AUG11	30SEP11
A1001090	Finalize Connections	2	01SEP11	31OCT11
A1001130	Install Upper Wings	1	01NOV11	30NOV11
A1001160	Install Plaza	15	01NOV11	31JAN13
A1001140	Finalize Upper Wing Connections	1	01DEC11	31DEC11
A1001100	Install Horizontals	2	01JAN12	29FEB12
A1001110	Install Glass	2	01FEB12	31MAR12
A1001120	Final Seals	2	01MAR12	30APR12
A1001200	Oculus Open to Public	0		30JUN12

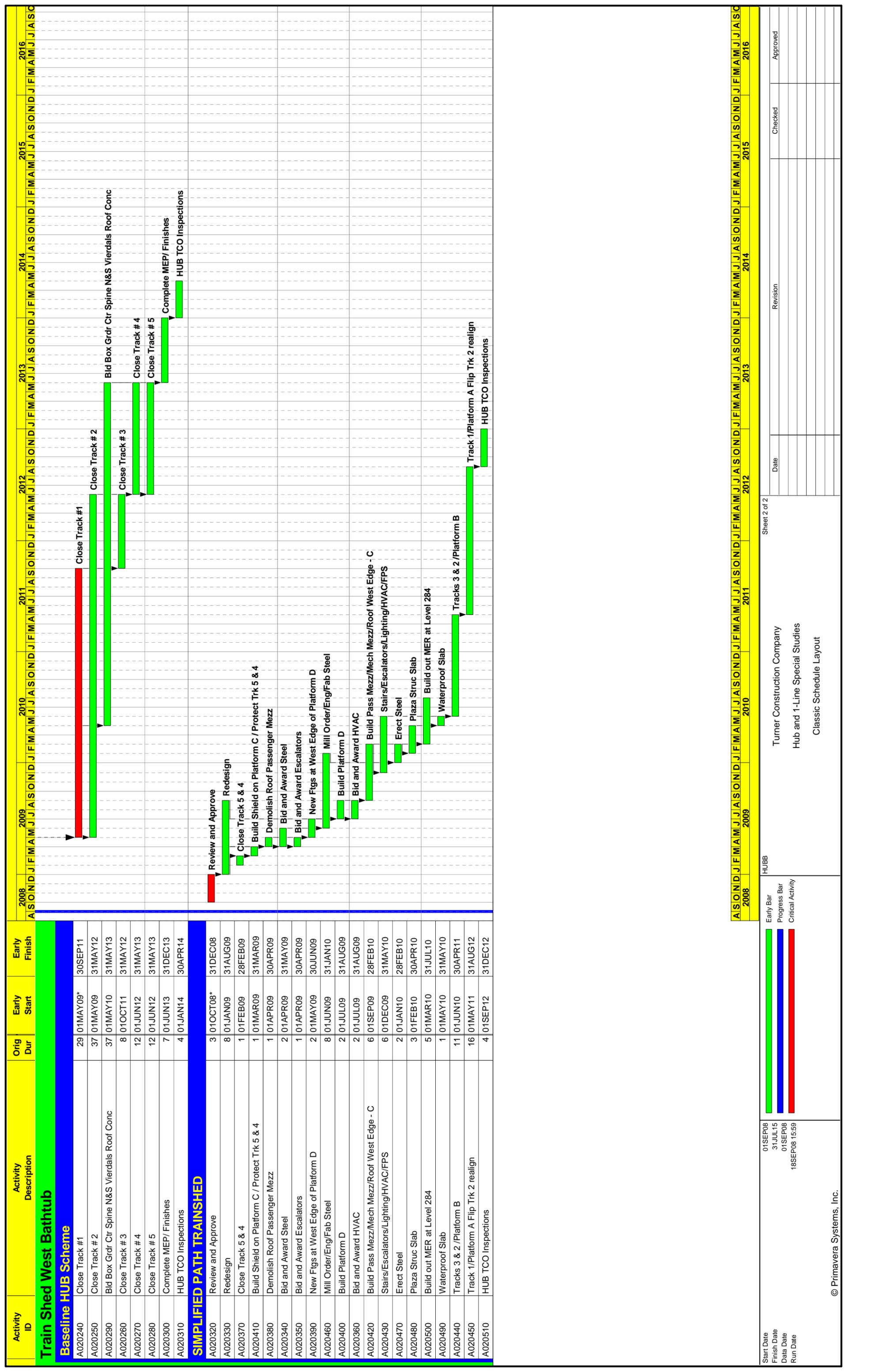
Start Date: 01SEP08
 Finish Date: 31JUL15
 Data Date: 01SEP08
 Run Date: 18SEP08 15:59

Legend:
 Early Bar: Green
 Progress Bar: Blue
 Critical Activity: Red

Sheet 1 of 2
 HUBB
 Turner Construction Company
 Hub and 1-Line Special Studies
 Classic Schedule Layout

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Date	Revision	Checked	Approved



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
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Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
A020240	Close Track #1	29	01MAY09*	30SEP11
A020250	Close Track #2	37	01MAY09	31MAY12
A020290	Bld Box Grdr Ctr Spine N&S Vierdals Roof Conc	37	01MAY10	31MAY13
A020260	Close Track #3	8	01OCT11	31MAY12
A020270	Close Track #4	12	01JUN12	31MAY13
A020280	Close Track #5	12	01JUN12	31MAY13
A020300	Complete MEP/ Finishes	7	01JUN13	31DEC13
A020310	HUB TCO Inspections	4	01JAN14	30APR14
SIMPLIFIED PATH TRAINSHED				
A020320	Review and Approve	3	01OCT08*	31DEC08
A020330	Redesign	8	01JAN09	31AUG09
A020370	Close Track 5 & 4	1	01FEB09	28FEB09
A020410	Build Shield on Platform C / Protect Trk 5 & 4	1	01MAR09	31MAR09
A020380	Demolish Roof Passenger Mezz	1	01APR09	30APR09
A020340	Bid and Award Steel	2	01APR09	31MAY09
A020350	Bid and Award Escalators	1	01APR09	30APR09
A020390	New Figs at West Edge of Platform D	2	01MAY09	30JUN09
A020460	Mill Order/Eng/Fab Steel	8	01JUN09	31JAN10
A020400	Build Platform D	2	01JUL09	31AUG09
A020360	Bid and Award HVAC	2	01JUL09	31AUG09
A020420	Build Pass Mezz/Mech Mezz/Roof West Edge - C	6	01SEP09	28FEB10
A020430	Stairs/Escalators/Lighting/HVAC/FPS	6	01DEC09	31MAY10
A020470	Erect Steel	2	01JAN10	28FEB10
A020480	Plaza Struc Slab	3	01FEB10	30APR10
A020500	Build out MER at Level 284	5	01MAR10	31JUL10
A020490	Waterproof Slab	1	01MAY10	31MAY10
A020440	Tracks 3 & 2 /Platform B	11	01JUN10	30APR11
A020450	Track 1/Platform A Flip Trk 2 realign	16	01MAY11	31AUG12
A020510	HUB TCO Inspections	4	01SEP12	31DEC12

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
Train Shed West Bathub				
Baseline HUB Scheme				
SIMPLIFIED PATH TRAINSHED				
A020320	Review and Approve	3	01OCT08*	31DEC08
A020330	Redesign	8	01JAN09	31AUG09
A020370	Close Track 5 & 4	1	01FEB09	28FEB09
A020410	Build Shield on Platform C / Protect Trk 5 & 4	1	01MAR09	31MAR09
A020380	Demolish Roof Passenger Mezz	1	01APR09	30APR09
A020340	Bid and Award Steel	2	01APR09	31MAY09
A020350	Bid and Award Escalators	1	01APR09	30APR09
A020390	New Figs at West Edge of Platform D	2	01MAY09	30JUN09
A020460	Mill Order/Eng/Fab Steel	8	01JUN09	31JAN10
A020400	Build Platform D	2	01JUL09	31AUG09
A020360	Bid and Award HVAC	2	01JUL09	31AUG09
A020420	Build Pass Mezz/Mech Mezz/Roof West Edge - C	6	01SEP09	28FEB10
A020430	Stairs/Escalators/Lighting/HVAC/FPS	6	01DEC09	31MAY10
A020470	Erect Steel	2	01JAN10	28FEB10
A020480	Plaza Struc Slab	3	01FEB10	30APR10
A020500	Build out MER at Level 284	5	01MAR10	31JUL10
A020490	Waterproof Slab	1	01MAY10	31MAY10
A020440	Tracks 3 & 2 /Platform B	11	01JUN10	30APR11
A020450	Track 1/Platform A Flip Trk 2 realign	16	01MAY11	31AUG12
A020510	HUB TCO Inspections	4	01SEP12	31DEC12

VIII. RE-DESIGN EFFORT

A. ESTIMATED NUMBER OF DRAWINGS:

General:

▪ General Sheets & Indexes	5
▪ <u>General Notes, Overall & Geometry Plans</u>	<u>15</u>
	Total = 20

Civil:

▪ General Notes & Details	10
▪ Instrumentation	5
▪ <u>Overall & Geometry Plans</u>	<u>15</u>
	Total = 30

Architectural:

▪ Overall Sections	5
▪ Part Plans	50
▪ Ceiling Plans	50
▪ Partial Sections	15
▪ Exterior Elevations	20
▪ Interior Elevations	35
▪ Exterior Wall Sections & Enlarged Plans	40
▪ Exterior Wall Details	60
▪ Interior Sections & Details	35
▪ Elevator, Escalator & Stair Plans & Details	10
▪ Alteration Details	15
▪ Specialty Details	55
▪ Finishes Plans	50
▪ <u>Finishes Details</u>	<u>40</u>
	Total = 480

Structural:

▪ Structural Notes, Legend, Geometry	5
▪ Foundation/Footing Plans	10
▪ Framing Plans	60
▪ Partial Structural Sections	15
▪ Part Footing/Foundation Plans	10
▪ Bracing Elevations	5
▪ Brace Wall Sections	20
▪ Brace Wall Details	35
▪ Column & Brace Schedules	5
▪ Superstructure & Shear Wall Sections & Details	35
▪ Typical Foundation Details	25
▪ Typical Concrete Details	15
▪ Typical Steel Details	25
▪ Alteration Details	20
▪ <u>Miscellaneous Details</u>	<u>15</u>
	Total = 300

MEP:

▪ MEP Notes & Legends	5
▪ Part Plans	150
▪ Central Plant/Electrical Room Part Plans	15
▪ Schedules	30
▪ MEP Details	20
▪ One-Line Diagrams & Details	25
▪ Riser Diagrams	15
▪ Specialty Details (Stray Current, Phasing, etc.)	10
▪ <u>Customer Information Package</u>	<u>25</u>
	Total = 295

Electronic Security:

▪ Part Plans	40
▪ Exterior Elevations	5
▪ Interior Elevations	10
▪ <u>Interior Details</u>	<u>5</u>
	Total = 60

Signage:

▪ Part Plans	40
▪ Interior Elevations	5
▪ <u>Interior Details</u>	<u>5</u>
	Total = 50

Miscellaneous:

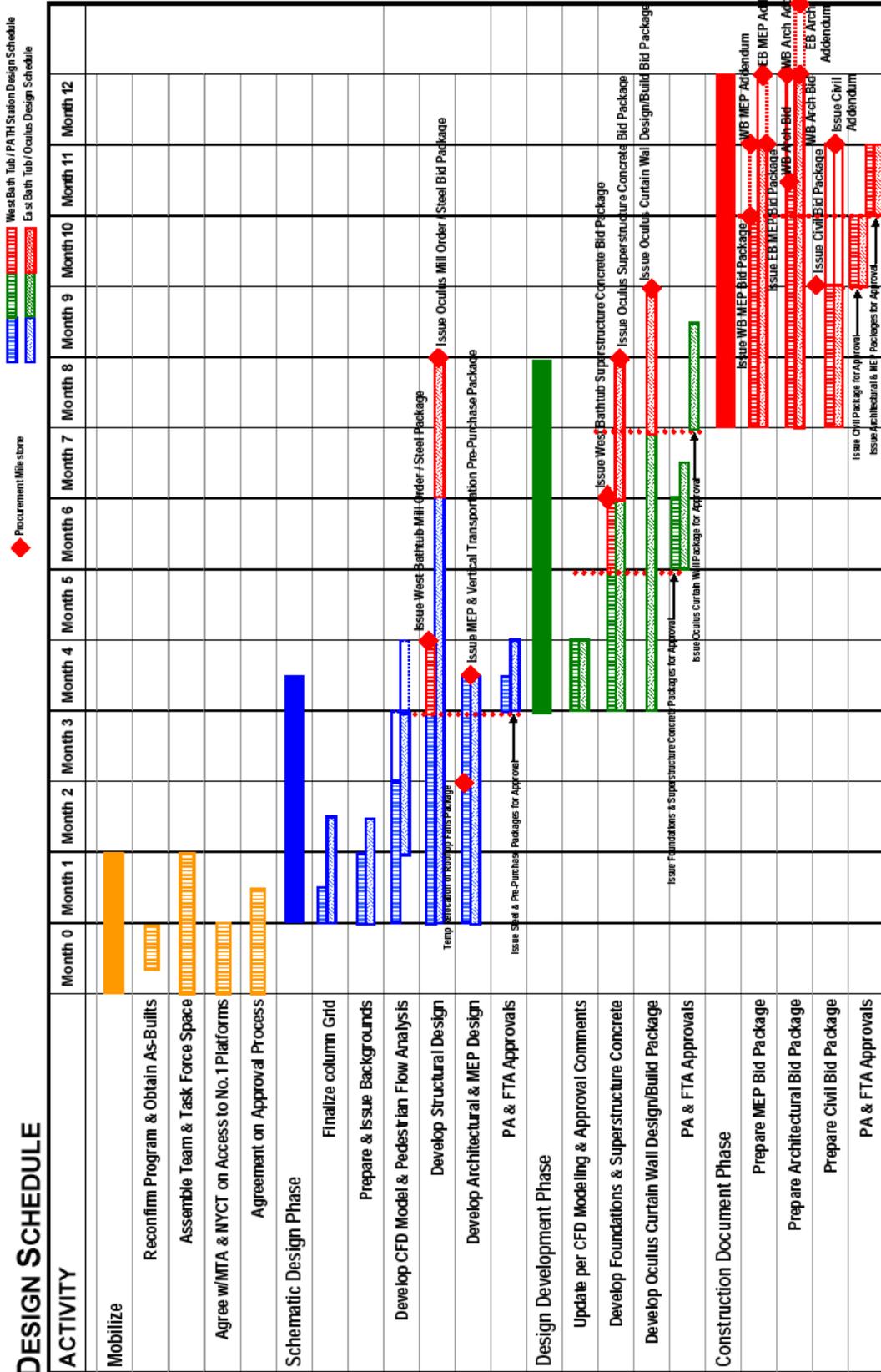
▪ Miscellaneous Specialty Plans	10
▪ Miscellaneous Specialty Details	10
▪ Miscellaneous Specialty Risers/Schedules	10
▪ Miscellaneous Elevations	10
▪ <u>Other</u>	<u>10</u>
	Total = 50

B. ESTIMATED EFFORT TO COMPLETE THE DOCUMENTS:

- **MANHOURS: 1285 SHEETS X 120 MANHOURS/SHEET**
= 154,200 MANHOURS
- 154,200 MANHOURS LESS 25% (FOR CONSTRUCTION PHASE SERVICES)
= 115,650 MANHOURS FOR DRAWINGS/DESIGN

- **80 PEOPLE OVER AN 8 MONTH DOCUMENTATION DURATION**
OR
- **60 PEOPLE OVER A 12 MONTH DOCUMENTATION DURATION**

C. DESIGN SCHEDULE



X. NEXT STEPS

- **DECIDE ON SCHEME**

Review the Hub Working Group Concept against the New DDP/Calatrava Concept, and the PA West Bathtub Concept. Schedule, Costs, Aesthetics, Functionality and other aspects of each Concept to be reviewed and advantages/disadvantages weighed against each other.

- **CONFIRM THE PROGRAM**

Confirm that all displaced, relocated, new, and obsolete Program requirements are accounted for in the Concept selected, or is accommodated and coordinated with adjacent projects. Confirm the new "Contract Limit" lines, and which aspect of the Concept(s) will be incorporated.

- **AGREE ON APPROVAL PROCESS**

Discuss and agree upon the Approval process, durations, milestones, and submissions, and confirm it against assumed durations noted in Design and Construction Schedules. The considerable portion of Schedule savings can be achieved through expediting the Approval Process.

- **ESTABLISH NEW GROUND RULES**

Identify streamlined communications, negotiated bid process, and other means to expedite the schedule.

- **OBTAIN AS-BUILT DOCUMENTATION**

Assemble documentation of existing elements currently under construction, both in terms of Design Documents, As-Built Conditions, and extent of work in place and Contracts purchased.

- **IDENTIFY SCOPE OF EARLY BID PACKAGE NECESSARY TO SUPPORT THE MEMORIAL COMPLETION SCHEDULE**

Identify early fast-track bid packages. Consider scope of work necessary to deliver the Memorial Project plaza structure on time.

- **ASSEMBLE TASK-FORCE SPACE FOR DESIGN & CONSTRUCTION TEAM**

Identify potential location(s) for Task Force work space, inform Design Team of strategy, procure Design services accordingly, and implement fit-out of space.

X. APPENDIX

**WTC DESIGN AND CONSTRUCTION ANALYSIS
WORKING GROUP: HUB**



**STEERING COMMITTEE PRESENTATION
JULY 29, 2008**

WORKING GROUP: HUB

CHALLENGES

- VERY COMPLEX BUILDING
- MAJOR IMPACT ON OTHER STAKEHOLDERS
- COMPLEXITY MEANS SCHEDULE, COST, RISK
- KEEP BASIC ABOVE GRADE DESIGN

ISSUES AND OPPORTUNITIES

- SIGNIFICANTLY REDUCE COST
- SHORTEN SCHEDULE, MINIMIZE IMPACT ON OTHER PROJECTS
- IMPROVE TRANSIT ACCESS
- REDUCE MAJOR ASPECTS OF RISK

WORKING GROUP: HUB

DESCRIPTION OF OPTIONS

OCULUS

- MAKE OCULUS 25% SMALLER
- FIX BENTS & WINGS, ELIMINATE ARCHES
- NO SKYLIGHT
- ELIMINATE HANGING STRUCTURE
- REDUCE THE NUMBER OF RIBS
- MAKE WINGS SHORTER
- MAKE WINGS STRUCTURALLY MORE EFFICIENT

ONE LINE BOX – ADD COLUMNS UNDER THE ONE LINE BOX AND ELIMINATE THE LARGE TRUSSES

WEST BATHTUB – SAVE EXISTING PLATFORMS AND REINFORCE AND EXTEND EXISTING COLUMNS TO SUPPORT PLAZA. SIMPLIFY ROOF STRUCTURE

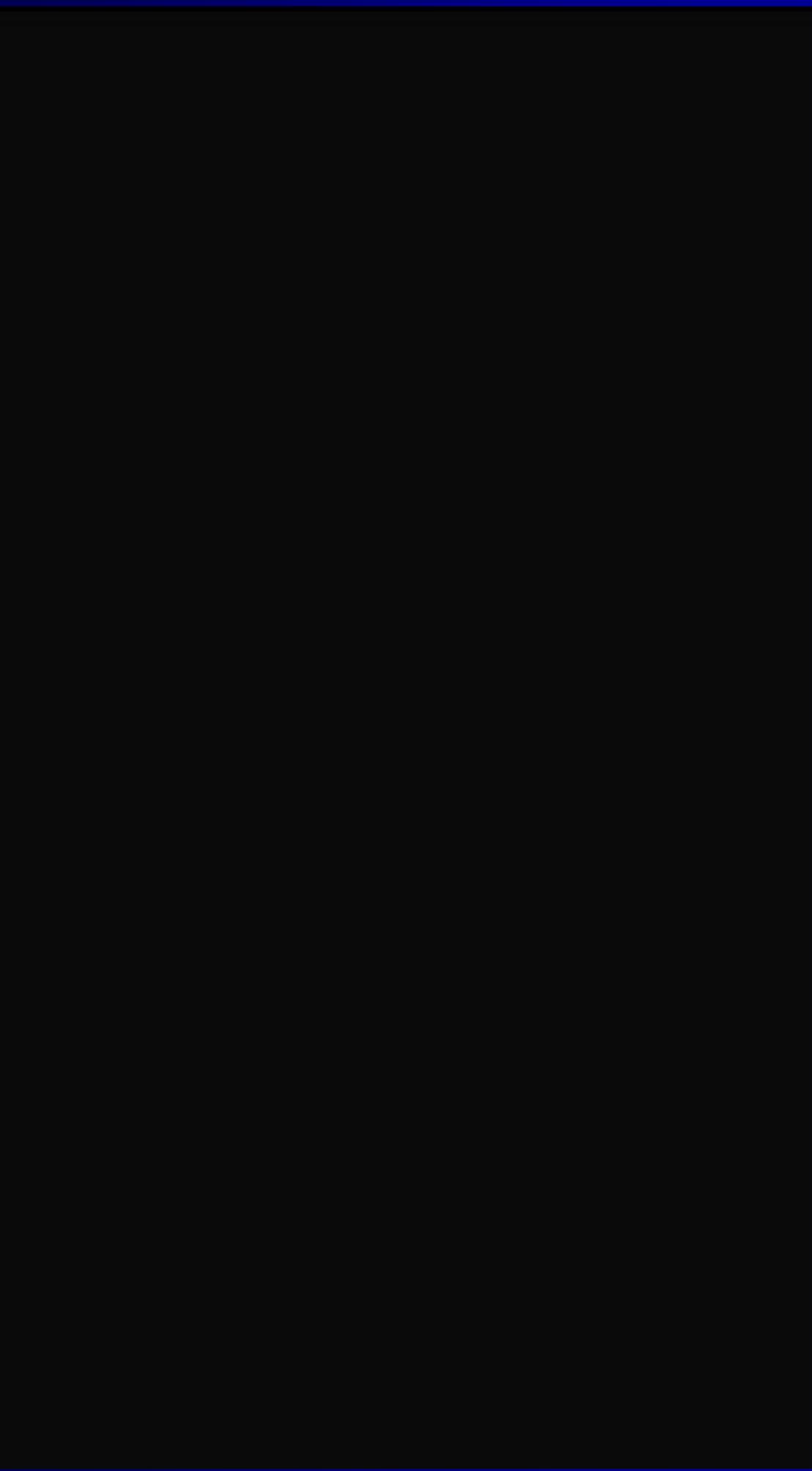
TRANSIT ACCESS – REDESIGN SUBWAY ACCESS AT EAST AND WEST ENDS OF THE OCULUS

MEP – ELIMINATE FAN PLANT IN EAST BATHTUB AND REDISTRIBUTE TO MORE EFFICIENT LOCATION. RETHINK MEP SYSTEMS

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

WORKING GROUP: HUB



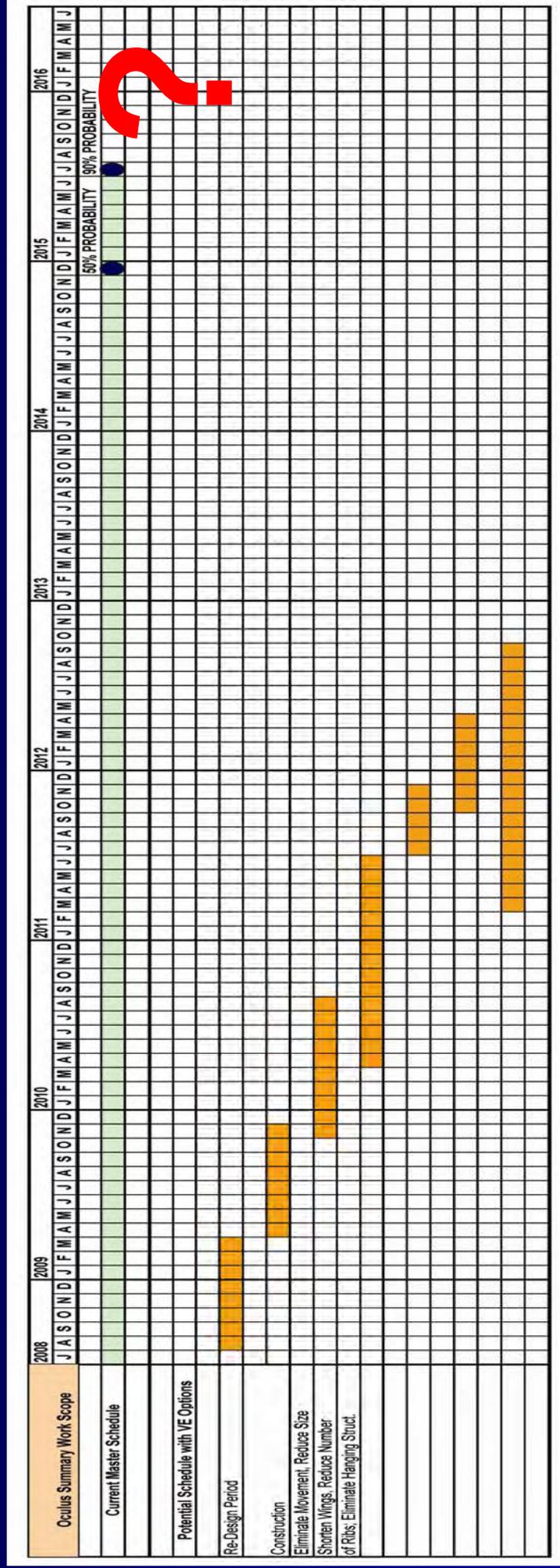
WORKING GROUP: HUB

IMPACTS

- COST SAVINGS - \$400-600 MILLION
- SCHEDULE REDUCTION – 12-24 MONTHS
POSITIVE IMPACT ON MEMORIAL AND GREENWICH STREET SCHEDULES
- RISK – SIMPLIFIED CONSTRUCTION SIGNIFICANTLY REDUCES RISK
- REDESIGN
- MODIFICATION OF SOME CURRENT DESIGN ASPECTS

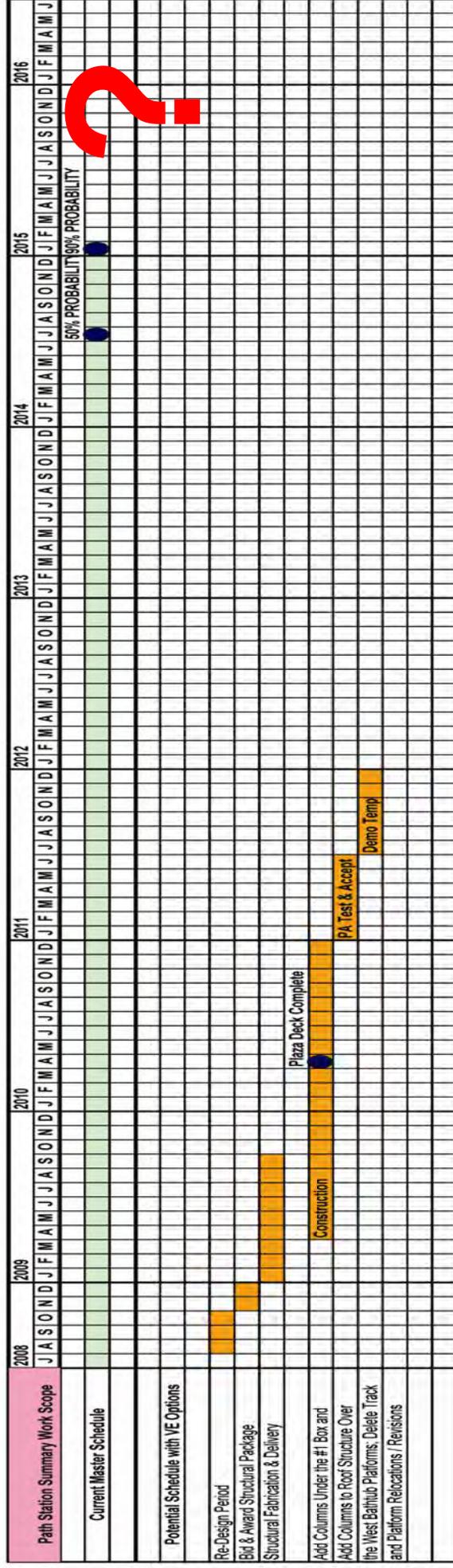
WORKING GROUP: HUB

OCULUS SCHEDULE



WORKING GROUP: HUB

PATH STATION SCHEDULE



WORKING GROUP: HUB

IMPLEMENTATION - THE ISSUE!

START ORGANIZATION/ PLANNING ACTIVITIES NOW

DON'T WAIT UNTIL SEPTEMBER 30

CHANGE THE APPROACH, OTHERWISE THE RESULTS WILL BE THE SAME

WORKING GROUP: HUB

REQUIRED FOLLOW-UP – HUB TEAM

- **FURTHER DEVELOPMENT OF CONCEPTS**
- **INVESTIGATE PLATFORM COLUMNS FOR REQUIRED REINFORCING, IF ANY**
- **DEVELOP MEANINGFUL COST ESTIMATE AND SCHEDULE**
- **INTEGRATE CONCEPTS WITH ADJACENT STAKEHOLDERS**
- **DEVELOP AN IMPLEMENTATION PLAN FOR THE ENTIRE PROJECT WHICH REFLECTS THE NEEDS OF ADJACENT STAKEHOLDERS**
- **CONTRIBUTE TO THE DEVELOPMENT OF CONSENSUS, CURRENT AND ACCURATE IMS**
- **FORM AN “IMPLEMENTATION” WORKING GROUP**

**WTC DESIGN AND CONSTRUCTION ANALYSIS
WORKING GROUP: HUB**



**STEERING COMMITTEE PRESENTATION
JULY 29, 2008**

**WTC DESIGN
&
CONSTRUCTION ANALYSIS**

HUB WORKING GROUP



**Drawings
and
Diagrams**

**Drawings
and
Diagrams**

as of

September 24, 2008

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

**Drawings
and
Diagrams**

as of

September 9, 2008

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

**Drawings
and
Diagrams**

as of

July 29, 2009

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

HUB WORKING GROUP/PA

JOINT SESSION

August 26, 2008

- **ACCOMMODATING 10 CAR TRAINS**
- **MECHANICAL SYSTEMS/SMOKE EXHAUST**
- **VERTICAL TRANSPORTATION**
- **PLATFORM LAYOUT**



September 2, 2008

To: WTC HUB WORKING GROUPS

cc: Attendees, David Tweedy, Steve Plate, Andy Winters, Joan Gerner, Lou Mendes, Mark Pagliettini, Janno Lieber, David Worsley, Serge Demerjian, Melissa Morea, Nate Matisoff

Re: World Trade Center
HUB Working Group
Meeting Minutes – August 26, 2008

Attendees

Richard Southwick/BBB
Dan Sesil/LERA
Doug Gonzalez/LERA
George Giaquinto/Westfield
Marc Pucci/Westfield
Gary Negrycz/Turner
Kevin Morin/CCI

Kelly Eaton/AKF
Virginia Borkoski/MTACC
Eric Pulido/AKF
Craig Goodall/Jacobs
Mickey Kupperman/SPI
Guy Punzi/SPI

On Tuesday, August 26, the HUB Working Group met at 7WTC. This was a design working session to address the issues raised the previous week by the PA engineering staff during discussions of the HUB Group concepts for the West Bath tub. A copy of the agenda is attached.

The four major issues that were raised by the PA were addressed as follows:

- o **Ten Car Trains** – Platforms will be extended to accommodate.
- o **Mechanical System/Smoke Exhaust** – A meeting was scheduled for Wednesday, August 27, 2008 at the PA with AKF to review mechanical design criteria and systems.
- o **Vertical Transportation** – To deal with this issue it was decided that the HUB scheme would simply duplicate the number of escalators and stairs shown on the PA/DDP layouts and locate them appropriately.
- o **Platform Layout** – It was decided to relocate platform A to give the same track/platform layout as shown on the DDP/PA scheme.

A meeting was scheduled for Friday, August 29, 2008 to review the further development of these concepts.

Mickey Kupperman

ks
Enclosure

WTC WORKING GROUPS
JOINT SCHEDULING MEETING

August 28, 2008

AGENDA

- **INTRODUCTION**

- **OBJECTIVES**

- **WORK TO DATE**

- **SCHEDULE AND STAFFING**

- **NEXT MEETING**



September 2, 2008

To: WTC HUB AND GREENWICH WORKING GROUPS

cc: Attendees, David Tweedy, Steve Plate, Andy Winters Josh Wallach, J. Kraus, Joan Gerner, Lou Mendes, Janno Lieber, David Worsley, Serge Demerjian, Craig Goodall

Re: World Trade Center
HUB Working Group
Meeting Minutes – August 28, 2008

Attendees

Don Free/PA Retail
Ray Sandiford/PA
John Kamocsai/PA
Robert Eisenstat/PA
Mark Pagliettini/PA
Joe Riopel/PA
Frank Lombardi/PA
Peter Rinaldi/PA
Jim Murphy/PA
Steve Plate/PA
Lennart Stenman/Phoenix
Damien McShane/PA
Tony Marino/PA
David Caruth/PA
Lou Mendes, NSEP11MM
Mark Pucci/Westfield
George Giaquinto/Westfield

Chris Zegler/Turner
Gary Negrycz/Turner
Luigi Morfea/Turner
Bob Prieto/Phoenix
Darrell Waters/Phoenix
Brian Peters/Phoenix
John Salpas/Phoenix
Walter Reichert/Phoenix
Jason Brown/Jacobs
Mike McLoughlin/PCJV
Dave Puza/MCSI/PA
Mickey Kupperman, SPI
Guy Punzi/SPI
Melissa Morea/SPI
Nate Matisoff/SPI

On Thursday, August 28, 2008, a joint meeting of the HUB and Greenwich Street working groups was held at 7WTC. A copy of the agenda is attached. The primary purpose of the meeting was to introduce Phoenix to the Working Group process and discuss progress to date.

The following is a summary of the discussion and decisions reached:

- The work to date by the HUB Working Group was described to Phoenix. Copies of the material used in the presentation were given to PA/Phoenix for further reference. The Phoenix group was already familiar with the PA concept for the West Bathtub as well as the recent DDP/Calatrava changes so no further briefing was necessary.
- The key staffing for the cost, schedule and logistics analyses for the various concepts was discussed. Attached to this memorandum is a matrix of the assignments for each of the tasks.

Meeting Minutes August 28, 2008

Page 2

September 2, 2008

- Darrell Waters of Phoenix said that they would have a first pass evaluation of the cost and schedule impacts for the various schemes by Friday, September 5th. Turner will also be ready with their input.
- All stakeholders were urged to give Dave Puza and Jim Murphy input/comments on the recently issued IMS40. In particular, the focus should be on linkages.
- Turner said they would respond by Tuesday. Actually, some SPI/Turner comments were forwarded late last week.
- Phoenix had not seen IMS40. The PA was going to get them the information by the end of the day.
- The PA was also going to get Turner a copy of the 9X estimate.
- It was confirmed that the baseline schedule and estimate is based on the unaltered Calatrava design, before the recent changes.
- Bob Prieto of Phoenix suggested doing a risk analysis to give senior management a better basis for making decisions. It was subsequently decided that LMCCC would do this work with a target completion date of Friday, September 12, 2008.

The next meeting of this joint group will be Friday, September 5, 2008, on the 38th floor at 7WTC. The meeting will convene at 8:00 a.m. and run until we finish. It could take 2-4 hours to review and discuss the budget and schedule updates for the various alternatives. There is also a HUB Working Group design meeting scheduled for Wednesday, September 3, 2008 at 3:00 p.m. at 7WTC, 38th floor.

Mickey Kupperman

ks

Enclosure

HUB WORKING GROUP

August 29, 2008

AGENDA

- **REVIEW STATUS OF PREVIOUSLY IDENTIFIED ISSUES:**
 - **PLATFORM LAYOUT**
 - **SPLICE CHAMBERS**
 - **COLUMNS ON “A” PLATFORM**
 - **TRACK GEOMETRY**
 - **PLATFORM LENGTH – 10 CAR TRAINS**
 - **SPACE UNDER THE PLATFORMS**
 - **UTILITY TUNNEL**
 - **VERTICAL TRANSPORTATION**
 - **MECHANICAL SYSTEMS/SMOKE EXHAUST**
 - **EGRESS MODELING**
- **INFORMATION UPDATE TO TURNER AND PHOENIX**
- **NEXT MEETING**



September 2, 2008

To: WTC HUB WORKING GROUPS

cc: Attendees, David Tweedy, Andy Winters, Joan Gerner, Lou Mendes, Craig Goodall, Rob Gibson, Janno Lieber, David Worsley, Serge Demerjian,

Re: World Trade Center
HUB Working Group
Meeting Minutes – August 29, 2008

Attendees

Tony Marino/PA
Ray Sandiford/PA
Dharam Pal/PA
Joe Riopel/PA
Frank Lombardi/PA
Peter Rinaldi/PA
Mark Pagliettini/PA
Donald Fram/PA
Robert Eisenstat/PA
Damian McShane/PA
David Caruth/PA
Doug Gonzalez/LERA
Dan Sesil/LERA
Gary Negrycz/Turner

Richard Southwick/BBB
Virginia Borkoski/MTACC
Kelly Eaton/AKF
Eric Pulido/AKF
Bob Prieto/Phoenix
Brian Peters/Phoenix
Lennart Stenman/Phoenix
Darrell Waters/Phoenix
Mickey Kupperman/SPI
Guy Punzi/SPI
Melissa Morea/SPI
Nate Matisoff/SPI

On Friday, August 29, 2008, the HUB Working Group met at 7WTC. This was a follow-up to the design meeting on Tuesday, August 26, 2008. The primary purpose of the meeting was to describe the further development of the HUB Group's concepts, particularly for the West Bathtub. A copy of the agenda is attached.

Richard Southwick started the meeting by reviewing the architectural plans and sections. There was much discussion about headroom and column spacing in relation to the vertical circulation. It was Richard's opinion that all the concerns had or will be addressed in the concept being developed.

Dan Sesil then reviewed the structural concepts. The existing platform columns and footings have adequate capacity. Blast loading/redundancy will have to be considered. The loads and columns from the VOC will have to be accommodated into the framing system. Dan felt the structural concept was coming together quite nicely.

Meeting Minutes August 29, 2008

Page 2

September 2, 2008

Kelly Eaton reviewed the progress on the mechanical systems. This is an area which requires more definition, but Kelly felt comfortable that the mechanical systems, as envisioned by the HUB Group, were quite workable. A follow-up meeting on the mechanical systems was scheduled for Wednesday, September 3, 2008 at 3:00 p.m. on the 38th floor at 7WTC.

In summary, all of the issues which have been raised have either been addressed in the current HUB Group concepts or are manageable through the design process.

Phoenix was given additional documentation for their use in developing schedule and cost data.

Mickey Kupperman

ks

Enclosure

EXEMPTION (4)

WTC WORKING GROUPS
HUB AND GREENWICH STREET

September 5, 2008

AGENDA

- **HUB**
 - **ESTIMATE**
 - **SCHEDULE**
 - **LOGISTICS**

- **GREENWICH STREET**
 - **ESTIMATE**
 - **SCHEDULE**
 - **LOGISTICS**

- **MATERIAL FOR NEXT WEEK'S STEERING COMMITTEE**

- **NEXT STEPS**

- **FOLLOW-UP MEETING ON BASELINE SCHEDULE**

EXEMPTION (4)



September 9, 2008

To: WTC HUB WORKING GROUP

cc: Attendees, J. Kraus, Joan Gerner, A. Winters, S. Myers

Re: World Trade Center
HUB Working Group / Greenwich Working Group
Meeting Minutes – September 8, 2008

Attendees

David Tweedy/PA	Charlie Avolio/Turner
Steve Plate/PA	Gary Negrycz/Turner
Alan Reiss/PA	Dave McNallan/Turner
Jim Murphy/PA	Mickey Kupperman/SPI
Dave Puza/PA	David Worsley/SPI
Mark Pagliettini/PA	Guy Punzi/SPI
Ed Orlando/PA	Serge Demerjian/SPI
Gary Winsper/Phoenix	
Lennart Steinman/Phoenix	
Walter Reichert/Phoenix	
Mike McLoughlin/Phoenix	

On Monday, September 8th, 2008, the HUB Working Group and Greenwich Working Group met at 7WTC. This was a follow-up to the meeting held on Friday, September 5th, 2008. The primary purpose of the meeting was to develop a work plan for Turner & Phoenix to review and compare Schedule and Cost impacts concerning the HUB Working Group's proposed modifications to the design of the Oculus and West Bathtub, and for the Greenwich corridor options. The following is a summary of the discussion and decisions reached:

Steering Committee:

- David Tweedy indicated that there should be as much “cross-connect” work done as possible, among the various Working Groups, before presentations are made to the Steering Committee.
- It appears there will not be a Steering Committee Meeting this week, but more likely early next week. Therefore, the goal is to complete the work by this Friday in preparation for a possible presentation on Monday, September 15th.

Work Plan:

- David also indicated that the PA & Phoenix have now jointly identified a team of their representatives who will address the HUB options, and a separate team to address the Greenwich corridor options.
- The primary goals will be to review scheduling, design/operations issues, constructability, and cost.
- These teams will work with Turner Construction, and it was noted that although Phoenix will not be preparing their own schedules and estimates, they would be providing comment, agreement, and/or quantitative opinions (i.e., “range of impact”) on Turner's estimates and schedules.
- It was agreed that each Working Group would meet as follows:
 - HUB: Tuesday through Friday, 8:00am-Noon, 38th Floor, 7WTC*
 - Greenwich: Tuesday through Friday, 8:00am-Noon, 10th Floor, 7WTC

(The Tuesday meeting was subsequently cancelled by Phoenix and the Wednesday meeting was changed to 10:00am-2:00pm.)*

- David Tweedy urged the teams to complete the exercises by Friday, September 12th, and present the findings of their product to the Steering Committee next week.
- SPI indicated that the first step was to confirm and agree upon the Baseline Schedule (IMS40), and committed to providing comments to the PA by the end of the day.
- It was agreed that all Stakeholders, including MTA, Retail, etc., would be asked to participate in the work sessions, so that they can have an opportunity to provide input.

Next Steps:

- Continue meeting in work sessions throughout the week.
- Prepare final products by Friday
- Present to Steering Committee next week (to be scheduled)

The next meetings and work sessions are noted above. The dates for follow-up Working Group meetings will be determined at each of the work sessions.

Prepared By: Guy Punzi, Mickey Kupperman

* * *

**PATH Hub Working Group Responses
to the
September 18, 2008 PA Comments^{*}
on the
Hub Working Group Proposal**

The Hub Working Group (HWG) has reviewed the September 18, 2008 comments received from the Port Authority on September 19, 2008. We believe the PA comments do not address the overall advantages and benefits of the proposed Hub Working Group Concept. Many PA comments reflect a misunderstanding of the HWG proposals. Other PA comments focus on issues that can be easily addressed during the normal evolution of the design process. The comments also fail to realize the advantages of trading off the severe construction risks attributable to the shortcomings of the current base design against the much more limited risk associated with a more conventionally configured project. And – most important – the PA Comments do not acknowledge any of the HWG proposal's numerous benefits to other Stakeholders.

It is important to review the HWG's basic Charter, approved at the outset of the Steering Committee process:

- There will be no limits to the concepts to be considered.
- We must all shake off old "baggage" and attitudes.
- The interests of all Stakeholders must be considered.

The Hub Working Group effort included the following Objectives:

- Attain substantial reductions in cost (hundreds of millions)
- Shorten the Schedule to support the desired Schedules of neighboring Projects (deliver the Memorial Park by 9/11/2011)
- Improve functionality/people flow
- Preserve above-grade Oculus general concept

One note on Security, which the PA comments invoke on several occasions. In developing solutions, the HWG always considered the Design Criteria & Security Criteria that have been provided to us. The HWG understands that meeting these Criteria is essential to the validity of any new design concepts. Where Criteria were not made available (and the PA did not reply to our requests in several instances) the HWG elected to replicate the solutions, quantities, and configurations that were indicated in the base design. An example of this was the replication of the base scheme Vertical Circulation Elements, or VCE, into the HWG Concept Design.

The following pages include the original PA Comments, followed by the Hub Working Group's ***responses in bold italics***.

^{*} Comments were transmitted to Steering Committee and Working Group members on September 20, 2008

EXEMPTION (4)

END OF REPORT

THE PORT AUTHORITY OF NY & NJ

P.A. Agreement #407-03-013
October 10, 2003

Downtown Design Partnership
A Joint Venture of DMJM+HARRIS, Inc. and STV Incorporated
C/O DMJM+HARRIS, Inc.
605 Third Avenue
New York, New York 10158



Attention: Mr. Ira Allan Levy, PE
DMJM+HARRIS, Inc. Executive Vice President

SUBJECT: PERFORMANCE OF EXPERT PROFESSIONAL ARCHITECTURAL AND ENGINEERING SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH TERMINAL ON A TASK ORDER BASIS

Dear Mr. Levy:

1. The Port Authority of New York and New Jersey (hereinafter referred to as the "Authority") hereby offers to retain Downtown Design Partnership, A Joint Venture of DMJM+HARRIS, Inc. and STV Incorporated (hereinafter referred to as "the Consultant" or "you") to provide expert professional services as more fully set forth in Attachment A, which is attached hereto and made a part hereof, on a Task Order basis. Funding for this Agreement is being provided by the Federal Transit Administration (FTA). DMJM+HARRIS, Inc. is a wholly owned subsidiary of AECOM Technology Corporation ("AECOM"). AECOM owns a number of wholly owned subsidiaries. Any employee of any AECOM subsidiary company may work on this contract under the terms and conditions outlined below. STV Incorporated is a wholly owned subsidiary of STV Group, Incorporated. STV Group, Incorporated owns a number of wholly owned subsidiaries. Any employee of any STV Group, Incorporated subsidiary company may work on this contract under the terms and conditions outlined below. Such employees shall be deemed employees of the Joint Venture for compensation purposes hereunder. The Joint Venture shall ensure that such employees are covered in accordance with the Workers Compensation insurance requirements of this agreement; and in all other respects, the Joint Venture shall have the same liabilities for the acts or omissions of such employees in connection with this Agreement as it has for employees of the Joint Venture members per se.

As used herein "Chief Engineer" shall mean the Chief Engineer or the Deputy Chief Engineer of the Authority, acting either personally or through their duly authorized representatives acting within the scope of the particular authority vested in them unless specifically stated to mean acting personally. The Chief Engineer does not guarantee the ordering of services beyond those described in Attachment A, Section IV, Tasks A-D (Preliminary Engineering Phase).

For the purpose of administering this Agreement, I have designated Jerrold Dinkels, Engineering Program Manager, Downtown Restoration Program, to act as my duly authorized representative. The Project Manager for this project is Thomas L. Grassi, at 212 216-5623.



2. Your services hereunder shall include, but not be limited to, those specified in Attachment A, as ordered by the Chief Engineer.

2.A. In response to a request for specific services hereunder and prior to the performance of any such services, you shall submit to the Chief Engineer for approval an estimated cost based upon the rates forming a part of this Agreement and the applicable cost estimate previously submitted to the Authority as part of the proposal process for this Agreement, as well as a staffing analysis of such services to the Authority. Approval in writing of such cost and establishment of a maximum compensation or "true upset" amount for the services and direction from the Chief Engineer in writing to proceed shall effectuate the performance of services under this Agreement. Each such written approval in the form issued by the Chief Engineer shall constitute a Task Order under this Agreement. Preparation of the cost estimate and staffing analysis shall not be a compensable service hereunder.

2.B. At any time during the term of this Agreement the Authority may give oral or written notice to the Consultant to furnish the Authority with information and to meet with designated representatives of the Authority relating to its qualifications and ability to fulfill the Consultant's obligations hereunder. The requested information shall be submitted no later than three (3) business days after said notice unless otherwise indicated. Matters upon which the Authority may inquire shall include, but not be limited to, the following:

- a. The Consultant may be required to demonstrate that it is financially capable of performing this Contract, and the determination of the Consultant's financial qualifications will be made by the Authority in its sole discretion. The Consultant shall submit such financial and other relevant information as may be required by the Authority from time to time including, but not limited to, the following:
 - 1) (i) Certified financial statements, including applicable notes, reflecting the Consultant's assets, liabilities, net worth, revenues, expenses, profit or loss and cash flow for the most recent calendar year or the Consultant's most recent fiscal year.
 - (ii) Where the certified financial statements set forth in (i) above are not available, then either reviewed or compiled statements from an independent accountant setting forth the aforementioned information shall be provided.
 - (iii) Where neither certified financial statements nor financial statements from an independent accountant are available, as set forth in (i) and (ii) above, then financial statements containing such information prepared directly by the Consultant may be submitted; such financial statements, however, must be accompanied by a signed copy of the Consultant's most recent Federal income tax return and a statement in writing from the Consultant, signed by an executive officer or his/her designee, that such statements accurately reflect the financial condition of the Consultant.



Where the statements submitted pursuant to subparagraphs (i) and (ii) aforementioned do not cover a period which includes a date not more than forty-five (45) days prior to the date on which the information request was made, then the Consultant shall also submit a statement in writing, signed by an executive officer or his/her designee, that the present financial condition of the Consultant is at least as good as that shown on the statements submitted.

- 2) A statement of work which the Consultant has on hand, including any work on which a bid has been submitted, containing a description of the work, the annual dollar value, the location by city and State, the current percentage of completion, the expected date for completion, and the name of an individual most familiar with the Consultant's work on these jobs.
- 3) The name and address of the Consultant's banking institution, chief banking representative handling the Consultant's account, the Consultant's Federal Employer Identification Number (i.e., the number assigned to firms by the Federal Government for tax purposes), the Consultant's Dun and Bradstreet number, if any, the name of any other credit service to which the Consultant furnished information, and the number, if any, assigned by such service to the Consultant's account.

3. Upon receipt of a copy of this Agreement executed by the Authority, you shall submit your specific Quality Control/Assurance Program for performance of the professional services specified in Attachment "A".

When services to be performed by the Consultant include the preparation of contract documents, or the performance of post award services, the Consultant shall submit his specific Quality Control/Assurance Program to the Engineer prior to the performance of said services. When the Consultant has completed preparation of any contract documents required hereunder he shall submit a letter to the Engineer certifying the Consultant's conformance with the aforementioned Quality Control/Assurance Program.

When the services to be performed by the Consultant include the preparation of computer aided design and drafting (CADD) documents, said documents must be prepared using the latest available revision of Autodesk's "AUTOCAD" software or Integraph's "Microstation" software unless otherwise noted in Attachment A.

When the services to be performed by the Consultant include the preparation of Architectural Graphics and said graphics are to be prepared using a computer system said system shall be a Macintosh. The graphics shall be prepared using the latest revision of the following software packages, as required: "Adobe Illustrator", "Quark Xpress", "Microsoft Word" and shall be submitted to the Authority on compact disks, 3.5 inch diskettes and/or as otherwise required.

4. Your services shall be performed as expeditiously as possible and at the time or times required by the Chief Engineer, and shall, in any case, be completed in accordance with the



schedule specified in the applicable Task Order. Time is of the essence in the performance of all your services under this Agreement. Notwithstanding anything in this Agreement, Consultant, including Consultant's subconsultants, if any, shall not be responsible hereunder for any delay, default or nonperformance of this Agreement, if and to the extent that such delay, default or nonperformance is caused by an act of God, weather, accident, labor strike, fire, explosion, riot, war, rebellion, terrorist activity, sabotage, flood, epidemic, act of government authority in either its sovereign or contractual capacity, labor, material, equipment or supply shortage, or any other cause beyond the reasonable control of such party.

5. The Consultant shall meet and consult with Authority staff as requested by the Chief Engineer in connection with the services to be performed herein. Any Contract Drawings and Technical Specifications and other items to be submitted or prepared by the Consultant hereunder shall be subject to the review of the Chief Engineer. The Chief Engineer may disapprove, if in his sole opinion the said items are not in accordance with the requirements of this Agreement, sound engineering principles, or are impractical, uneconomical or unsuited in any way for the purpose for which the contemplated construction is intended. If any of the said items or any portion thereof are so disapproved, the Consultant shall forthwith revise them until they meet the approval of the Chief Engineer, but the Consultant shall not be compensated under any provision of this Agreement for performance of such revisions. No approval or disapproval or omission to approve or disapprove, however, shall relieve the Consultant of his responsibility under this Agreement to furnish in accordance with the schedule herein, a complete, practical, economical design and Contract Drawings and Technical Specifications, and corrections and changes therein which are best suited for the contemplated construction, are done in accordance with sound engineering principles and are signed and sealed by a licensed Professional Engineer.

6. Unless otherwise specified in Attachment A or in a Task Order, in order to effectuate the policy of the Authority, the designs and the concepts in the Contract Drawings and Technical Specifications and other items to be submitted and all changes therein formulated by the Consultant shall comply with all provisions of Federal, State, municipal, local and departmental laws, ordinances, rules, regulations, and orders which would affect or control said designs and concepts if the construction were being performed for a private corporation, unless the Authority standard is more stringent, in which case the Authority standard shall be followed, or unless the Consultant shall receive a written notification to the contrary signed by the Chief Engineer personally, in which case the requirements of said notification shall apply.

7. Your total compensation for all services under each issued Task Order shall not exceed the "true upset" amount established in each such Task Order. You shall inform the Chief Engineer when your compensation reaches 80% of such amount. You shall continue to render services to completion after the point when your compensation reaches 100% of such amount.

Your total compensation for performance of all services as identified in Section IV, Tasks A-D (Preliminary Engineering Phase) of Attachment A, shall not exceed the "true upset" amount of \$19,219,869.00. You shall inform the Chief Engineer when your compensation reaches 80% of



such amount. You shall continue to render services to completion after the point when your compensation reaches 100% of such amount.

8. As full compensation for all your services and obligations in connection with this Agreement, the Authority will pay you the total of the amounts computed under subparagraphs A, B, C and D below, subject to the limits on compensation and provisions set forth in paragraph 7 above.

A. An amount equal to 2.62 times the actual salaries paid by you to architects, engineers, designers, drafters or other professional and technical personnel but not partners, principals for time actually spent by them in the performance of services hereunder, plus an amount equal to the number of hours actually spent by partners and principals in the performance of services hereunder times the billing rate (no multiplier applied) described below but in each case excluding premium payments for overtime work or night work or for performing hazardous duty. Attached hereto is a schedule of actual salaries and titles of architects, engineers, designers, drafters or other permanent professional and technical personnel employed by you, as well as rates customarily billed for partners and principals on projects such as this. For compensation purposes under this Agreement, no said salary or amount shall exceed the salary or amount received by said personnel or rate customarily billed for a partner or principal as of the effective date of this Agreement unless the Chief Engineer has been notified in advance, in writing, of the increased salary, rate or amount and approves the increase. When requesting salary adjustments for one or more of its personnel, the Consultant shall submit his/her name, title, current direct hourly rate, proposed new direct hourly rate, resulting percentage increase, effective date and reason for the requested change. The Authority reserves the right of approval of all personnel, amounts and salaries of said personnel performing services under this Agreement. For adjustments submitted after the effective date of this Agreement approval will not be withheld if the Consultant demonstrates that increases in salary, or partner's or principal's rate or amount are in accordance with the program of periodic merit and cost of living increases normally administered by it. For the purposes of this agreement, the multiplier set forth in the first line of this sub-paragraph shall be fixed and not subject to increase for the performance of all contemplated services hereunder.

Notwithstanding the above, the multiplier set forth in the first line of this subparagraph shall be applied only in the case of personnel other than partners or principals who are permanent employees.

B. An amount equal to the premium payments for overtime work or night work or for performing hazardous duty, actually paid to partners, principals, architects, engineers, designers, drafters, or other professional and technical employees for time actually spent by them in the performance of services hereunder when such overtime or other premium payments have been demonstrated to be in accordance with the Consultant's normal business practice and have been authorized in advance by the Chief Engineer in writing. The Project Manager for the Authority shall have the right to authorize and approve premium payments up to a total amount of \$1,000 per occasion. Payments above said total amount shall be subject to the prior written authorization of the Chief Engineer. Such premium payments to supervisory employees, who do



not receive such payments in the Consultant's normal business practice shall not be given under this Agreement.

C. An amount equal to the amounts actually paid to subconsultants hereunder who have been retained after the written approval by the Chief Engineer of the subconsultant and the compensation to be paid the subconsultant. The Consultant shall submit a copy of the terms and conditions of the subconsultant's compensation (including multiplier, if applicable), as well as an estimate of the number of hours required by the subconsultant to perform his services, as part of any request for approval of the subconsultant.

D. An amount equal to the out-of-pocket expenses, approved in advance by the Chief Engineer, necessarily and reasonably incurred and actually paid by you in the performance of your services hereunder. Out-of-pocket expenses are expenses that are unique to the performance of your services under this Agreement and generally contemplate the purchase of outside ancillary services, except that for the purpose of this Agreement, out-of-pocket expenses do include amounts for mailing and delivery charges for submittal of drawings, specifications and reports; long distance telephone calls; rentals of equipment; travel and local transportation; and meals and lodging on overnight trips.

Notwithstanding the above the Authority will pay an amount approved in advance by the Chief Engineer and computed as follows for the reproduction of submittal drawings, specifications and reports:

- 1) If the Consultant uses its own facilities to reproduce such documents, an amount computed in accordance with the billing rates the Consultant customarily charges for reproduction of such documents on agreements such as this, or
- 2) If the Consultant uses an outside vendor for the reproduction of such documents, the actual, necessary and reasonable amounts for the reproduction of such documents.

Out-of-pocket expenses do not include expenses that are usually and customarily included as part of the Consultant's overhead. For the purposes of this Agreement out-of-pocket expenses do not include amounts for typing, utilization of computer systems, computer aided design and drafting (CADD), cameras, recording or measuring devices, flashlights and other small, portable equipment, safety supplies, phones, telephone calls, electronic messaging including FAX, Telex and telegrams, or expendable office supplies. Unless otherwise indicated, required insurance is not a reimbursable expense.

You shall obtain the Chief Engineer's written approval prior to making expenditures for out-of-pocket expenses in excess of \$1,000 per specific expenditure and for all overnight trips which are reimbursable expenditures as set forth above. You shall substantiate all billings for out-of-pocket expenses in excess of \$25 with receipted bills and provide said receipts with the appropriate billing.

"Salaries paid to employees" or words of similar import shall mean salaries and amounts actually paid (excluding payments or factors for holidays, vacations, sick time, bonuses, profit



participations and other similar payments) to architects, engineers, designers, drafters or other professional and technical employees of the Consultant, for time actually spent directly in the performance of technical services hereunder and recorded on daily time records which have been approved by the employee's immediate supervisor, excluding the time of any employee of the Consultant to the extent that, the time of such employee of the Consultant is devoted to typing/word processing, stenographic, clerical or administrative functions. Such functions shall be deemed to be included in the multiplier referred to in subparagraph A above.

9. You shall keep, and shall cause any subconsultants under this Agreement to keep, daily records of the time spent in the performance of services hereunder by all persons whose salaries or amounts paid thereto will be the basis for compensation under this Agreement as well as records of the amounts of such salaries and amounts actually paid for the performance of such services and records and receipts of reimbursable expenditures hereunder, and, notwithstanding any other provisions of this Agreement, failure to do so shall be a conclusive waiver of any right to compensation for such services or expenses as are otherwise compensable hereunder. The Authority shall have the right to audit all such records.

The Authority shall have the right to inspect your records, and those of your subconsultants, pertaining to any compensation to be paid hereunder, such records to be maintained by you and your subconsultants for a period of one year after completion of services to be performed under this Agreement.

10. On or about the fifteenth day of each month, you shall render a bill for services performed and reimbursable out-of-pocket expenses incurred in the prior month, accompanied by such records and receipts as required, to the Project Manager. Each invoice shall bear your taxpayer number and the purchase order number(s) provided by the Engineer. Upon receipt of the foregoing, the Chief Engineer will estimate and certify to the Authority the approximate amount of compensation earned by you up to that time. As an aid to you the Authority shall, within fifteen days after receipt of such certification by the Chief Engineer, advance to you by check the sum certified minus all prior payments to you for your account, but subject to the limitation on compensation set forth in paragraph 7.

11. The Authority may at any time for cause terminate this Agreement as to any services not yet rendered, and may terminate this Agreement without cause upon three (3) days notice to you. You shall have no right of termination as to any services under this Agreement without just cause. Termination by either party shall be by certified letter addressed to the other at its address hereinbefore set forth. Should this Agreement be terminated by either party as above provided, you shall receive no compensation for any services not yet performed, but if termination is without fault on your part, the Authority shall pay you as the full compensation to which you shall be entitled in connection with this Agreement the amounts computed under paragraph 8, A, B, C, and D above for the services satisfactorily performed through the date of termination, but in no event shall the amounts to be paid to the Consultant under said paragraph exceed the amount provided for in Paragraph 7 above.



12. As a member of the Design Team for the WTC Permanent PATH Station, without the express written approval of the Chief Engineer you shall keep confidential, and shall require your subconsultants and your employees to keep confidential

- a) all information disclosed by the Authority or PATH or its consultants or contractors to you or
- b) developed by you or your subconsultants in the performance of services hereunder.

You may be required to execute, and have your employees, subconsultants and their employees execute, non-disclosure agreements as directed by the Authority concerning intellectual property and proprietary information of the Authority, PATH and third persons. Disclosure of any such information shall constitute a material breach of the Agreement. The obligation of confidentiality shall not however pertain to information

- a) which is in the public domain;
- b) information lawfully received from a third party; or
- c) information which must be disclosed under law, provided the Authority's General Counsel is first advised of the legal obligation or legal process.

13. You shall not issue or permit to be issued any press release, advertisement, or literature of any kind, which refers to the Authority or the services performed in connection with this Agreement, unless you first obtain the written approval of the Chief Engineer. Such approval may be withheld if for any reason the Chief Engineer believes that the publication of such information would be harmful to the public interest or is in any way undesirable.

14. Under no circumstances shall you or your subconsultant communicate in any way with any contractor, department, board, agency, commission or other organization or any person whether governmental or private in connection with the services to be performed hereunder except upon prior written approval and instructions of the Chief Engineer, provided, however that data from manufacturers and suppliers of material shall be obtained by you when you find such data necessary unless otherwise instructed by the Chief Engineer.

15. Any services performed for the benefit of the Authority at any time by you or on your behalf, even though in addition to those described herein, even if expressly and duly authorized by the Authority, shall be deemed to be rendered under and subject to this Agreement (unless referable to another express written, duly executed agreement by the same parties), whether such additional services are performed prior to, during or subsequent to the services described herein, and no rights or obligations shall arise out of such additional services.

16. No certificate, payment (final or otherwise), acceptance of any work nor any other act or omission of the Authority or the Chief Engineer shall operate to release you from any obligations under or upon this Agreement, or to estop the Authority from showing at any time that such certificate, payment, acceptance, act or omission was incorrect or to preclude the Authority from



recovering any money paid in excess of that lawfully due, whether under mistake of law or fact or to prevent the recovery of any damages sustained by the Authority.

17. During the term of this Agreement, you shall not participate in any way in the preparation, negotiation or award of any contract to which it is contemplated the Authority may become a party (other than a contract for your own services to the Authority) or participate in any way in the review or resolution of a claim in connection with such a contract, if you have a substantial financial interest in the contractor or potential contractor of the Authority or if you have an arrangement for future employment or for any other business relationship with said contractor or potential contractor, nor shall you at any time take any other action which might be viewed as or give the appearance of a conflict of interest on your part. If the possibility of such an arrangement for future employment or for another business arrangement has been or is the subject of a previous or current discussion or if you have reason to believe such an arrangement may be the subject of future discussion, or if you have any financial interest, substantial or not, in a contractor or potential contractor of the Authority, and your participation in the preparation, negotiation or award of any contract with such a contractor or the review or resolution of a claim in connection with such a contract is contemplated or if you have reason to believe that any other situation exists which might be viewed as or give the appearance of a conflict of interest, you shall immediately inform the Chief Engineer in writing of such situation giving the full details thereof. Unless you receive the specific written approval of the Chief Engineer, you shall not take the contemplated action which might be viewed as or give the appearance of a conflict of interest. In the event the Chief Engineer shall determine that the performance by you of a portion of your services under this Agreement is precluded by the provisions of this numbered paragraph, or a portion of your said services is determined by the Chief Engineer to be no longer appropriate because of such preclusion, then the Chief Engineer shall have full authority on behalf of both parties to order that such portion of your services not be performed by you, reserving the right, however, to have the services performed by others. Your execution of this Agreement shall constitute a representation by you that at the time of such execution you know of no circumstances, present or anticipated, which come within the provisions of this paragraph or which might be viewed as or give the appearance of a conflict of interest on your part.

18. All mylars of the contract drawings, originals of technical specifications, estimates, reports, records, data, charts, documents, renderings, computations, computer tapes or discs or computer programs, and other papers of any type whatsoever, whether in the form of writing, figures or delineations, which are prepared or compiled in connection with this Agreement, shall become the property of the Authority, and the Authority shall have the right to use or permit the use of them and any ideas or methods represented by them for any purpose and at any time without other compensation than that specifically provided herein. The Consultant hereby warrants and represents that the Authority will have at all times the ownership and rights provided for in the immediately preceding sentence free and clear of all claims of third persons whether presently existing or arising in the future and whether presently known to either of the parties of this Agreement or not. Notwithstanding the above, Consultant and its subconsultants shall not be liable or responsible for any use of said documents except for the specific originally intended use of such documents. Although the Authority is the owner of said documents, the



Consultant and its subconsultants will retain any preexisting copyright and other intellectual property rights expressed or embodied in Consultant's and its subconsultants work and services. This Agreement shall not be construed, however, to require the Consultant to obtain for the Authority the right to use any idea, design, method, material, equipment or other matter which is the subject of a valid patent, unless such patent be owned by the Consultant or one of his employees, or his subconsultant or the subconsultant's employees, in which case such right shall be obtained without additional compensation. Whether or not your Proposal is accepted by the Authority, it is agreed that all information of any nature whatsoever which is in any way connected with the services performed in connection with this Agreement, regardless of the form of communication, which has been or may be given by you or on your behalf, whether prior or subsequent to the execution of this Agreement, to the Authority, its Commissioners, officers, agents or employees, is not given in confidence and may be used or disclosed by or on behalf of the Authority without liability of any kind, except as may arise under valid existing or pending patents, if any.

19. If research or development is furnished in connection with the performance of this Agreement and if in the course of such research or development patentable subject matter is produced by the Consultant, his officers, agents, employees, or subconsultants, or if any copyrighted subject matter is produced by the Consultant, his officers, agents, employees, or subconsultants, the Authority shall have, without cost or expense to it, an irrevocable, non-exclusive royalty-free license to make, have made, and use, either itself or by anyone on its behalf, such subject matter in connection with any activity now or hereafter engaged in or permitted by the Authority in respect to the Project. Promptly upon request by the Authority, the Consultant shall furnish or obtain from the appropriate person a form of license satisfactory to the Authority, but it is expressly understood and agreed that, as between the Authority and the Consultant the license herein provided for shall nevertheless arise for the benefit of the Authority immediately upon the production of said subject matter, and shall not await formal exemplification in a written license agreement as provided for above. Such license agreement may be transferred by the Authority to its successors, immediate or otherwise, in the operation or ownership of any real or personal property now or hereafter owned or operated by the Authority but such license shall not be otherwise transferable.

20. You shall promptly and fully inform the Chief Engineer in writing of any patents or patent disputes, whether existing or potential, of which you have knowledge, relating to any idea, design, method, material, equipment or other matter related to the subject matter of this Agreement or coming to your attention in connection with this Agreement.

21. This Agreement being based upon your special qualifications for the services herein contemplated, any assignment, subletting or other transfer of this Agreement or any part hereof or of any monies due or to become due hereunder without the express consent in writing of the Authority shall be void and of no effect as to the Authority, provided, however, that you may sublet services to subconsultants with the express consent in writing of the Chief Engineer. All persons to whom you sublet services, however, shall be deemed to be your agents and no subletting or approval thereof shall be deemed to release you from your obligations under this



Agreement or to impose any obligation on the Authority to such subconsultant or give the subconsultant any rights against the Authority.

22. The Authority has a long-standing practice of encouraging Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs) to seek business opportunities with it, either directly or as subconsultants or subcontractors. "Minority-owned business" or "MBE" means a business entity which is at least 51 percent owned by one or more members of one or more minority groups, or, in the case of a publicly held corporation, at least 51 percent of the stock of which is owned by one or more members of one or more minority groups; and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens. "Women-owned business" or "WBE" means a business which is at least 51 percent owned by one or more women, or, in the case of a publicly held corporation, 51 percent of the stock of which is owned by one or more women; and whose management and daily business operations are controlled by one or more women who are citizens or permanent resident aliens.

"Minority group" means any of the following racial or ethnic groups:

- (1) Black persons having origins in any of the Black African racial groups not of Hispanic origin;
- (2) Hispanic persons of Puerto Rican, Mexican, Dominican, Cuban, Central or South American culture origin, regardless of race;
- (3) Asian and Pacific Islander persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands;
- (4) American Indian or Alaskan Native persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and or community identification.

The Chief Engineer has set a goal of 12 percent participation by qualified and certified MBEs and 5 percent to qualified and certified WBEs on consultant projects.

To be "certified" a firm must be certified by the Authority's Office of Business and Job Opportunity.

In order to facilitate the meeting of this goal, the Consultant shall use every good faith effort to utilize subconsultants who are certified MBEs or WBEs to the maximum extent feasible.

The Authority has a list of certified MBE/WBE service firms, which is available to you at your request. The Consultant will be required to submit to the Authority's Office of Business and Job Opportunity for certification the names of MBE/WBE firms he proposes to use who are not on the list of certified MBE/WBE firms.

23. FTA REQUIREMENTS

This Agreement is anticipated to be partially funded by the Federal Transportation Administration, which expects to enter into a Master Agreement with the Port Authority. Under



that Master Agreement the Port Authority's contractor, consultant or vendor, and each subcontractor, sub-consultant and sub-vendor under this Agreement is bound to perform its services in connection with transportation facilities in accordance with the following provisions as if it was the direct signatory of the Master Agreement, the "Recipient or "Grantee".

Master Agreement References

Section 2.c(1)

c. Application of Federal, State, and Local Laws and Regulations.

(1) Federal Laws and Regulations. Federal law or specific laws authorizing Project approval control Project implementation. Implementing regulations, policies, and related administrative practices applicable on the effective date of this Grant may be modified after the date when the Recipient executes the Grant Agreement, and might apply to this project. New Federal laws, regulations, policies, and administrative practices may be promulgated after the date when the Recipient executes the Grant Agreement, and might apply to this project. The most recent of such Federal requirements will govern the administration of the Project at any particular time, unless FTA issues a written determination otherwise. All standards or limits within this Lower Manhattan Recovery Master Agreement are minimum requirements, unless modified by FTA.

Section 2.f

f. No Federal Government Obligations to Third Parties. Absent the Federal Government's express written consent, the Federal Government shall not be subject to any obligations or liabilities to any subrecipient, any third party contractor, or any other person not a party to the Grant Agreement in connection with the performance of the Project. Notwithstanding that the Federal Government may have concurred in or approved any solicitation, subagreement, or third party contract, the Federal Government has no obligations or liabilities to any party, including any subrecipient or any third party contractor.

Section 3.b

b. Debarment and Suspension. The Recipient will itself comply, and assure the compliance of each third party contractor and subrecipient at any tier, with Executive Orders Nos. 12549 and 12689, "Debarment and Suspension," 31 U.S.C. § 6101 note, and U.S. DOT regulations, "Government wide Debarment and Suspension (Nonprocurement)," within 49 C.F.R. Part 29. Recipients, third party contractors and subrecipients will review the Excluded Parties Listing System at <http://epls.arnet.gov> before entering into any contracts.

Section 3.d

d. Lobbying Restrictions. The Recipient will itself comply and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with U.S. DOT regulations, "New Restrictions on Lobbying," 49 C.F.R. Part 20, modified as necessary by 31 U.S.C. § 1352.



Section 3.f

f. False or Fraudulent Statements or Claims. The Recipient certifies or affirms the truthfulness and accuracy of each statement it has made, it makes, or it may make in connection with the Project covered by the Grant Agreement pursuant to the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§ 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31 and 18 U.S.C. § 1001.

Section 8(e)

e. Access to Records of Recipients and Subrecipients. Upon request, the Recipient will permit, and require its Subrecipients to permit, the U.S. Secretary of Transportation, the Comptroller General of the United States, and, to the extent appropriate, the State, or their authorized representatives, to inspect all Project work, materials, payrolls, and other data, and to audit the books, records, and accounts of the Recipient and its Subrecipients pertaining to the Project.

Section 12. Civil Rights.

The Recipient will comply with all applicable civil rights statutes and implementing regulations including, but not limited to, the following:

a. Nondiscrimination in General. The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier under the Project with 42 U.S.C. §5151, which requires the distribution of supplies, the processing of applications, and other relief and assistance activities in an equitable and impartial manner, without discrimination on the grounds of race, color, religion, nationality, sex, age, or economic status, and with 49 U.S.C. §5332, which prohibits discrimination on the basis of race, color, creed, national origin, sex, or age, and prohibits discrimination in employment or business opportunity.

b. Nondiscrimination -- Title VI of the Civil Rights Act. The Recipient will comply, and assures the compliance of each third party contractor and each subrecipient at any tier under the Project, with all requirements prohibiting discrimination on the basis of race, color, or national origin of Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000d et seq., and U.S. DOT regulations, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation--Effectuation of Title VI of the Civil Rights Act," 49 C.F.R. Part 21.

c. Equal Employment Opportunity.

- (1) The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with all requirements of Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e. Accordingly, the Recipient agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, sex, disability, age, or national origin. The Recipient will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race,



color, creed, sex, disability, age, or national origin. Such action shall include, but not be limited to, employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

- (2) Equal Employment Opportunity Requirements for Construction Activities. With respect to activities deemed by the U.S. Department of Labor (U.S. DOL) to qualify as "construction," the Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with all applicable EEO requirements of U.S. DOL regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000(e) note,) and any Federal statutes, executive orders, regulations, and Federal policies affecting construction undertaken as part of the Project.
- d. Contracting with Small and Minority Firms, Women's Business Enterprise and Labor Surplus Area Firms. Pursuant to Executive Order 12432 as implemented by 49 CFR § 18.36(e). Recipient and its subrecipients will take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.
- e. Nondiscrimination on the Basis of Sex. The Recipient will comply with all applicable requirements of Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. §§ 1681 et seq., with U.S. DOT regulations, "Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance," 49 C.F.R. Part 25, and with any implementing directives that U.S. DOT or FTA may promulgate, which prohibit discrimination on the basis of sex.
- f. Nondiscrimination on the Basis of Age. The Recipient will comply with all applicable requirements of the Age Discrimination Act of 1975, as amended, 42 U.S.C. §§ 6101 et seq., and implementing regulations, which prohibit employment and other discrimination against individuals on the basis of age.
- g. Access Requirements for Persons with Disabilities. The Recipient will comply with all applicable requirements of section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, with the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments to that Act, and with the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 et seq., which requires that buildings and public accommodations be accessible to persons with disabilities, including any subsequent amendments to that Act. In addition, the Recipient will comply with all applicable requirements of the following regulations and any subsequent amendments thereto:



- (1) U.S. DOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 C.F.R. Part 37;
- (2) U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27;
- h. Drug or Alcohol Abuse - Confidentiality and Other Civil Rights Protections. The Recipient will comply with confidentiality and other civil rights protections of the Drug Abuse Office and Treatment Act of 1972, as amended, 21 U.S.C. §§ 1174 et seq., with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended, 42 U.S.C. §§ 4581 et seq., and with the Public Health Service Act of 1912, as amended, 42 U.S.C. §§ 290dd-3 and 290ee-3, and any subsequent amendments to these acts.
- i. Access to Services for Persons with Limited English Proficiency. The Recipient will comply with guidance set forth in Executive Order No. 13166, "Improving Access to Services for Persons with Limited English Proficiency," August 11, 2000, 42 U.S.C. § 2000d-1 note, and with the requirements and provisions of U.S. DOT Notice, "DOT Guidance to Recipients on Special Language Services to Limited English Proficient (LEP) Beneficiaries," 66 Fed. Reg. 6733 et seq., January 22, 2001.
- j. Environmental Justice. The Recipient will comply with the policies of Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 42 U.S.C. § 4321 note.
- k. Other Nondiscrimination Statutes. The Recipient will comply with applicable requirements of other nondiscrimination statute(s) that may apply to the Project.

Section 14. Preference for United States Products and Services.

- a. Not Applicable.
- b. Not Applicable.
- c. Fly America. The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for the Project unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

Section 15. Procurement.

- a. Federal Standards. The Recipient will comply with 49 CFR § 18.36.

Section 15.f

- f. Clean Air and Clean Water. The Recipient will include in third party contracts and subgrants exceeding \$100,000 adequate provisions to ensure that Project participants report the use of facilities placed or likely to be placed on U.S. EPA's "List of Violating Facilities," refrain from using violating facilities, report violations to FTA and the Regional EPA Office, and



comply with the inspection and other applicable requirements of:

- (1) Section 306 of the Clean Air Act, as amended, 42 U.S.C. § 7414, and other applicable provisions of the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq.; and
- (2) Section 508 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1368, and other provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 et seq.

Section 15.g

g. Preference for Recycled Products. To the extent applicable, the Recipient will comply with U.S. EPA's "Comprehensive Procurement Guidelines for Products Containing Recovered Materials," 40 C.F.R. Part 247, implementing section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962, and otherwise provide a competitive preference for products and services that conserve natural resources and protect the environment and are energy efficient.

Section 15.s

s. Electronic and Information Technology. Electronic and information technology procured under this Project will meet the applicable accessibility standards of section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and Architectural and Transportation Barriers Compliance Board regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

Section 17. Patent Rights.

a. General. If any invention, improvement, or discovery of the Recipient or any of its third party contractors is conceived or first actually reduced to practice in the course of or under the Project, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the Recipient will notify FTA immediately and provide a detailed report.

b. Federal Rights. The rights and responsibilities of the Recipient, and those of each third party contractor at any tier and each subrecipient at any tier, pertaining to that invention, improvement, or discovery will be determined in accordance with applicable Federal laws, regulations, including any waiver thereof.

Section 18. Rights in Data and Copyrights.

a. Definition. The term "subject data" used in this section means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the Project. Examples include, but are not limited to: computer software, standards, specifications, engineering drawings and associated lists, process sheets, manuals, technical reports, catalog item identifications, and related information. "Subject data" does not include financial reports, cost analyses, or similar information used for Project administration.



b. General Requirement. Except for its own internal use, the Recipient may not publish or reproduce "subject data" whether in whole or in part, in any manner or form, nor may the Recipient authorize others to do so, without the prior written consent of the Federal Government, unless the Federal Government has previously released or approved the release of such data to the public.

c. - h. Requirements condensed into a. & b. above.

Section 23(e)

e. Seismic Safety. The Recipient will comply with the Earthquake Hazards Reduction Act of 1977, as amended, 42 U.S.C. §§ 7701 et seq., Executive Order No. 12699, "Seismic Safety of Federal and Federally-Assisted or Regulated New Building Construction," 42 U.S.C. § 7704 note, and implementing U.S. DOT regulations, "Seismic Safety," 49 C.F.R. Part 41, (specifically, 49 C.F.R. § 41.117).

Section 24. Employee Protections.

a. Construction Activities. The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with the following employee protection requirements for construction employees:

- (1) Davis-Bacon Act, as amended, 40 U.S.C. §§ 276a - 276a(7), requiring compliance with the Davis-Bacon Act, and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.
- (2) Contract Work Hours and Safety Standards Act, as amended, particularly with the requirements of section 102 of the Act, 40 U.S.C. §§ 327 - 332; and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5; and with section 107 of the Act, 40 U.S.C. § 333, and U.S. DOL regulations, "Safety and Health Regulations for Construction," 29 C.F.R. Part 1926; and
- (3) Copeland "Anti-Kickback" Act, as amended, 18 U.S.C. § 874 and 40 U.S.C. § 276c, and U.S. DOL regulations, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in part by Loans or Grants from the United States," 29 C.F.R. Part 3.

Section 24.b

b. Activities Not Involving Construction. The Recipient will comply, and assure the compliance of each third party contractor and each subrecipient at any tier, with any applicable employee protection requirements for nonconstruction employees of section 102 of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. §§ 327 - 332, and U.S. DOL



regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

Section 26. Energy Conservation.

The Recipient will comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and Conservation Act, 42 U.S.C. §§ 6321 et seq.

49 CFR § 18.36

(b) Procurement Standards.

(11) Grantees and subgrantees alone will be responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to source evaluation, protests, disputes, and claims. These standards do not relieve the grantee or subgrantee of any contractual responsibilities under its contracts. Federal agencies will not substitute their judgment for that of the grantee or subgrantee unless the matter is primarily a Federal concern. Violations of law will be referred to the local, State, or Federal authority having proper jurisdiction.

(12) Grantees and subgrantees will have protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding the protest to the awarding agency. A protestor must exhaust all administrative remedies with the grantee and subgrantee before pursuing a protest with the Federal agency. Reviews of protests of the Federal agency will be limited to:

(i) Violations of Federal law or regulations and the standards of this section (violations of State or local law will be under the jurisdiction of State or local authorities) and

(ii) Violations of the grantee's or subgrantee's protest procedures for failure to review a complaint or protest. Protests received by the Federal agency other than those specified above will be referred to the grantee or subgrantee.

(i) Contract provisions. A grantees and subgrantee's contracts must contain provisions in paragraph (i) of this section. Federal agencies are permitted to require changes, remedies, changed conditions, access and records retention, suspension of work, and other clauses approved by the Office of Federal Procurement Policy.

(2) Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of \$10,000)

(k) Section 3(a)(2)(C) of the UMT Act of 1964, as amended, prohibits the use of grant or loan funds to support procurements utilizing exclusionary or discriminatory specifications.



(l) 46 U.S.C. 1241(b)(1) and 46 CFR Part 381 impose cargo preference requirements on the shipment of foreign made goods.

Section 18.44 Termination for Convenience.

Except as provided in Section 18.43 awards may be terminated in whole or in part only as follows: (a) By the awarding agency with the consent of the grantee or subgrantee in which case the two parties shall agree upon the termination conditions, including the effective date and in the case of partial termination, the portion to be terminated, or (b) By the grantee or subgrantee upon written notification to the awarding agency, setting forth the reasons for such termination, the effective date, and in the case of partial termination, the portion to be terminated. However, if in the case of a partial termination, the awarding agency determines that the remaining portion of the award will not accomplish the purposes for which the award was made, the awarding agency may terminate the award in its entirety under either Sec. 1843 or paragraph (a) of this section.

24. NOTIFICATION OF SECURITY REQUIREMENTS

The Port Authority of New York & New Jersey has facilities, systems, and projects where terrorism or other criminal acts may have a significant impact on life safety and key infrastructures. The Authority reserves the right to impose multiple layers of security requirements on the Consultant, its staff and subconsultants and their staffs depending upon the level of security required, as determined by the Authority. These security requirements may include but are not limited to the following:

- Consultant/subconsultant identity checks and background screening, including but not limited to: inspection of not less than two forms of valid/current government issued identification (at least one having an official photograph) to verify staff's name and residence; screening federal, state, and/or local criminal justice agency information databases and files; screening of any terrorist identification files; multi-year check of personal, employment and/or credit history; access identification to include some form of biometric security methodology such as fingerprint, facial or iris scanning, or the like;
 - Issuance of Photo Identification cards;
 - Access control, inspection, and monitoring by security guards.
- The Consultant may be required to have its staff, and any subconsultant's staff, authorize the Authority or its designee to perform background checks. Such authorization shall be in a form acceptable to the Authority. The Consultant may also be required to use an organization designated by the Authority to perform the background checks. The cost for said background checks shall be reimbursable to the Consultant as an out-of-pocket expense as provided herein.

The Authority may impose, increase, and/or upgrade security requirements for the Consultant and its staff and subconsultants during the term of this agreement to address changing security conditions and/or new governmental regulations.



25. With regard to services performed at the former World Trade Center site, the Consultant assumes the following distinct and several risks that arise from the negligent acts or omissions of Consultant or its subconsultants:

A. The risk of loss or damage to Authority property but only to the extent arising out of or in connection with the negligent performance of services hereunder:

B. The risk or loss or damage to any property of the Consultant or its subconsultants but only to the extent arising out of or in connection with the negligent performance of services hereunder;

C. The risk of claims, but only to the extent arising out of or in connection with the negligent performance of services hereunder, whether made against the Consultant or its subconsultants or the Authority, for loss or damage to any property of the Consultant's agents, employees, subcontractors, subconsultants, materialmen or others performing services hereunder:

D. The risk of claims, just or unjust, by third persons made against the Consultant or its subconsultants or the Authority on account of injuries (including wrongful death), loss or damage of any kind whatsoever but only to the extent arising out of or in connection with the negligent performance of services hereunder (whether or not actually caused by or resulting from the performance of the services hereunder) including claims against the Consultant or its subconsultants or the Authority for the payment of workers' compensation, whether such claims are made and whether such injuries, damage and loss are sustained at any time both before and after the completion of services hereunder.

The Consultant shall indemnify the Authority against all claims described in subparagraphs A through D above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys. If so directed, the Consultant shall defend against any claim described in subparagraphs B, C and D above, in which event he shall not without obtaining express advance permission from the General Counsel of the Authority raise any defense involving in any way jurisdiction of the tribunal, immunity of the Authority, governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority, such defense to be at the Consultant's cost.

The provisions of this clause shall also be for the benefit of the Commissioners, officers, agents and employees of the Authority, so that they shall have all the rights which they would have under this clause if they were named at each place above at which the Authority is named, including a direct right of action against the Consultant to enforce the foregoing indemnity, except, however, that the Authority may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the completion of services hereunder nor the making of payment (final or otherwise) shall release the Consultant from his obligations under this clause. Moreover, neither the enumeration in this clause or the enumeration elsewhere in this Agreement of particular risks assumed by the Consultant or of particular claims for which he is responsible shall be deemed (a)



to limit the effect of the provisions of this clause or of any other clause of this Agreement relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this clause or in any other clause of this Agreement, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

This paragraph shall not limit the responsibilities the Consultant would have in the absence of this paragraph. No third party rights are created by the Agreement, except to the extent that the Agreement specifically provides otherwise by use of the words "benefit" or "direct right of action".

26. COMMERCIAL GENERAL LIABILITY INSURANCE AND WORKERS' COMPENSATION INSURANCE

A. Commercial General Liability Insurance

1. Each Partner of the Consultant shall take out and maintain at his own expense Commercial General Liability Insurance including but not limited to Premises-Operations, Completed Operations and Independent Contractor coverages and Comprehensive Automobile Liability Insurance (covering any, owned, non-owned, and hired autos) in limits of not less than \$5,000,000 combined single limit per occurrence for Bodily Injury Liability and Property Damage Liability. In addition, the policy shall include the Authority and the Port Authority Trans-Hudson Corporation (PATH) as an additional insured and shall contain a provision that the policy may not be canceled, terminated or modified without thirty days written advance notice to the Project Manager as noted below. Moreover, the Commercial General Liability policy shall not contain any provisions (other than a Professional Liability exclusion, if any) for exclusions from liability other than provisions for exclusions from liability forming part of the standard, basic unamended and unendorsed Commercial General Liability policy.

2. Further, the Commercial General Liability Policy shall be specifically endorsed to prohibit the insurance carrier from raising any defense involving in any way jurisdiction of the tribunal, immunity of the Authority or PATH, governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority or PATH without obtaining express written advance permission from the General Counsel of the Authority.

3. The Consultant shall have the Policy endorsed to eliminate any exclusions applying to the under-ground property, explosion and collapse hazards.

B. Additional Coverages: The Consultant shall have the Commercial General Liability Policy endorsed when required by the Engineer for specific services hereunder and include the additional premium cost thereof as an out-of-pocket expense:

1. The Consultant shall have the policy endorsed to eliminate any exclusions on account of ownership, maintenance, operation, use, loading or unloading of watercraft.

B. Workers' Compensation Insurance



1. The Consultant shall also take out and maintain Workers' Compensation Insurance in accordance with the requirements of law.

2. Additional Coverages: The Consultant shall have the policy endorsed when required by the Engineer for specific services hereunder and include the additional premium cost thereof as an out-of-pocket expense:

- a) United States Longshoremen's and Harbor Workers' Compensation Act Endorsement.
- b) Coverage B Endorsement - Maritime (Masters or Members of the Crew of Vessels), in limits of not less than \$1,000,000 per occurrence.

3. The Consultant shall have the policy include Amendments to Coverage B, Federal Employers' Liability Act, in limits of not less than \$1,000,000 per occurrence.

C. Compliance

1) Prior to commencement of work at the site, the Consultant shall deliver a certificate from his insurer evidencing the policies of the above insurance, stating the title of this Agreement, the agreement number, and containing a separate express statement of compliance with each of the requirements above set forth in this clause, to the Risk Management/Treasury of the Authority at the following address:

The Port Authority of NY & NJ
Supervisor, Contract Insurance
Risk Management/Treasury
225 Park Avenue South - 12th Floor
New York, NY 10003

2) The Consultant shall also forward a copy of the aforementioned certificate to the Project Manager, at the following address:

Mr. Thomas L. Grassi
The Port Authority of NY & NJ
115 Broadway, 7th Floor
New York, NY 10006

3) Upon request of the Manager, Risk Management/Treasury Division, the Consultant shall furnish to the Authority a certified copy of each policy itself, including the provisions establishing premiums.

**27. CERTIFICATION OF NO INVESTIGATION (CRIMINAL OR CIVIL ANTI-TRUST),
INDICTMENT, CONVICTION, DEBARMENT, SUSPENSION,
DISQUALIFICATION AND DISCLOSURE OF OTHER INFORMATION**

By signing this Agreement, the Consultant and each person signing on behalf of the Consultant certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that the Consultant and each parent and/or affiliate of the Consultant has not:



- A. been indicted or convicted in any jurisdiction;
- B. been suspended, debarred, found not responsible or otherwise disqualified from entering into any agreement with any governmental agency or been denied a government agreement for failure to meet standards related to the integrity of the Consultant;
- C. had an agreement terminated by any governmental agency for breach of agreement or for any cause based in whole or in part on an indictment or conviction;
- D. ever used a name, trade name or abbreviated name, or an Employer Identification Number different from those inserted in the Proposal;
- E. had any business or professional license suspended or revoked or, within the five years prior to proposal opening, had any sanction imposed in excess of \$50,000 as a result of any judicial or administrative proceeding with respect to any license held or with respect to any violation of a federal, state or local environmental law, rule or regulation;
- F. had any sanction imposed as a result of a judicial or administrative proceeding related to fraud, extortion, bribery, proposal rigging, embezzlement, misrepresentation or anti-trust regardless of the dollar amount of the sanctions or the date of their imposition; and
- G. been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or a civil anti-trust investigation by any Federal, state or local prosecuting or investigative agency.

28. NON-COLLUSIVE PROPOSING, AND CODE OF ETHICS CERTIFICATION, CERTIFICATION OF NO SOLICIATION BASED ON COMMISION, PERCENTAGE, BROKERAGE, CONTINGENT OR OTHER FEES

By proposing on this Agreement, each Consultant and each person signing on behalf of any Consultant certifies, and in the case of a joint proposal, each party thereto certifies as to its own organization, that:

- A. the prices in its proposal have been arrived at independently without collusion, consultation, communication or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other consultant or with any competitor;
- B. the prices quoted in its proposal have not been and will not be knowingly disclosed directly or indirectly by the Consultant prior to the official opening of such proposal to any other consultant or to any competitor;
- C. no attempt has been made and none will be made by the Consultant to induce any other person, partnership or corporation to submit or not to submit a proposal for the purpose of restricting competition;
- D. this organization has not made any offers or agreements or taken any other action with respect to any Authority employee or former employee or immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics dated April 11, 1996 (a copy of which is available upon request to the individual named in the clause hereof entitled "Consultant's Questions"), nor does this organization have any knowledge of any act on



the part of an Authority employee or former Authority employee relating either directly or indirectly to this organization which constitutes a breach of the ethical standards set forth in said Code; and

E. no person or selling agency other than a bona fide employee or bona fide established commercial or selling agency maintained by the Consultant for the purpose of securing business, has been employed or retained by the Consultant to solicit or secure this Agreement on the understanding that a commission, percentage, brokerage, contingent, or other fee would be paid to such person or selling agency.

The foregoing certifications shall be deemed to be made by the Consultant as follows:

- * if the Consultant is a corporation, such certification shall be deemed to have been made not only with respect to the Consultant itself, but also with respect to each parent, affiliate, director, and officer of the Consultant, as well as, to the best of the certifier's knowledge and belief, each stockholder of the Consultant with an ownership interest in excess of 10%;
- * if the Consultant is a partnership, such certification shall be deemed to have been made not only with respect to the Consultant itself, but also with respect to each partner.

Moreover, the foregoing certifications, if made by a corporate Consultant, shall be deemed to have been authorized by the Board of Directors of the Consultant, and such authorization shall be deemed to include the signing and submission of the proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the Consultant cannot make the foregoing certifications, the Consultant shall so state and shall furnish with the signed proposal a signed statement, which sets forth in detail the reasons therefor. If the Consultant is uncertain as to whether it can make the foregoing certifications, it shall so indicate in a signed statement furnished with its proposal, setting forth in such statement the reasons for its uncertainty.

Notwithstanding that the Consultant may be able to make the foregoing certifications at the time the proposal is submitted, the Consultant shall immediately notify the Authority in writing during the period of irrevocability of proposals on this Agreement or any extension of such period of any change of circumstances which might under this clause make it unable to make the foregoing certifications or require disclosure. The foregoing certifications or signed statement shall be deemed to have been made by the Consultant with full knowledge that they would become a part of the records of the Authority and that the Authority will rely on their truth and accuracy in awarding this Agreement. In the event that the Authority should determine at any time prior or subsequent to the award of this Agreement that the Consultant has falsely certified as to any material item in the foregoing certifications or has willfully or fraudulently furnished a signed statement which is false in any material respect, or has not fully and accurately represented any circumstance with respect to any item in the foregoing certifications required to be disclosed, the Authority may determine that the Consultant is not a responsible Consultant with respect to its proposal on the Agreement or with respect to future proposals on Authority agreements and may exercise such other remedies as are provided to it by the Agreement with respect to these matters. In addition, Consultants are advised that knowingly providing a false certification or



statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see, e.g. New York Penal Law, Section 175.30 et seq.). Consultants are also advised that the inability to make such certification will not in and of itself disqualify a Consultant, and that in each instance the Authority will evaluate the reasons therefor provided by the Consultant.

29. CONSULTANT ELIGIBILITY FOR AWARD OF AGREEMENTS – DETERMINATION BY AN AGENCY OF THE STATE OF NEW YORK OR NEW JERSEY CONCERNING ELIGIBILITY TO RECEIVE PUBLIC AGREEMENTS

Consultants are advised that the Authority has adopted a policy to the effect that in awarding its agreements it will honor any determination by an agency of the State of New York or New Jersey that a consultant is not eligible to propose on or be awarded public agreements because the consultant has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing rate of wage legislation.

The policy permits a consultant whose ineligibility has been so determined by an agency of the State of New York or New Jersey to submit a proposal on a Port Authority agreement and then to establish that it is eligible to be awarded an agreement on which it has submitted a proposal because (i) the state agency determination relied upon does not apply to the consultant, or (ii) the state agency determination relied upon was made without affording the consultant the notice and hearing to which the consultant was entitled by the requirements of due process of law, or (iii) the state agency determination was clearly erroneous or (iv) the state agency determination relied upon was not based on a finding of conduct demonstrating a lack of integrity or violation of a prevailing rate of wage law.

The full text of the resolution adopting the policy may be found in the Minutes of the Authority's Board of Commissioners meeting of September 9, 1993.

30. NO GIFTS, GRATUITIES, OFFERS OF EMPLOYMENT, ETC.

During the term of this Agreement, the Consultant shall not offer, give or agree to give anything of value either to a Port Authority employee, agent, job shopper, consultant, construction manager or other person or firm representing the Port Authority, or to a member of the immediate family (i.e., a spouse, child, parent, brother or sister) of any of the foregoing, in connection with the performance by such employee, agent, job shopper, consultant, construction manager or other person or firm representing the Port Authority of duties involving transactions with the Consultant on behalf of the Port Authority, whether or not such duties are related to this Agreement or any other Port Authority agreement or matter. Any such conduct shall be deemed a material breach of this Agreement.

As used herein "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by the Agreement or any other Port Authority agreement), etc. which might tend to obligate the Port Authority employee to the Consultant, and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include



compensation contemplated by this Agreement or any other Port Authority agreement. Where used herein, the term "Port Authority" shall be deemed to include all subsidiaries of the Port Authority.

The Consultant shall insure that no gratuities of any kind or nature whatsoever shall be solicited or accepted by it and by its personnel for any reason whatsoever from the passengers, tenants, customers or other persons using the Facility and shall so instruct its personnel.

In addition, during the term of this agreement, the Consultant shall not make an offer of employment or use confidential information in a manner proscribed by the Code of Ethics and Financial Disclosure dated April 11, 1996 (a copy of which is available upon request to the Office of the Secretary of the Port Authority).

The Consultant shall include the provisions of this clause in each subagreement entered into under this Agreement.

31. CONFLICT OF INTEREST

During the term of this agreement, the Consultant shall not participate in any way in the preparation, negotiation or award of any contract (other than a contract for its own services to the Authority) to which it is contemplated the Port Authority may become a party, or participate in any way in the review or resolution of a claim in connection with such a agreement if the Consultant has a substantial financial interest in the consultant or potential contractor of the Port Authority or if the Consultant has an arrangement for future employment or for any other business relationship with said contractor or potential contractor, nor shall the Consultant at any time take any other action which might be viewed as or give the appearance of conflict of interest on its part. If the possibility of such an arrangement for future employment or for another business arrangement has been or is the subject of a previous or current discussion, or if the Consultant has reason to believe such an arrangement may be the subject of future discussion, or if the Consultant has any financial interest, substantial or not, in a consultant or potential consultant of the Authority, and the Consultant's participation in the preparation, negotiation or award of any agreement with such a consultant or the review or resolution of a claim in connection with such a agreement is contemplated or if the Consultant has reason to believe that any other situation exists which might be viewed as or give the appearance of a conflict of interest, the Consultant shall immediately inform the Chief Engineer in writing of such situation giving the full details thereof. Unless the Consultant receives the specific written approval of the Chief Engineer, the Consultant shall not take the contemplated action which might be viewed as or give the appearance of a conflict of interest. In the event the Chief Engineer shall determine that the performance by the Consultant of a portion of its services under this Agreement is precluded by the provisions of this numbered paragraph, or a portion of the Consultant's said services is determined by the Chief Engineer to be no longer appropriate because of such preclusion, then the Chief Engineer shall have full authority on behalf of both parties to order that such portion of the Consultant's services not be performed by the Consultant, reserving the right, however, to have the services performed by others and any lump sum compensation payable hereunder which is applicable to the deleted work shall be equitably adjusted by the parties. The Consultant's execution of this document shall constitute a representation by the



Consultant that at the time of such execution the Consultant knows of no circumstances, present or anticipated, which come within the provisions of this paragraph or which might otherwise be viewed as or give the appearance of a conflict of interest on the Consultant's part. The Consultant acknowledges that the Authority may preclude it from involvement in certain disposition/privatization initiatives or transactions that result from the findings of its evaluations hereunder or from participation in any agreements which result, directly or indirectly, from the services provided by the Consultant hereunder.

32. DEFINITIONS

As used in sections 26 to 31 above, the following terms shall mean:

Affiliate - Two or more firms are affiliates if a parent owns more than fifty percent of the voting stock of each of the firms, or a common shareholder or group of shareholders owns more than fifty percent of the voting stock of each of the firms, or if the firms have a common proprietor or general partner.

Agency or Governmental Agency - Any federal, state, city or other local agency, including departments, offices, public authorities and corporations, boards of education and higher education, public development corporations, local development corporations and others.

Investigation - Any inquiries made by any federal, state or local criminal prosecuting agency and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal, state, and local inquiries into tax returns.

Officer - Any individual who serves as chief executive officer, chief financial officer, or chief operating officer of the consultant by whatever titles known.

Parent - An individual, partnership, joint venture or corporation, which owns more than 50% of the voting stock of the consultant.

33. The entire agreement between the parties is contained herein and no change in or modification, termination or discharge of this Agreement in any form whatsoever shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith, or his duly authorized representative, provided, however, that termination in the manner hereinbefore expressly provided shall be effective as so provided.

34. No Commissioner, officer, agent or employee of the Authority shall be charged personally by you with any liability or held liable to you under any term or provision of this Agreement, or because of its execution or attempted execution or because of any breach hereof.

35. This Agreement shall be governed by and construed in accordance with the Laws of the State of New York.



DOWNTOWN DESIGN PARTNERSHIP
A JOINT VENTURE OF DMJM+HARRIS, INC.
AND STV INCORPORATED

OCTOBER 10, 2003

36. This agreement shall be effective as of August 5, 2003.

37. If the foregoing meets with your approval, please indicate your acceptance by signing the original and the additional enclosed copy in the lower left-hand corner and returning them to the Authority.

Very truly yours,

THE PORT AUTHORITY OF
NEW YORK AND NEW JERSEY

Francis J. Lombardi, P.E.
Chief Engineer

Date: 10/10/03

ACCEPTED:

Downtown Design Partnership, a Joint Venture of DMJM+HARRIS, Inc. and STV Incorporated

DMJM+HARRIS, Inc.

By:

Title: EXECUTIVE VICE PRESIDENT

Date: 10/10/03

STV Incorporated

By:

Title: CEO

Date: 10/10/03

ATTACHMENT A

PERFORMANCE OF EXPERT PROFESSIONAL ARCHITECTURAL AND ENGINEERING SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH TERMINAL ON A TASK ORDER BASIS

I. INTRODUCTION

The services of the Consultant shall consist of assisting The Port Authority of New York and New Jersey (the Authority) in the performance of Preliminary Engineering, Final Design, and post award services, for the design and construction of the Permanent World Trade Center PATH Terminal (Terminal). The initial authorization for the performance of services under this Agreement will be limited to the performance of the Preliminary Engineering phase as described in Section IV, Tasks A-D. Additional authorization(s) for performance of the subsequent tasks in the Final Design phase will be provided on a "task order" basis as determined by the Authority, and are not guaranteed. This project is subject to receipt of funding to be provided through the Federal Transit Administration (FTA), and environmental review pursuant to the National Environmental Policy Act (NEPA).

When operating, PATH provides the primary transit link to Lower Manhattan from New Jersey; serving local markets in Hudson and Essex counties and providing a key link for New Jersey Transit rail commuters on routes at major transit hubs at Newark Penn Station and Hoboken Terminal. Prior to September 11, 2001, over 67,000 PATH riders boarded PATH at the World Trade Center (WTC) station each day. The facility was operating at capacity during peak rush hours. Although the temporary WTC PATH station (currently under construction) will allow restoration of PATH service to Lower Manhattan in November 2003, it will not fully restore all of the facilities and capacities that previously existed at the World Trade Center.

The Authority has identified over \$2 billion in transportation recovery projects at the WTC to restore and enhance mass transit services to and from Lower Manhattan, and to provide for other transportation functions. In particular, the Permanent WTC PATH Terminal project is needed to re-establish and enhance transportation facilities and infrastructure that existed at the WTC complex prior to September 11, 2001. The project will greatly contribute to the recovery of Lower Manhattan by meeting the transportation needs of commuters, residents, and visitors to the proposed WTC Memorial.

As part of the immediate recovery of Lower Manhattan, a temporary PATH station at the World Trade Center (WTC) site has been designed and is now being constructed. The temporary WTC PATH station project is a stand-alone transit facility, that was designed only to provide the most basic services. The Permanent WTC PATH Terminal project is proposed to be a fully developed, regional transportation hub that will be coordinated with existing and future transportation infrastructure, WTC site development, and development of the surrounding area.

The Permanent WTC PATH Terminal will be a world-class transportation facility. The Terminal will be fully climate controlled and feature sufficient openness to provide passengers with a sense of security as well as clear visual orientation to both interior and exterior building functions. The Terminal facilities shall incorporate sustainable architectural

design, introduce natural light where possible, conform to Americans with Disabilities Act (ADA) requirements, and ensure safety and security as required by code, and engineering analysis.

Prior to September 11, 2001, more than 150,000 pedestrians traveled through the World Trade Center complex each day, including over 100,000 daily PATH and subway riders. The future WTC PATH Terminal will act as a gateway to Lower Manhattan potentially for as many as 250,000 pedestrians daily (upon full build-out of WTC site). The Terminal will include subgrade pedestrian connections that will connect the PATH lines with the New York City Transit (NYCT) subway system, surrounding site development, and other transit facilities. These connections would extend from the WTC site into the World Financial Center (WFC) Winter Garden on the west; the planned MTA/NYCT Fulton Street Transit Center on the east; 7 World Trade Center and Tribeca to the north; and Wall Street and the Financial District on the south.

World Trade Center Site Master Plan:

On February 27, 2003 the "Memory Foundations" concept by Studio Daniel Libeskind was announced by Governor George E. Pataki, Mayor Michael Bloomberg, the Lower Manhattan Development Corporation (LMDC), and the Authority as the draft master plan concept for redevelopment of the WTC site. This Master Plan is now being refined and finalized by Studio Daniel Libeskind (SDL) in conjunction with the Authority, LMDC, and other public and private entities to establish parameters for future development of transportation, memorial and cultural facilities, public spaces, infrastructure, and commercial development at the site. The WTC PATH Terminal is a primary component of the Master Plan and would establish a grand point of arrival for the WTC site for daily commuters, workers, and local residents, as well as visitors to the memorial and cultural facilities.

Consistent with the overall WTC Site Master Plan, there is anticipated to be Architectural Design Guidelines for the Permanent WTC PATH Terminal that would be developed by SDL. The specific Architectural Design Guidelines will provide a framework for the Consultant to perform a complete preliminary design of the Terminal during the Preliminary Engineering phase. The Consultant shall be solely responsible for the complete architectural design (including all involved engineering disciplines) of specific components (as described in Section III, below) of the WTC PATH Terminal project. The Consultant's design will be reviewed by the Authority for compatibility with both the overall WTC Site Master Plan and the Architectural Design Guidelines for the Terminal (which are expected to be substantially complete within a few months from the start of the Consultant's work).

II. PROJECT SCOPE OVERVIEW

The project scope of the Permanent WTC PATH Terminal, approximately 650,000 SF, shall incorporate the components broadly outlined below. Please also refer to the attached diagrams that depict the areas of the Consultant's responsibility. The Consultant shall be responsible for the architectural and engineering design of certain project components, and shall collaborate with Authority staff performing the design for other project components of the Terminal. Roles and responsibilities with respect to the design of the Terminal are described in Section III below.

The Terminal project includes the following physical components:

- Site Preparation and Site Stabilization
- PATH Facilities (tracks, platforms, mezzanine)
- PATH Terminal Building (Transit Hall)
- North/South Pedestrian Connections (including Liberty Park Underpass)
- East/West Pedestrian Connections (including World Financial Center Underpass)

The project also includes the following major specialty areas that would be integrated throughout the Terminal:

- Security
- Sustainable Design
- Vertical Transportation and Conveyances
- Public Wayfinding Systems

A. Permanent WTC Site Stabilization and Site Preparation

The damage resulting from the destruction of the World Trade Center requires significant repair and stabilization to ensure the permanent structural integrity of the Terminal foundations. Site preparation work also needs to be performed to provide for efficient reconstruction of the major components of the WTC complex, including the Permanent WTC PATH Terminal. Work includes repairs and permanent reinforcement of the slurry wall that surrounds the WTC site (WTC "bathtub") including structural slabs to provide lateral bracing under a plan to be developed by the Authority, demolition of remaining damaged structures, underpinning of the NYCT 1/9 and N/R subway tunnels for pedestrian connections, new site foundations, and related excavation on the WTC site (particularly the area east of the NYCT 1/9 subway).

B. PATH Tracks and Platforms

The PATH tracks, platforms, and mezzanine levels would all be located within the WTC "bathtub" as they were prior to September 11, 2001. At platform level, work includes full restoration of three station platforms to accommodate 10-car PATH trains (the current temporary platforms accommodate 8-car trains), and adding a fourth platform and possibly another (sixth) track that would enable passengers to enter and leave PATH cars from both sides. The project also includes installation of permanent escalators, elevators and stairs. In addition, the wooden tie and ballast track system leading to the platforms would be replaced with a direct fixation, concrete track bed.

C. PATH Mezzanine Level

The mezzanine/fare zone level would be expanded to allow for multiple points of entry/exit from platform level, including construction of a two-story mezzanine with east and west fare zones, additional turnstiles and expansion of operational spaces and Authority police facilities. This will include installation of heating and air conditioning systems and vertical circulation components (escalators and elevators). These facilities would provide all-weather protection and facilitate circulation for PATH riders, restoring functions that existed prior to September 11, 2001. New fare collection equipment utilizing the latest technology would also be installed.

D. PATH Terminal Building (Transit Hall)

This component is defined by the creation of a multi-level transit hall (above and below grade), approximately 28,000 SF footprint, including highly visible connections to all mass transit services and streets, which would enable passengers to connect quickly and easily to subway, bus and PATH services, similar to transit functions provided at Grand Central Terminal in midtown Manhattan. The PATH Terminal Building would incorporate direct entrances to the PATH lines, as well as the NYCT IRT 1/9, BMT N/R, and IND E subway lines, and would accommodate pedestrian connections extending in all directions to connect with the rest of the WTC site development and adjacent streets. The PATH Terminal will be configured in such a way as to not preclude potential future transit facilities and connections on or immediately adjacent to the WTC site.

E. Pedestrian Connections

The pedestrian connections, approximately 170,000 SF, are a system of underground public circulation spaces connecting the WTC site development with PATH, the NYCT transit system, the World Financial Center Winter Garden, and various street access points around the perimeter of the site. The connections would be environmentally controlled spaces that would introduce natural light where possible. Pedestrian access through the space will be accommodated by multiple locations of vertical circulation including high performance escalators, moving walkways, and glass elevators where possible.

a. North/South Pedestrian Connections

Conceptually, these include circulation corridors located east of the NYCT 1/9, extending north from the Terminal Building to provide access to the NYCT E subway line, and to Church Street (at the corner of Vesey Street). Other north-south pedestrian circulation corridors would be located west of the NYCT 1/9, extending north from the east-west corridor in the area of the World Trade Center bathtub to provide access to future World Trade Center site development, 7 World Trade Center, and Vesey Street. A Liberty Park underpass would extend south from the PATH Terminal Building to provide access to the NYCT N/R subway lines and a southeastern link under Church Street to connect with Liberty Park.

b. East/West Pedestrian Connections

Conceptually, these would include circulation corridors extending from the PATH Terminal Building west to the World Financial Center's Winter Garden. This fare-free concourse would be developed as a major public transportation space and provide access to World Trade Center site development. The eastern portion of this connection would provide direct access to PATH lines, the planned NYCT Fulton Street Transit Center (incorporating the NYCT 2/3, 4/5, A/C and J/M/Z subway lines), as well as potential future mass transit lines. The western portion of this connection would extend to the future World Trade Center memorial, and West Street. An underpass would extend below West Street to connect with the World Financial Center (WFC) and Winter Garden, and improve access to the expanded World Financial Center Ferry Terminal being constructed by the Port Authority. The potential location of this World Financial Center underpass would not preclude a future depressed configuration for West Street.

F. Street Entries

The Terminal would provide various street entrances on Church, Greenwich, Vesey, and Liberty Streets. These entrances are either contained within the building base or are free standing as kiosks in exterior public spaces. Each entrance connects the Terminal with the neighborhoods in and around Lower Manhattan.

G. Specialty Areas

a. Security

A security strategy, and physical components required to implement that strategy are to be integrated throughout the project design, in interior and exterior public areas and operational spaces, to provide appropriate levels of protection against various threat scenarios. Mitigation measures may include blast protection using protective construction, CCTV systems, physical intrusion protection, and chemical, biological, and radiological security.

Note: Due to the sensitive nature of this particular analysis, documents produced including all back-up calculations, data, and other materials may be subject to confidentiality restrictions and produced as separate packages.

b. Sustainable Design

Principles of Sustainable Design are to be integrated for the entire scope of work for all project components and shall be incorporated with related construction stage services and through building commissioning. Sustainable design scope shall conform to Sustainable Guidelines, to be established by the Authority and shall include, but may not be limited to the following:

- Energy efficient systems
- Indoor Environmental Quality
- Operations and Maintenance Considerations
- Material and Resource Conservation (including construction)
- Water Conservation

c. Vertical Transportation and Conveyance Systems

As the vertical circulation and conveyance systems are critical to the successful functioning of the Terminal and pedestrian connections, the elements selected to comprise these systems must be heavy duty, reliable, maintainable, and not negatively impact passenger security within the station.

d. Public Wayfinding Systems

A wayfinding and information program, that is intelligent, continuous, and dynamic as well as static, will be developed to direct passengers to a variety of destinations. Emerging technology will be utilized to incorporate this wayfinding system, with multi-media displays of transit information, news and advertising.

In order to advance the design process, the Authority will make available to the Consultant, previous planning studies of these project components. These studies, including technical analyses, address conceptual designs and issues related to the project components and specialty areas discussed above.

In tandem with these studies, the Consultant will be provided information from other WTC site planning efforts currently under way that have identified common site utility infrastructure needed to support the transportation facilities, as well as the overall future WTC site redevelopment program, including commercial office and retail development, open public space and a significant WTC Memorial. These studies, analyses, and reports will be in addition to the WTC Site Master Plan and the specific Architectural Design Guidelines for the WTC PATH Terminal previously described.

III. PROJECT DESIGN RESPONSIBILITIES

To produce the design of the project components and specialty areas described in Section II in an expeditious and timely manner, it is anticipated that the Consultant shall provide design services for the Permanent WTC PATH Terminal in collaboration with the Authority's (in-house) design staff. As previously indicated, all design work shall be consistent with the WTC Site Master Plan and the Architectural Design Guidelines for the WTC PATH Terminal (that are expected to be substantially complete within a few months from the start of the Consultant's work). The following describes the respective roles and responsibilities of major groups involved in design management and coordination, and design preparation of the Permanent WTC PATH Terminal project. Please also refer to the attached Organization Structure chart, included herewith and made a part hereof.

A. The Authority's Priority Capital Programs Department

The Director, Priority Capital Programs (PCP) and PCP staff are responsible for overall implementation of the Permanent WTC PATH Terminal program, as part of an overall Downtown Restoration Program. PCP staff are involved in establishing and controlling the project scope, schedules, and budgets; as well as interfacing with all internal (Authority and PATH) staff and external entities (including the FTA, LMDC, WTC net lessees, MTA/NYCT and other public and private entities) to guide and advance the design and construction in relation to operational, financial, legal, business and other public objectives of the program.

B. WTC Site Master Plan Architect

Studio Daniel Libeskind (SDL) will be the Master Plan Architect responsible for preparation of the final WTC Site Master Plan, and is expected to have an ongoing review and oversight role. SDL shall function as the coordinating entity for WTC site plan elements, providing input and guidance to the various public and private entities responsible for the implementation of specific components, including the transportation, memorial, cultural, commercial development programs. Consistent with the overall WTC Site Master Plan, there is anticipated to be specific Architectural Design Guidelines for the Permanent WTC PATH Terminal that would be developed by SDL, to establish the framework for the architectural and engineering design work by the Consultant and others.

C. The Authority's Engineering Department - Program Management Division

The Engineering Program Manager (EPM) and his staff will be responsible for the overall management and coordination of all project design activities of the Consultant and in-house Engineering Department design staff. The EPM staff will insure the

coordination and collaboration of work amongst all Consultant and in-house design staff, during the performance of their respective design roles and responsibilities. The EPM staff will also provide coordination with the WTC Master Plan Architect through the Priority Capital Programs Department.

D. The Authority's Engineering Department - Design Staff

The Authority's Engineering Department will perform, with its in-house design staff, the Preliminary Engineering and Final Design for PATH facilities (platforms, mezzanine, tracks), including interfaces with other WTC site and surrounding area development. Said staff will also perform the Preliminary Engineering and Final Design for WTC site stabilization and site preparation, work within the existing WTC bathtub including diaphragm (slurry) slabs, tie back wall supports, and any excavation and demolition.

E. Architecture & Engineering Consultant

The Consultant shall perform the Preliminary Engineering, and (only upon additional authorization from the Authority) the Final Design of the WTC PATH Terminal Building and most of the pedestrian connections. The Consultant's work shall include (but is not be limited to) all of the architecture and engineering design disciplines listed in Section IV. Architectural design for these WTC PATH Terminal components would be the responsibility of the Consultant's lead architectural consultant. It is required that the Consultant's Mechanical Electrical Plumbing (MEP) services shall be provided by a single entity.

The Consultant's general project responsibilities shall also include (but may not be limited to) development of a Basis of Design Report, Preliminary Engineering documents, and (if further authorized by the Authority) the Final Design and contract documents, all including meeting participation, cost estimating, report preparation, preparation of drawings and specifications, construction schedule and construction cost estimates, post award services, as well as related briefings, reviews, and presentations.

F. Major Design Responsibilities of the Consultant

As indicated above, the Consultant shall provide significant design services for the WTC PATH Terminal Building and most of the pedestrian connections, which are primarily located to the east of the existing WTC bathtub and NYCT 1/9 subway structure, and would include underpinning of that subway line as a major project element. The following highlights major design activities to be performed by the Consultant, that are more fully detailed in Section IV:

1. Architectural

- a. Design of new transportation facilities that meet intent of the WTC Site Master Plan framework and adherence to Architectural Design Guidelines for the WTC PATH Terminal (to be prepared by others).
- b. Prepare an overall code analysis for the WTC PATH Terminal
- c. Ongoing coordination with other elements of the WTC Site Master Plan, including memorial and commercial development
- d. Develop and incorporate design criteria for all specialty areas listed in Section II,

B, above.

- e. Analyze project implementation issues relative to staging and schedule.
2. Structural/Civil/Geotechnical Engineering
 - a. Accommodate security criteria (to be provided to the Consultant by the Authority) throughout the structural design
 - b. Design for any permanent lateral support for diaphragm walls as required to implement the Terminal project.
 - c. Develop design methodologies for tunneling/underpinning under Church St., Vesey St., and the IRT 1/9 subway consistent with the WTC Site Master Plan and Architectural Design Guidelines.
 - d. Perform subsurface investigations for new structures and present findings.
 - e. Provide analysis and design necessary for all existing structures (e.g., the temporary WTC PATH Station, NYCT 1/9 subway tunnel), as affected by each of the anticipated stages of construction of the terminal. Perform staging and sequencing design to minimize disruption of service to active PATH and MTA facilities as well as local adjacent streets and utilities.
 3. Pedestrian Traffic Engineering
 - a. Analyze flows and their relation to corridor widths and access points
 - b. Verify number and size and evaluate location of vertical circulation elements
 - c. Identify areas requiring maintenance of traffic and protection of pedestrians in and around the transit facilities, such as protective enclosures, detours and diversions, or other special devices
 - d. Develop computer based pedestrian models demonstrating and evaluating the operation of proposed facility designs.
 - e. Determine application and design of security treatments for high volume pedestrian flow and congregating areas including perimeter barriers, access, control and patron screening.
 4. Mechanical/Electrical/Plumbing
 - a. Prepare computational fluid dynamics (CFD) and other modeling including emergency ventilation and smoke control for PATH facilities, including the PATH projections (subgrade portals under West Street)
 - b. Design HVAC systems, building management control systems, storm water management systems, ventilation systems, and domestic water systems.
 - c. Provide design for electrical power systems and electronic systems, including fire protection and SCADA, emergency backup for life safety systems, and tertiary power sources
 - d. Coordinate with other WTC Site development to establish how all WTC site utility systems would tap into originating sources based on a plan to be developed.
 5. Vertical Circulation and Conveyances

Recommend and prepare designs for APTA escalators, ADA elevators, and moving walkways.

6. Communications

- a. Recommend and prepare designs of systems for CCTV, radios, access controls, fire alarm systems, public address systems, and vertical circulation controls
- b. Evaluate how all systems would interface with the central PATH HOBAN control center (in Jersey City).

7. Construction Cost Estimates and Schedules

- a. Prepare construction cost estimates at 15%, 30%, 60% and 90% of completion the total design.
- b. Prepare construction schedules including staging, and phasing impacts, at 15%, 30%, 60%, and 90% of completion of the total design, as well as final contract documents. Identification of elements that need to be coordinated with other public and private entities in the overall WTC site redevelopment.
- c. Reconcile cost estimates with other cost estimates to be developed (independently) by others

8. Sustainable Design

- a. Complete studies for certain sustainable design elements such as water conservation, energy, and resource renewal methodologies
- b. Preparation of certain life cycle and cost/benefit analysis as part of sustainable design studies in Preliminary Engineering
- c. Incorporate sustainable design recommendations throughout the project design as appropriate

H. Other Consultant Design Responsibilities

The Consultant shall also participate in a collaborative design effort with Authority Engineering Department (in-house) design staff during Preliminary Engineering, and (if authorized by the Authority) the Final Design stages on all program components identified for development by in-house staff. The project components to be designed in-house are anticipated to include the PATH mezzanine and platforms, all PATH related track work and signal systems, and structural design for any new aspects of slurry wall foundations, as well as repairs and rehabilitation of the existing WTC bathtub slurry walls.

IV. DESCRIPTION OF CONSULTANT'S TASKS

Upon authorization from the Authority to proceed with the performance of services hereunder the Consultant shall submit a schedule (subject to the approval of the Authority) for performance of services consistent with the milestones contained in Section V, below. Said schedule shall identify all required meetings and submissions.

TASK A. MEETINGS

1. Meetings will typically take place at Port Authority offices. The Authority's Downtown

Restoration Program offices are currently located at 115 Broadway, NY, NY. Other primary Port Authority office locations are located at 3 Gateway Center, Newark, NJ, as well as 225 Park Avenue South, NY, NY.

2. Consultant shall schedule and attend quarterly performance meetings with the Authority and parties associated with the project and principal of Professional Firm to review performance, discuss staffing of Project and plans for the upcoming quarter. Prepare a summary record of each meeting and initiate and implement any required follow-up action.
3. Schedule and attend an orientation meeting at the beginning of the Preliminary Engineering Phase and the Final Design Phase with the Authority and all Key Personnel and other feasible personnel of the Consultant and the Consultant's Subconsultants who will be working on the Project in such phase, to assure complete understanding of the goals, schedules, and objectives.
4. Attend bi-weekly meetings throughout the Preliminary Engineering Phase and the Final Design (Construction Documents) Phase, which will include design progress review, discussions, conferences, or presentations requested or required to complete design work. Prepare agendas for all the meetings, and submit to the Authority two working days in advance of the meetings.
5. Attend all required meetings, discussions, conferences, or presentations, such as internal Authority meetings, meetings with state or city authorities, community representatives, or others requested or required to complete the work.
6. Submit brief minutes to the Authority of all meetings (both formal and informal) held during the Preliminary Engineering and Final Design Phases within three business days of the meeting. Minutes will be accepted upon review, discussion and Port Authority approval at the subsequent meeting.
7. Attend weekly Construction Phase meetings, as well as other Construction Phase meetings if authorized for Task E:

TASK B. FIELD VERIFICATION AND SURVEY

1. Conduct a field inspection and survey of the World Trade Center site and associated project areas.
2. Verify existing field conditions including taking all appropriate field measurements of existing surfaces and topographical survey information of the site and nearby adjacent area as appropriate.
3. Prior to inspection meet with Authority staff to review Authority data relevant to the inspection.
4. Provide all equipment including rigging, scaffolds and ladders as required to inspect the structure and to maintain traffic under and over the structure. Staging of inspection work may be required.
5. Submit copies of completed field findings on inspection reporting forms (which will be provided by the Consultant and approved by the Port Authority) and meet with Authority staff to discuss those findings.

6. Conduct a field inspection and/or layout test pits as necessary to verify and identify utility location and alignment.

TASK C. BASIS OF DESIGN REPORT

The Consultant shall prepare a Basis of Design Report (BDR) to be reviewed and approved by the Authority, consistent with the Architectural Design Guidelines for the WTC PATH Terminal. The BDR should establish the scope, relationships, forms, size and appearance of the project through Preliminary Engineering submittals, and indicate the coordinated development of the project across all professional disciplines.

1. The Consultant shall review the WTC Site Master Plan and the Architectural Design Guidelines for the WTC PATH Terminal (expected to be substantially complete within a few months from the start of the Consultant's work).
2. The Consultant shall prepare a Basis of Design Report for all disciplines that shall include but may not be limited to Design Criteria, Code Analysis (see the following item 3), Program Requirements for project components, a summary of scope of work, design and construction schedule(s), list of issues requiring resolution (decisions required to advance design progress), graphics depicting key scope elements or issues, executive summary and identified alternates for analysis. Upon approval of the Basis of Design Report, the Consultant may be directed to proceed with performance of Preliminary Engineering (Task C). Applicable codes and standards shall include, but are not limited to those contained in section IV, C, below.
3. Consultant shall prepare a detailed code analysis report (as a separate component of the Basis of Design Report) to include a NFPA 130 Analysis and NYC Building Code Analysis for the program. The report shall include all life safety requirements, evaluations, calculations, construction classifications, use groups, and engineered analyses required for special conditions.

TASK D. PRELIMINARY ENGINEERING DOCUMENTS

Authority Stage II Design

The Preliminary Engineering documents to be prepared by the Consultant based upon the approved Basis For Design Report shall include, but are not limited to: drawings, technical evaluations, calculations, construction cost estimates, and construction schedules, and presentation materials for approval by the Authority. A complete Preliminary Engineering document package shall include design development of all architectural and engineering disciplines components up to a 30% level of total design completion (which is inclusive of both the Preliminary Engineering and Final Design phases). This task shall also include the following:

1. General Requirements
 - a. In developing the design, the Consultant shall consider availability of materials, equipment and labor, construction sequencing and scheduling, economic analysis of construction and operations, maintenance requirements and energy conservation. The Consultants design shall comply with all Authority requirements. In the case of a conflict the more stringent requirement shall apply. All drawings shall be prepared at a final working scale (to be determined and approved by the Authority) and shall be sufficiently detailed to explain all decisions that have been made for the project. The

Consultant shall coordinate the work of all involved disciplines and shall be responsible for the resolution of any discrepancies as approved by the Authority.

- b. The Consultant shall present the Preliminary Engineering Package to Authority staff and others as required by the Authority.
- c. The Preliminary Engineering submittal shall include but may not be limited to drawings, outline specifications, three-dimensional sketches, 3D CADD renderings, sample boards with material selections for approval, scope, alternates, add/alternates and options, models, animations, calculations and reports.
- d. Drawings: Coordinated design development drawings at a working scale sufficiently detailed to explain the design intent. Detailing shall be sufficient to allow an accurate cost estimate to be made. Major equipment not in scope (for clearances, space requirements, power requirements, etc.) should be depicted for coordination purposes.
- e. The following items shall be shown on the Preliminary Engineering drawings for all disciplines:
 - Major demolition and removals
 - Hazardous material removals
 - Major construction partitioning or protection
 - General phasing and sequencing of installations
- f. The Preliminary Engineering documents shall be submitted for Authority review at 50% and 100% levels of development for this Phase (or 15% and 30% of total design completion).

2. Site Utilities / Infrastructure

- a. Layout of all site electrical power, storm and sanitary systems including existing and proposed utility locations and intended storm and wastewater disposal points.
- b. Include types and one-line schematic distribution diagrams and locations of all underground utilities (including capacity and condition of existing utilities) and a statement of adequacy of same.
- c. Combined site and/or utility plans shall also show all related site elements such as vaults, curbs, steps, grating and associated site drainage with proposed levels and elevations, existing and proposed surface treatments.

3. Architectural

- a. Detailed building plans for every level (including roof), to include the following:
 - Location of major or typical new penetrations
 - Partition configurations and types
 - Alterations required for accessibility
 - All aspects of fire safety and fire protection configuration
 - Location of rated partitions
 - Compartmentation
 - Separations
 - Egress routes, occupancy calculations

- Reconfigurations and improvements
- b. Space allocation plans for every level of the project
 - c. Reflected ceiling plans for Public Spaces, Typical Floors and Special Areas including typical locations for all ceiling items: lighting, soffits, detectors, sprinkler heads, speakers, diffusers, ceiling material patterns and any other ceiling element
 - d. Large Scale Floor Plans indicating:
 - Building cores elements such as: Stairs, Toilet Rooms, Elevators, MEP Spaces, Shafts, Janitors' Closets, Typical Exterior Wall
 - Special Use Spaces such as Police Areas, Retail
 - Public Spaces such as Lobbies, Escalator, Elevators, Moving Walkways locations and framing
 - e. Building Section(s) indicating:
 - Large Scale Sections, including ceiling conditions and floor cell
 - Exterior Wall
 - Typical Conditions
 - Non-Typical Conditions
 - Stair Shafts
 - Elevator Hoistways
 - Loading Dock
 - Vertical Transportation Diagram
 - Exterior Building Elevations (Direct View)
 - Large Scale Exterior Building Elevations
 - f. Exterior Wall drawings indicating Typical, Grade-Level, Entrances, Special Ornamental Elements
 - g. Large Scale Interior Elevations including
 - Public Spaces
 - Toilet Rooms
 - Elevator Cabs
 - Special Areas
 - Atrium
 - Other
 - h. Preliminary hardware plans
 - i. Materials - Provide a preliminary finish schedule and preliminary color and materials selection boards for all interior and exterior of public spaces and building interiors and exteriors. Provide finish specifications and samples.
 - j. Models/Presentation Materials as approved by the Authority
 - All presentation material shall be of scale and quality sufficient for significant public presentations.
 - Color elevations or other representations of significant spaces shall be provided.

- Graphic presentation (drawings and renderings) material shall be in electronic formats for use in various programs such as PowerPoint and other print media.
- 3D animations shall be required for significant project components such as the PATH Terminal Building.
- Architectural Presentation Models shall be required for public display and shall be constructed at architectural scales no less than 1/8"=1'0" minimum for project details and 1/32" min for site models.

4. Landscape (Interior)

- a. Floor plan(s), sections and elevations of landscape and hardscape concepts; with typical planting layouts and details, preliminary layouts of irrigation systems
- b. Outline specifications for planting and maintenance agreements
- c. Catalogue cuts and typical details for furniture and other accessories located within the public areas

5. Graphics/Wayfinding/Signage

- a. Develop preliminary design standards manual and signage specifications for typical signage, such as room signage (e.g. number, name, function, application) egress signage (exit signs, egress information signs, painting, arrows, lines, colors, application), code compliance information signage (fire code signs, stair numbering, no smoking, occupancy limits), way-finding directional signage and informational signs, both permanent and temporary based upon standards furnished by the Authority.
- b. Develop a Wayfinding system for public Wayfinding signage and graphic specification controls manual and specification for review and approval by the Authority. Provide preliminary message schedule and signage layout indicating typical sign sizes and messages.

6. Sustainable Design and Analysis

The planning and design of buildings, equipment, systems, and services shall conform to current Authority and emerging resource efficiency and sustainability guidelines identified in the Basis of Design Report. The design shall demonstrate responsible environmental behavior that will promote 'green buildings'. The WTC PATH Terminal should seek to obtain a LEED certification award. The Consultant shall provide a detailed report identifying design and construction elements that are included and the point rating to receive a LEED award.

a. Energy Efficiency

- (1) Apply energy efficient design strategies to the building envelope. Optimize the design of the building envelope through a systematic evaluation of options to find the best combination of strategies that will cost effectively improve performance.
- (2) Evaluate building loads and determine building's most significant energy requirements.
- (3) Perform energy simulation modeling such as DOE 2.1. Develop a 'base case'

building that represents energy code minimum design against which design options for energy conservation are measured.

(4) Study Daylighting opportunities as well as lighting and controls provisions.

b. Indoor Environmental Quality Considerations

(1) Identify methods and systems to improve air quality, interior lighting and thermal comfort in public spaces and operational spaces. Identify ways to utilize maximum outdoor air and eliminate unhealthy emissions from building materials.

(2) Study ways to reduce noise and vibration during facility operation and construction and propose appropriate mitigation measures.

c. Material and Resource Conservation

Recommend 'green building' materials that are made from recycled or renewable resources, are themselves recyclable, and that have been manufactured in a manner that is least damaging to the environment. Materials should be consistent with EPA procurement guidelines and have low energy consumption

d. Water Conservation

(1) The Consultant shall investigate emerging technologies and equipment and systems design that further promote sustainable buildings and can further reduce resource consumption, waste and impact on the environment. The Consultant shall recommend Sustainable Design options and provide analysis, design modeling and reports as directed by the Authority

(2) Investigate ways to re-use storm water runoff and use of gray water

e. Operations and Maintenance

(1) Analyze and recommend building management control systems including systems for commissioning and certification

(2) Prepare LEED Certification Checklist with required documentation materials, including LEED application and tracking of progress throughout design and construction

(3) Prepare cost/benefit analysis and life cycle cost analysis of certain elements and systems proposed for implementation.

7. Geotechnical

a. Presentation of subsurface conditions

b. Compilation of engineering properties

c. Geotechnical design criteria

d. Geotechnical staging plans

e. Instrumentation and monitoring requirements

8. Structural

a. Basic structural system and dimensions

- b. Final structural design criteria
- c. Foundation design criteria
- d. Preliminary sizing of major structural components
- e. Drawings indicating staging of the construction, coordinated with the cost estimate.
- f. Staging drawings shall clearly indicate the assumed progress of construction, as well as necessary outages and service interruptions of transportation facilities, site operations, and local utilities.
- g. Critical coordination clearances
- h. Foundation Plan
- i. Foundation and Basement Wall Sections and Details
- j. Typical Below-Grade Plan
- k. Ground Level Plan
- l. Typical Floor Plans
- m. Roof Plan
- n. Preliminary Column and Beam Schedules
- o. Typical and Special Details
- p. Typical and Special Sections
- q. Preliminary framing layouts for new openings, new elements or repairs, showing main member sizes, roof loads, floor loads, wind loads, soil bearing capacity, pile capacity and plans; grades of structural steel; strength of concrete, slab thickness
- r. Preliminary design for all repairs, and enhancements to structure or joints

9. Civil

- a. Drawings shall depict at a minimum the following information:
 - (1) Base drawings shall include but not be limited to existing surface features, topography, utility information, underground building structures, tunnels and subways based on given Horizontal and Vertical Control Datums and in accordance with latest Authority CAD standards.
 - (2) All utility conflicts/impacts and subsequent design modification/relocation of such, including, but not limited to, storm, sanitary, sub drainage, gas, water, river water intakes, electrical, telephone, and fiber optics.
 - (3) Locations of tie ins and accommodation for future utility work.
 - (4) Bypass and/or staging plans of utility relocations so as not to disrupt utility service.
 - (5) Staging plans and sequence of construction to minimize disruption to West, Vesey, Church and Liberty Streets vehicular and pedestrian traffic as, well as, other adjacent streets.

- (6) General site work including, grading, drainage, roadway and sidewalk paving, bus parking and entry & egress ramps.
- (7) Study methodologies for underpinning the IRT 1/9 and study impacts on subway operations
- b. In addition, Consultant shall:
 - (1) Coordinate utility modifications/relocations with appropriate New York City & New York State Agencies, (i.e. NYSDOT, NYCDOT, NYCDEP, NYCT) and private Utility Companies/Owners (i.e. Consolidated Edison, Verizon, Keyspan)
 - (2) Prepare applications and associated drawings, sketches and calculations required for such on behalf of the Authority for applicable permits from New York City and New York State Agencies.

10. Traffic:

- a. Design documents of proposed pedestrian facilities including the sizing and capacity analyses
- b. Design plans for Terminal Entry Building vertical circulation and wayfinding elements
- c. Design plans showing security applications for high pedestrian volume areas including perimeter barriers, access control and patron check alcove.
- d. Design plans showing maintenance and protection of traffic schemes with street and sidewalk closures, detours, diversions and special devices illustrated.

11. Mechanical/Electrical/Plumbing

- a. General Components
 - (1) Systems process and instrument diagrams
 - (2) Service capacities and connected load calculations
 - (3) Fire safety assessments, hydraulic calculations for sprinkler and dry gas systems
 - (4) Typical floor plans and sections
 - (5) Major equipment room layouts, elevations and details
 - (6) One-line diagrams
 - (7) Control and block diagrams
 - (8) Riser diagrams
 - (9) Calculations, equipment sizing, efficiencies and selections.
 - (10) Equipment schedules
 - (11) Electrical closets and cables management system
 - (12) Heating, Cooling, Ventilation and Energy Load consumption calculations
 - (13) System failure analysis and service and equipment back-ups for life safety and mission-critical functions

- (14) Redundancy
 - (15) Power, water, heating and cooling requirements and systems
 - (16) Major distribution routes
 - (17) Phasing and installation sequences
 - (18) Measurement and verification provisions
 - (19) Metering system
 - (20) Grounding
 - (21) Provide electrical engineering design for electrical/electronics and related trades required to support the entire project, including normal and emergency power, grounding, normal and emergency lighting, exit lighting and signs, and fire alarm system
- b. For each MEP service provide schematic one line diagrammatic flow riser distribution diagram(s) from the point of connection.
- (1) Refrigeration Plant
 - (2) River Water Plant Rehabilitation
 - (3) Heating Plant
 - (4) River Water Distribution
 - (5) Chilled Water Distribution
 - (6) Hot Water Distribution
 - (7) Pumping systems
 - (8) Air Plants (Fans)
 - (9) HVAC Fit Out for all spaces
 - (10) Smoke Purge System
 - (11) HVAC for electric spaces and elevator machine rooms
 - (12) Smoke Control / Emergency Ventilation Systems
 - (13) Fuel oil
 - (14) Compressed Air
 - (15) Gas
 - (16) Power distribution system
 - (17) Emergency generators plant(s)
 - (18) UPS system(s)
 - (19) Fire Alarm system
 - (20) Normal and emergency lighting
- c. HVAC plans shall depict at a minimum:

- (1) Incoming steam, water, river water services and distribution
- (2) Major equipment, such as chillers, fans, pumps, compressors, fan-coil units, heating and cooling coils, heat exchangers, cooling tower, etc., sizes and locations
- (3) Summer and winter outdoor/indoor design conditions
- (4) Process and instrument diagrams along with distribution systems shown diagrammatically with appropriate sizes, and energy efficiency considerations
- (5) Typical Below-Grade Plans
- (6) Typical Floor Plans
- (7) Major Equipment Room Plans
- (8) Exhaust and Intake Penetration Locations
- (9) Riser Diagrams
- (10) System Schematic Diagrams
- (11) Major Equipment Schedules
- (12) Ventilation rates and energy use considerations
- (13) Measurements, verifications and systems balancing diagrams
- (14) Controls System Architecture for all systems
- (15) Determine technology and procurement approach for a multi use facility built in phases.
- (16) Riser Diagrams
- (17) System Schematic Diagrams
- (18) Major Equipment Schedules
- (19) Ventilation rates and energy use considerations
- (20) Measurements, verifications and systems balancing diagrams

d. Smoke Management

Prepare Computational Fluid Dynamics (CFD) and egress analysis models to determine technical approach and sizing of smoke control and emergency ventilation systems to be implemented for all major spaces (i.e., PATH Terminal Building and atriums). Prepare complete smoke control and emergency ventilation control sequence for all scenarios.

e. Plumbing Drawings depicting at a minimum:

- (1) Incoming water, fire water, storm and sewer services
- (2) Major equipment, such as tanks, pumps, heat exchangers, pressure regulating valves, etc., sizes and locations
- (3) Process and instrument diagrams
- (4) Piping layouts with major sizes shown

- (5) Fixture locations
 - (6) Roof and roof drain locations
 - (7) Major equipment locations
 - (8) Layout of special systems including fire protection systems
 - (9) Redundancy provisions
 - (10) Typical Below-Grade Plans
 - (11) Typical Floor Plans
 - (12) Major Equipment Room Plans
 - (13) Riser Diagrams
 - (14) System Schematic Diagrams
 - (15) Major Equipment sizing calculations and schedules
 - (16) Measurements and verifications systems
- f. Electrical Drawings and Fire Alarm Drawings depicting at a minimum:
- (1) Major equipment, such as electrical vaults, switchgear, distribution panels, lighting panels, motors, MCC generators, UPS systems, battery systems, communication, control and security equipment, etc., including sizes, types and locations, etc.
 - (2) sizes and locations.
 - (3) Incoming services and distribution
 - (4) Electrical one-line diagrams
 - (5) Riser Diagrams
 - (6) Block Diagrams
 - (7) Control Diagrams
 - (8) Equipment locations, elevations and details as necessary.
 - (9) Plans for exterior building lighting
 - (10) Substations and communication rooms locations
 - (11) Transformer vaults and switchgear protection
 - (12) Metering System
 - (13) Grounding
 - (14) Energy conservation considerations
 - (15) Typical Below-Grade Plans
 - (16) Typical Floor Plans
 - (17) Power control and communication cables management plans, schedules and routes.

- (18) Receptacle and exit lighting layout
 - (19) Fire Alarm system layout, description and notes
 - (20) Major Equipment Room Plans
 - (21) SCADA system
 - (22) Back-up generators, transfer switches and distribution
 - (23) Power conditioning equipment, UPS and batter systems sizing and distribution
 - (24) Major Equipment Schedules and list of approved manufacturers
- g. All MEP documents shall include but not limited to the following:
- (1) Load studies and other necessary calculations.
 - (2) Recommended lighting levels
 - (3) One line diagrams for layouts (equipment, grounding, wiring/conduit)
 - (4) Fire Alarm risers including system description, layouts
 - (5) Lighting calculations, layouts
 - (6) Emergency power and lighting systems
 - (7) Exit lighting and signs.
 - (8) Layout and dimension of electrical and cable duct banks (power, telephone, communication and data)
 - (9) Conduit routing and necessary installation details
 - (10) Size and locations of electrical, communication and telephone rooms and closets
 - (11) Future and spare capacities
 - (12) All necessary elevations, views and details
- h. Fire Protection
- (1) Incoming fire water service and interconnection to domestic water service
 - (2) Process and instrument diagrams
 - (3) Fire water and sprinkler systems hydraulic calculations
 - (4) Typical Below-Grade Plans
 - (5) Typical Floor Plans
 - (6) Major Equipment Room Plans
 - (7) Riser Diagrams
 - (8) System Schematic Diagrams
 - (9) Major Equipment Schedules
 - (10) Typical Floor Sprinkler Layout Plan(s)
 - (11) Testing, measurement and verification systems

i. Communications

(1) Identify and design communications systems

- Telephone and wireless systems
- Public address systems
- CCTV system and access control systems
- Public Address System
- Electronic Signage systems
- Primary and Secondary Command and Control Centers

(2) Provide 1-line distribution diagrams from point of connection for all systems

(3) Provide documents indicating locations and sizes of communication closets, equipment rooms, and cable management system

(4) Provide major equipment room plans

(5) Provide Building Management System communication systems riser and block diagrams, layouts and specifications

(6) Provide Security systems riser and block diagrams, layouts and specifications

(7) Provide coordination with Fare Control system

j. Vertical Transportation and Conveyance Systems

Provide plans, sections and outline specifications, and model data for all vertical transportation systems including but not limited to passenger and freight elevators, escalators, and moving walkways.

k. Security

Note: Due to the sensitive nature of this particular analysis, documents produced including all back-up calculations, data, and other materials may be subject to confidentiality restrictions and produced as separate packages.

(1) During the Preliminary Engineering phase, the Consultant shall prepare security design standards and specifications as directed by the Authority, for all security-related building components as previously mentioned, based upon criteria to be approved by the Authority.

(2) The project standards shall be included in the Preliminary Engineering phase and fully integrated into the project design and coordinated with the work of project.

(3) Prepare a computer model for airflow for the entire complex to be used as an evacuation aid during fire, biological, or chemical threat evacuations. A detailed airflow model should study likely air intake paths and contamination risks and determine the combination of dampers/air intake isolations, that could lower the risk and the recommend paths for evacuation.

(4) Perform further blast analysis for specific areas, threats, or design alternatives, or other nearby targets, and to provide recommendation on the best way to provide blast mitigation for these buildings.

(5) Determine the inherent resistance of representative components of existing or proposed curtain wall assemblies, other exterior building envelope elements, or structures to ascertain if they are strong enough to withstand the predicted blast loads and what mitigating measures should be taken

(6) Deliverables:

- Design Standards Report including text, graphics and drawings for typical applications, with each design standard and specification explained and summarized, and exceptions or alternatives noted.
- Review and confirm proposed integration policy for security equipment and systems and building information and communication systems. Based on approved Scope Confirmation Report, incorporate revised integration policy into all design work and guidelines.
- Security Options: include Design Services and consultations with the host government, and representatives of the City and State of New York to identify options to further enhance security
- Prepare a computer model for airflow for the entire complex to be used as an evacuation aid during fire, chemical, or biological threat evacuations.
- Blast Analysis Report including a table of contents, an executive summary of findings and recommendations for blast mitigation. Photographs, drawings, charts and sketches shall be included as required. Report shall also include calculations of representative blast loadings on all buildings.

l. Outline Specifications

Provide a listing of all specification sections intended for the project, items requiring long lead-time, mock-up testing and materials that may be sole sourced.

m. Construction Estimates and Schedules

- (1) Prepare a Construction Cost Estimate(s) based on Preliminary Engineering documents, which would include a design contingency of up to 15%.
- (2) Estimates shall be prepared at program milestones indicated in Section V. At a minimum, estimates shall be prepared at 50% and 100% level of the completion of the Preliminary Engineering documents (equivalent to 15% and 30% of the total design completion).
- (3) Provide estimates of time and schedules required to complete construction, as well as estimates of delivery times for all long lead-time items. Present the Construction Schedule in bar chart form using days, weeks or months as appropriate for the unit of time. Schedules shall be provided at 50% and 100% level of completion of the Preliminary Engineering documents (equivalent to 15% and 30% of the total design completion).

n. Other Miscellaneous Work

- (1) At the end of Preliminary Engineering phase, the Consultant shall provide final Preliminary Engineering Documents that shall include but may not be limited to drawings, outline specifications, three-dimensional sketches, 3D CADD

renderings, sample boards with proposed materials, models, animations, calculations, reports, cost estimates, and construction schedules.

- (2) Ongoing Design Reviews. The Consultant shall participate in ongoing design reviews with the Authority and other public and private entities. This is also expected to include Consultant's participation in periodic value planning, value engineering, and project risk assessment evaluations.
- (3) Environmental Process Support. The Consultant shall be required to perform its work in accordance with the public environmental review (NEPA) process for the WTC PATH Terminal project. Specific work including presentation materials and analyses will be requested by the Authority to support the environmental process.
- (4) Constructability Review: The project will be implemented in conjunction other WTC site development as well as PATH operations. The Consultant must perform constructability analyses of construction within this operating transit environment and make recommendations pertaining to construction feasibility on integrating transit operational requirements, regulator requirements, availability of specialized equipment (including work trains), available areas and available transit system down time. The Consultant must prepare construction phased program schedules that identify critical paths of individual projects and entire programs, sequence construction contracts and staging, and consider long lead materials and equipment.
- (5) Project Implementation Strategy: The Consultant shall evaluate and recommend design and construction sequencing and contract packaging options to allow for fast-tracking of Final Design and construction to meet target schedule milestones outlined in Section VI.
- (6) Related to other components of the WTC PATH Terminal project, the Consultant will be requested to provide certain expert professional services to support the Port Authority and Engineering Department in-house design staff in their assigned components of design work, including but not limited to, the following:
 - Architectural lighting
 - Computer rendering and animation
 - Architectural model maker
 - CAD Drafting
 - Graphics
 - Security
 - Sustainable design
 - Cost Estimating
 - Acoustical
 - Building envelope consultant
 - Retail consultant
 - Code consultant
 - Landscape Architect
 - Vertical Transportation Consultant

TASK E. FINAL DESIGN AND CONTRACT DOCUMENTS

The Consultant shall not proceed with performance of this task unless expressly authorized in writing by the Authority to do so.

The following items should be included, but are not limited to, the Final Design Package for each discipline.

1. General Requirements

When the services of the Consultant include the preparation of a Final Design, which includes preparation of contract documents the Consultant, shall conform with the following requirements:

- a. Prior to the performance of this task the Consultant shall submit a specific Quality Control/Quality Assurance Program for the professional services to be performed in connection with the Final Design Phase and the preparation of Contract Drawings and Specifications specified herein.
- b. Upon completion of the Contract Documents required hereunder, the Consultant shall submit a letter to the Engineer certifying that the Consultant has performed the Quality Control/Quality Assurance Program as defined by the Consultant at the start of this Task.
- c. Contract Drawings: Prepare a final design and Contract Drawings for work to be performed by a Contractor based on the approved Preliminary Design which shall include, but not be limited to, the appropriate work items contained in the foregoing tasks. For contract drawings, observe the following signature procedures:
 - (1) All Consultant Contracts shall have a cover sheet containing the facility name, contract title and contract number. The cover sheet shall have the appropriate places for signature by Authority staff. No other information shall appear on the cover sheet. This will be the only Contract Drawing prepared by the Consultant that will be signed by Authority staff.
 - (2) Sign and seal all drawings prepared by the Consultant
 - (3) Subconsultants shall sign and seal their own drawings. The Consultant's logo shall appear on each drawing prepared by a subconsultant.
 - (4) All drawings prepared for New York contracts shall be signed and sealed by a Principal of the firm with a New York Professional Engineer or New York Registered Architect License.
- d. Design Calculations and Diagrams: The Consultant shall submit complete design computations and design drawings covering all structural framing and supports, such as primary framing members, bracing, foundations, siding, girts, roofing and architectural finishes. The Consultant shall also submit calculations necessary to support MEP design.
 - (1) Calculations shall clearly distinguish between new and existing construction. Documents from which existing dimensions and existing member properties were obtained shall be referenced in the calculations.

- (2) All engineering calculation sheets shall be numbered, dated, and indexed. The index sheets shall define the total number of the sheets submitted and shall bear the seal and signature of an experienced engineer holding a Professional Engineer's license in either the State of New York and who is familiar with and responsible for the design.
 - (3) If computations are submitted in computer print-out form, furnish the following. Description and proof of adequacy of the program. The description of each program shall include:
 - The type of problems solved by the program.
 - The nature and extent of the analysis.
 - The assumptions made in the program.
 - Instructions for interpreting the computer output format.
 - (4) Indicate the design criteria used and the diagrams showing the loading conditions and loading combinations.
 - (5) The design constants and equations used, including all references.
 - (6) Submit indexed and clearly identified input and output sheets for the entire structure or for those portions of the structure, which will be sufficient to enable the Authority to evaluate the structure.
 - (7) Submit a clear diagram of all member forces (axial, shear, bending or other forces, as appropriate) for each loading condition controlling the design.
- e. The Final Design documents shall be formally submitted for Port Authority review at 60%, 90%, and 100% of the total design completion.
- f. Construction Documents Deliverables
- (1) Technical bid documents for all disciplines, including Drawings, and specifications. Documents are to be complete, clear, fully coordinated between disciplines, and accurate, describing in detail all of the work, to include all schedules, details, plans, dimensions and diagrams necessary for full understanding, accurate bidding and construction of the work.
 - (2) Provide complete Construction Documents corresponding to individual construction bid packages, as directed by the Authority. The Professional Firm shall provide the Authority with a complete set of reproducible drawings and documents as well as electronic files conforming to the project Standards.
 - (3) Major equipment not in scope (for clearances, space requirements, power requirements, etc.) should be depicted for coordination purposes.
 - (4) All demolition and removals shall be indicated as part of the contract documents.
 - (5) Site Utilities / Infrastructure:
 - Detailed plans of all site water supply systems including but not limited to final layout of all site water supply and distribution, back flow prevention electrical power, storm and sanitary systems including existing and proposed utility locations and intended storm and wastewater disposal points.
 - Detailed plans of all, water meters, pumps, hydrants, etc

- Types and distribution diagrams and locations of all underground utilities (including capacity and condition of existing utilities) and a statement of adequacy of same. Types and locations of all underground utilities (including capacity and condition of existing utilities) and a statement of adequacy of same.
- Combined site and/or utility plans shall also show all roof grading and drainage, proposed levels and elevations, existing and proposed surface treatments. Utility plans shall include all other work necessary to fully define the intended design including final functional and relocation programming with existing conditions.
- Final site electrical power distribution plans including vaults, manholes, pull boxes, etc. with typical details and sections.
- Final storm and sanitary distribution plans and details including finalized existing and proposed utility locations and intended storm and wastewater disposal points.

(6) Architectural

- Finalized detailed building plans for every level (including roof plans), indicating design details and locations of all elements, including:
 - partition schedules and details
 - All telecommunications, audio/visual, power and data, lighting, and security systems
 - Finalized door and finish schedules, including hardware plans and schedules
 - Large Scale Floor Plans indicating:
 - Vertical Circulation and Conveyance packages
 - Fare Control Area
 - Special Operational Spaces
 - Street Entries
 - Public Spaces
 - Building Section(s)
 - Exterior Wall Detail
 - Large Scale Interior Elevations
 - Finish materials
 - Detailed final color and materials palettes for all interior and exterior materials
 - Finish specifications and samples.
 - Color elevations or other representations of significant spaces
 - Color and material boards for furniture selections
 - Final layout and schedules of all equipment and furniture

(7) Landscape (Interior)

- Final site plan(s), sections and elevations including landscape and hardscape components, planting details and irrigation systems.
- Final specifications for planting and maintenance agreements

- Catalogue cuts and final details for furniture and other accessories located within the public areas
- (8) Graphics/Wayfinding/Signage
Provide all necessary details of signage elements including but not limited to sign boxes, illumination details, support structures, signage schedules and location plans for all public spaces within buildings and above grade for the program.
- (9) Sustainability Design Components
- (10) As part of the Construction Document phase, the Consultant shall develop for review and approval by the Authority for all projects the following:
- Develop standards for commissioning procedures and requirements. Standards shall include requirements for systems testing and commissioning in accordance with recommendations of ASHRAE, IEEE, NFPA, US Green Building Council and the WTC Sustainable Guidelines to ensure that the instruments and controls are properly calibrated, water and air flows are properly balanced and systems respond properly to controls for optimum operation.
- (11) As part of the Post Award Services, the Consultant shall coordinate with and participate in commissioning, testing, balancing and quality assessment prior to turnover and acceptance of each system for every project. The firms for commissioning, testing and balancing support will be selected in cooperation with the Authority.
- (12) Verify that final systems selected provide a life cycle cost/benefit.
- (13) Indicate operations and maintenance requirements of all systems specified
- (14) Geotechnical
- Final Geotechnical design criteria
 - Geotechnical report
 - Geotechnical specifications and drawings
 - Geotechnical staging drawings
 - Instrumentation and monitoring specifications and drawings
- (15) Structural:
- Roof loads, floor loads, wind loads, earthquake zone, soil bearing capacity, grades of structural steel; strength of concrete, slab thicknesses, special mix design and placement considerations.
 - Temporary shoring requirements of in place construction shall be indicated
 - All alterations to existing and new structural systems and dimensions
 - Drawings indicating the assumed staging of the construction. Structural staging drawings should clearly indicate the assumed progress of construction, as well as applicable notes and sequences to ensure all work is performed in accordance with minimal agreed upon outages and service interruptions.
 - Final sizing of major structural components
 - Critical coordination clearances
 - Below-Grade Plans
 - Final Column and Beam Schedules and details

- Final framing layouts for new opening, new elements or repairs, showing main member sizes, roof loads, floor loads, wind loads, soil bearing capacity, pile capacity and plans; grades of structural steel; strength of concrete, slab thicknesses, etc.
- Final design and details for all repairs, and enhancements to structure or joints

(16)Civil

- Alignment plan(s) showing horizontal and vertical alignments curve data tables, existing and proposed roadway, track work and ramp profiles where required
- Removal plan(s) showing the removal or abandonment of existing roadways and utilities and all appurtenances.
- Plan and design for underpinning the NYCT 1/9 subway
- Utility plan showing the layout and data table providing the coordinates (station and offset) of the manholes and catch basins, pipe sizes, inverts, materials, valves
- Profiles for water main and sanitary/combined utility installation.
- Provide locations and details of all underground existing utilities requiring supporting, relocation or exercising care during construction within the area (underneath and east of the NYCT 1/9 subway)
- Detail sheets showing details of pavement sections, curbs, sidewalks, drainage, water & sanitary systems, pipe bedding, manholes, catch basins

(17)Traffic:

Re-run computer flow model to verify level of service and egress

(18)Mechanical/Electrical/Plumbing:

General Components:

- Service capacities and connected load calculation
- Detailed plans of major equipment sizes and locations
- Detailed floor and reflected ceiling plans
- Major equipment room layouts, sections and detail
- Details of system and riser diagrams
- Equipment schedules, indicating final selections and all relevant energy conservation measures.
- Energy consumption calculations
- HVAC fit out for all spaces
- Smoke Management System
- Controls
- Determine technology and procurement approach for controls for multi-use facility built in stages.
- System diagrams for each system
- Process and Instrumentation Diagrams for each system
- System architecture drawings
- Control and monitoring point matrices for each system
- Audit controls testing and commissioning
- Narrative sequence of operations for each system

- Meetings with utility and regulatory companies upon request.
- Energy consumption calculations
- System failure analysis and service and equipment back-ups for life safety and mission-critical functions
- Redundancy
- HVAC fit out for all spaces

Plumbing:

- Detailed core / toilet plans
- Layout of all major mechanical spaces,
- Location and layout of special systems and major equipment, such as tanks, pumps, heat exchangers, pressure regulating valves, etc., sizes and locations
- Piping layouts with all sizes shown
- Details of systems and riser diagrams
- Detailed final System Diagrams
- Electrical/Electronics and Fire Alarm and Communications
- Finalized detailed site and building plans including light, power, control, communication, signal, life safety and special systems,
- System details block and riser diagrams
- Electrical/Electronics equipment and light fixture types
- Schedules and details and all relevant energy conservation measures.
- Final layout of all major electrical equipment and spaces, such as electrical vaults, closets, switchgear, distribution panels, lighting panels, motors, generators, UPS systems, battery systems, etc., sizes and locations
- Site plans for exterior lighting
- Normal, emergency and exit lighting
- Normal and emergency power
- Below-Grade Plans
- Floor Plans
- Cables management plans and routes
- Major Equipment Room Plans and details including fire alarm system devices, risers, command centers and interconnection to HVAC, elevator recall and other life safety systems
- Load, voltage drop, short circuit, lighting, battery size and other necessary calculations.
- CCTV and Access Control Diagrams
- Coordinate with Fare Control System

Fire Protection

- Detailed plans of all fire protection systems, control panels, etc
- All Below-Grade Plans
- All Floor Plans
- Final detailed System Diagrams
- All Sprinkler Layout Plan(s)
- Testing, measurement and verification systems
- Vertical Transportation and Conveyance Systems

- Provide plans, sections, machine room details and specifications for all elements of vertical transportation (escalators, freight elevators, passenger elevators and moving walkways). For the elevators, provide pit and overhead details.

(19) Security

- Consultant shall implement the design of security components based on approved criteria and standards. All security systems and equipment will be designed by a professional Security firm (while the partitions, finishes, structure, HVAC, electrical work, will be included in the work of the MEP Firm)
- Consultant shall participate in Contract Document preparation and prepare specifications and other documentation as required for the project security requirements.
- Prepare security specifications for all security-related building components included in individual projects, such as required ballistic ratings, required adjustments to receive security devices, required characteristics and details, required lighting levels, configuration, dimensions and characteristics for Secondary Security Control Center

(20) Specifications and Construction Staging Drawings

- Provide recommended construction phasing and staging plan for all the project components
- Prepare Contract Specifications to include:
 - Division 1 - Provide the following information for the Authority Standard Division 1 Specifications which will be prepared by Authority staff:
 - > Information specifically related to Conditions and Precautions, Staging, Available Property, Temporary Structures, and other General Provision Requirements of the subject contract.
 - > A list of the Contract Drawings.
 - > A list of unit price items, where appropriate, with description and estimated quantities for each item.

(21) Technical Specifications

- The Authority has prepared certain standard technical specifications, which will be made available in hard copy and/or on CD as requested by the Consultant. These standard technical specifications must be used by the Consultant and may not be altered or revised in any way by the Consultant. Since these standard Technical Specifications may contain materials and related procedures, which are not appropriate to the specific Contract being proposed, the contract drawings must clearly define the materials and scope of work. Division 1 of the Authority's specifications dealing with general provisions, includes the following language:

"In case of a conflict between a requirement of the Contract Drawings and a requirement in Division 1 of the Specifications, the requirement of Division 1 shall control. In case of a conflict between a requirement contained in other Divisions of the Specifications and a requirement of the

Contract Drawings, the requirement of the Contract Drawings shall control."

- The Consultant shall prepare any technical specifications, which are not available from the Authority. Any technical specifications prepared by the Consultant shall be in the same format as the Authority standard technical specifications and the Consultant shall make any changes therein requested by the Authority throughout its various reviews.
- The Consultant shall comply with the "Instructions to Consultants for Preparation of Port Authority Construction Contract Documents" which will be made available upon commencement of work by the Consultant.
- Other than hard copies of specifications prepared by the Consultant that are to be submitted to the Authority as noted herein, the Consultant shall submit compact disk copies of said specifications. One disk copy shall contain the specifications in the format of the original word processing program used by the Consultant, and shall be labeled to clearly indicate the contract title, the name of the word processing program used and the revision number of said program. Another disk copy of the software program shall be submitted in ASCII format.

(22) Construction Estimate and Construction Schedule

- Prepare a Construction Cost Estimate(s) based on the final Contract Drawings and Specifications and in accordance with the Authority's "Construction Estimating Guide" (a copy of which is available from the Project Manager).
- Estimates shall be prepared at program milestones indicated in Section V. At a minimum, estimates shall be prepared for the Final Design phase for all program components at a minimum of 60%, 90% and 100% of total design completion.
- Provide estimates of the time and schedule required to complete construction, as well as estimates of delivery times for all long lead-time items. Present the Construction Schedule in bar chart form using days, weeks or months as appropriate for the unit of time, at the 60%, 90%, and 100% of the total design completion.

(23) Miscellaneous

- At the end of Final Design and Contract Documents phase, the Consultant shall provide final documents that shall include but may not be limited to drawings, contract specifications, three-dimensional sketches, 3D CADD renderings, sample boards with proposed materials, models, animations, calculations, reports, cost estimates, and construction schedules.
- Ongoing Design Reviews. The Consultant shall participate in ongoing design reviews with the Authority and other public and private entities. This is also expected to include Consultant's participation in periodic value planning, value engineering, and project risk assessment evaluations.
- Participate in an on-going review of the various design documents, specifications, cost estimates, schedules, etc. so as to incorporate the various

project wide design, engineering, and other project controls established by the Authority. This may include but not be limited to project-wide design controls, project-wide engineering criteria, urban design guidelines, signage master planning, lighting system design, standard detailing, environmental and regulatory requirements, master project scheduling, value engineering, graphic and/or electronic drawing standards, master specification formatting, correspondence and document control.

- Environmental Process Support. The Consultant shall be required to perform its work in accordance with the public environmental review (NEPA) process for the WTC PATH Terminal project. Specific work including presentation materials and analyses will be requested by the Authority to support the environmental process.
- Consult with the Authority to establish structure of Construction Document Submittal and bid documents, in terms of scope and number of construction contracts and timing of each bid, Construction Phase policies or procedures.
- Constructability Review. The project will be implemented in conjunction other WTC site development as well as PATH operations. The Consultant must perform constructability analyses of construction within this operating transit environment and make recommendations pertaining to construction feasibility on integrating transit operational requirements, regulator requirements, availability of specialized equipment (including work trains), available areas and available transit system down time. The Consultant must prepare construction phased program schedules that identify critical paths of individual projects and entire programs, sequence construction contracts and staging, and consider long lead materials and equipment.
- Related to other components of the WTC PATH Terminal project, the Consultant will be requested to provide certain expert professional services to support the Port Authority and Engineering Department in-house design staff in their assigned components of design work including, but not limited to, the following:
 - Architectural lighting
 - Computer rendering and animation
 - Architectural model maker
 - CAD Drafting
 - Graphics
 - Security
 - Sustainable design
 - Cost Estimating
 - Acoustical
 - Building envelope consultant
 - Retail consultant
 - Code consultant
 - Landscape Architect
 - Vertical Circulation

TASK F. SERVICES DURING THE CONSTRUCTION PHASE (TASK ORDER)

Authority Stage IV Construction

The Consultant shall not proceed with any work on this Task without express written consent of the Port Authority's Project Manager.

- (1) Submit your specific Quality Control/Quality Assurance Program for the professional services to be performed in connection with the performance of your Post Award Duties specified hereunder.
- (2) Review, and approve or disapprove all working drawings, catalog cuts and samples for conformance with the Specifications and Contract Drawings within 10 working days after receipt of said articles from the Contractor, for those articles for which the Consultant is the Engineer-of-Record. Indicate any corrections and additions as required. Advise the Authority thereof giving the reasons for your decisions. Make all required distributions through final approval. Six copies of each working drawing will be required.
- (3) In addition to any on-site observations the Consultant may require as the Engineer-of-Record, attend, at the request of the Authority, two pre-construction meetings and one field meeting for each month of the construction period.
- (4) Prepare and submit, at the first pre-construction meeting, an outline list of required contractor's submittals to include but not be limited to, working drawings, catalog cuts, samples, certificates and test reports.
- (5) Upon completion of construction, modify the Contract Drawings to "as-built" conditions and certify the same. The Authority will furnish the "as-built" information to be verified and incorporated.
- (6) Evaluate alternative construction details and materials, as requested by the Authority.
- (7) Make post-award contract changes with detailed estimates and make site inspections as required for the changes.
- (8) Maintaining clear, dated records of all pertinent documents including but not limited to transmittals, submittals, and responses, RFI's and responses, meeting minutes, shop drawing mark-ups; designs, calculations or drawings prepared during the construction phase. These documents shall be made readily available to the Authority upon request. Upon project completion or at the request of the Authority, all of these documents shall be listed, filed, and submitted to the Authority for their files.
- (9) Compensation for the evaluations and changes referred to in paragraphs 6 and 7 above shall be computed in accordance with the paragraphs of the Agreement relating to compensation and shall not be charged against the estimated cost, provided that none of these items result from non-compensable work.
- (10) Commissioning Services for all projects:
 - Develop standards for commissioning procedures and requirements, integrated into Design Standards. Include requirements for systems testing and commissioning in accordance with recommendations of ASHRAE, IEEE, NFPA and US Green Building Council to ensure that the instruments and controls are properly calibrated, water and air flows are properly balanced and systems respond properly to controls.

for optimum operation.

- Coordinate with and participate in commissioning, testing, balancing and quality assessment prior to turnover and acceptance of each system for every Project. The firms for commissioning, testing and balancing support will be selected in cooperation with the Authority.

During the Post Award phase, the Consultant shall prepare maintenance, testing, installation, instruction manual(s) or any other written or graphic material as directed by the Authority for the installation, use, maintenance and operation of the security program.

TASK G. WTC SITE DEVELOPMENT COMPONENTS (TASK ORDER SERVICES)

There are site development and infrastructure components, particularly on the eastern portion of the WTC site that may be incorporated as coordinating elements with the WTC PATH Terminal, including potential lower level structural slabs, new slurry walls, and associated demolition, excavation, and foundations. The Authority will determine whether any such work would become part of the WTC PATH Terminal project, in conjunction with the progress of other WTC site development. Any such work if authorized, would be performed as an additional task.

V. SCHEDULE AND SUBMISSIONS

A. Anticipated Program Schedule

The following project design durations are expected on the Consultant's Tasks as described herein:

1. Basis of Design Report - completed within 3 months after authorization to proceed by the Authority
2. Preliminary Engineering Documents - completed within 9 months after authorization to proceed by the Authority (may be concurrent with the Basis of Design Report)
3. Final Design and Contract Documents - completed within 12 months after authorization to proceed by the Authority. Discrete project components may be authorized for Final Design at different times.

These durations are meant as general timeframes, and may be impacted by progress of other WTC Site redevelopment work, as well as the public environmental review (NEPA) process. The Authority currently anticipates the start of construction for the Permanent WTC PATH Terminal in late 2004 or early 2005. Completion of the certain portions of the project are targeted by the end of 2006, with other components by late 2009.

B. Quality Control/Quality Assurance

1. Submit your specific Quality Control/Quality Assurance Program for the professional services to be performed in connection with the final design and the preparation of Contract Drawings and Specifications specified herein.
2. Submit a letter to the Engineer certifying your compliance with the Quality Control/Quality Assurance Program established by the Consultant for the preparation of Contract Documents as required herein, along with one set of original mylar tracings of the complete Contract Drawings, reproducible masters of the Technical

Specifications and a final construction cost estimate.

3. Submit your specific Quality Control/Quality Assurance Program for the professional services to be performed in connection with the performance of your Post Award Duties specified hereunder.
4. The completed Contract Drawings and Technical Specifications submitted above will be reviewed by the Port Authority's Law Department. The Consultant shall make any changes to the Contract Drawings and Technical Specifications resulting from this legal review and submit the revised Contract Drawings and Technical Specifications, which will be used for bidding purposes.

VI. ADDITIONAL INFORMATION FOR PREPARATION OF DESIGN DOCUMENTS AND CONSTRUCTION COST ESTIMATES

Except as otherwise noted herein, the Preparation of Preliminary Engineering and Final Design (Contract Documents) shall conform to Port Authority standards, and codes which would be applicable if the Authority were a private corporation. In case of a conflict, the more stringent requirement shall apply.

A. General Requirements

1. Prepare all Contract Drawings on standard size Port Authority mylar tracings to be furnished by the Authority. Contract Drawings may be reduced to one-half size prints before distribution to contractors for bidding. Tracings shall, therefore, be prepared in such manner as to produce clearly legible drawings after reduction. Scales shall be graphical rather than numerical, and include a metric conversion scale.
2. Meet with the Authority and incorporate Port Authority comments after submittals.
3. The following additional services shall be provided as part of this Agreement:
4. Answer questions asked of the Authority staff by bidders during the bid period.
5. Prepare Contract addenda including Contract Drawing revisions and engineering calculations, as necessary or as requested by the Chief Engineer, for Port Authority approval and issuance by the Port Authority. Furnish originals for final printing.
6. Conform Technical Specifications and Contract Drawings to addenda when directed by the Chief Engineer after award of the Contract.
7. Upon request, assist Port Authority staff in performance of tasks below:
 - a. Prepare Information for Bidders, Form of Contract, Division 1 of the Specifications and the Analysis of Bid and Contract Progress Schedule.
 - b. Meet with Consultant from time to time to review all Specifications, Contract Drawings, construction cost estimates and schedules prepared.
 - c. Review with, and transmit comments from, various Port Authority Departments to the Consultant for incorporation by him into the Contract Documents.
 - d. Review addenda with and obtain approval of various Port Authority Departments.
 - e. Solicit, receive, open bids, and award Contract or reject bids.

8. Document Management Standards

- a. The Consultant shall maintain clear, dated records of all pertinent documents including but not limited to transmittals, submittals and responses, Consultant or Port Authority requests and responses, meeting journals and minutes, drawings, original marked shop drawings; engineering design, calculation and drawings prepared during each project stage. These documents shall be made readily available for review by the Engineer upon request. Upon the completion of each project stage, or at the request of the Authority, all these documents shall be listed, filed and submitted to the Authority.
- b. Submit proposed paper and electronic formats of all deliverables for Authority approval prior to first or draft submittal; include this process on the appropriate schedule. In every instance when information can be communicated in several ways, propose the clearest and least complex method: outlines are preferred over text, matrices are preferred over narrative, complete diagrams are preferred over incomplete detailed drawings, and sketches and photographic images are preferred over complex rendered images.
- c. Utilize Port Authority drawing and CADD standards.
- d. Develop an internal document control and version control system for documents.
- e. Consult with the Authority and fully coordinate electronic strategy, so that all deliverables are accessible, and the drawings, specifications, schedules and estimates become the basis for computer aided facilities management of the buildings as each construction phase is completed. Review anticipated Port Authority electronic strategy, and utilize approved hardware and software. The systems presently anticipated are:
 - Primavera Project Planner (P3) construction scheduling and construction management
 - Microsoft Excel 2000: budgeting, cost monitoring, tables, and charts
 - Microsoft Word 2000: word processing
 - Microsoft PowerPoint: graphics and presentations
 - Microsoft Project 2000: design schedules
 - Prolog Manager 6: construction document management.
 - Prolog Website: web browser interface for construction document management
 - Authority CADD Standards
 - Submit all documents to the Authority in both hard copy and electronic version simultaneously, three hard copies and a CD ROM.
 - All Reports will be submitted in 8 ½ " by 11" black and white format.
 - All Graphics will be submitted in 8 ½ " by 11" color format
 - All Drawings will be submitted in either 11" x 17" or 36" x 60". Half-size sets will also be used.
 - Follow Approved Quality Control Plan requirements for minutes, schedules, transmittals, correspondence and all other documents

- Update software as required, in consultation with the Authority.

9. Applicable Codes and Standards

The following is a summary of criteria to be used in the design of the transportation facilities. Criteria shall include the latest edition of all applicable codes and requirements and shall include but not be limited to those indicated below. Within the World Trade Center site, all work shall be designed in accordance with latest standards and requirements of the Authority. Other applicable design criteria and guidelines will be provided or developed by the Authority in conjunction with the Consultant's work. The Consultant will also be required to perform a search through Port Authority Engineering Files, PATH files and all other sources, to gather all available existing information necessary to perform the design.

a. General Code Requirements and Standards

All buildings systems and elements will be designed to be in compliance with applicable Federal, New York State, New York City, and International Codes in accordance to law.

b. The following are the major applicable codes and standards:

- Building Code of the City Of New York ("City Code"), including Reference Standards, Local Laws and International Building Code that New York City is likely to adopt in near future.
- Compliance with City Codes pertaining to, but not limited to, the New York City Fire Safety Codes, Electric, Plumbing, energy and water conservation, environmental safety, building structural, wind and seismic codes.
- Latest edition of the following Federal Regulations
 - Americans with Disabilities Act
 - Clean Water & Clean Air Act
 - US energy, water conservation and Green Building Regulations
 - US Occupational Safety & Health Administration regulations.
- National Fire Protection Association (NFPA) Guidelines & Recommendations.
- American Society of Heating, Refrigeration & Air Conditioning Engineers ventilation and energy performance standards.
- Port Authority Tenant Construction Review Manual
- Port Authority World Trade Center Site Sustainability Guidelines (TBD)
- New York State Executive Order 111
- US Environmental Protection Agency (EPA) regulations
- NYC Department of Environmental Protection (DEP) regulations
- In addition to those indicated above, the Consultant's design should also conform to the following criteria and the latest versions of the codes and standards identified (but not limited to) those below, listed by discipline.

b. Sustainable Design

- Port Authority World Trade Center Site Sustainability Guidelines (TBD)
- New York State Executive Order 111
- New York City Transit Sustainable Guidelines
- US DOE/EPA Energy Star Program
- US Clean Air & Clean Water Acts for any discharges
- American Society of Heating, Ventilation and Air Conditioning Engineers, Standard 62 for ventilation and Standard 90.1 for energy efficiency.
- National Institute for Occupational Safety & Health (NIOSH) Guidelines.
- US Green Building Council (USGBC), Leadership in Energy & Environmental Design Guidelines (LEED 2.1) for existing buildings.
- Sustainable Buildings Industry Council (SIBC) Guidelines.
- US Federal & Canadian Guidelines for procurement of Green Materials and for Renewable Energy Resources.

c. Structural

- American Institute of Steel Construction (AISC) Steel Construction Manual - Allowable Stress Design
- American Concrete Institute (ACI) Building Code Requirements for Reinforced Concrete
- American Railway Engineering and Maintenance-of-Way Association (AREMA)
- Port Authority Plaster Ceiling Design Standard and Lightweight Ceiling Design Criteria

d. Civil

- Sanitary and Combined sewers shall be designed in accordance with latest standards and requirements of NYCDEP.
- Water mains, lateral lines, fire hydrants and associated appurtenances shall be designed in accordance with latest standards and requirements of NYCDEP-Bureau of Water & NYC Building Department.
- New and proposed private utilities shall be designed in accordance to Port Authority standards and requirements or that of applicable Utility Company's/Owner's standards and requirements. Private Utility Companies that are expected to be affected include, but are not limited to, Consolidated Edison, Verizon, and Keyspan.
- New York City Transit track work standards
- American with Disabilities Act (ADA) Standard for Accessibility Design.
- Port Authority's Codes, Standard Details and Specifications.
- Port Authority's Engineering Department Engineering/Architecture Division Civil Engineering Design Guidelines (CEDG).

- e. Traffic
 - Analyses of facility's pedestrian capacity shall based on the Transportation Research Board's Highway Capacity Manual
 - National Electrical Manufacturers Association (NEMA)
 - Americans with Disabilities Act (ADA) Standard for Accessibility Design
 - Port Authority Codes, Standard Details and Specifications.
 - Port Authority's Engineering Department Engineering/Architecture Design Division Traffic Engineering Traffic Standard Details

- f. Geotechnical
 - New York City Building Code
 - Authority Technical Specifications
 - American Institute of Steel Construction (AISC) Steel Construction Manual – Allowable Stress Design
 - America Concrete Institute (ACI) Building Code Requirements for Reinforced Concrete

- g. Mechanical/Plumbing/Fire Protection/Electrical/Electronics
 - ASME American Society of Mechanical Engineers
 - ANSI American National Standards Institute
 - ASTM American Society of Testing and Materials
 - SMACNA Sheet Metal and Condition Contractors National Association
 - AMCA Air Movement and Control Association
 - ARI Air Conditioning and Refrigeration Institute
 - API American Petroleum Institute
 - HI Hydraulic Institute
 - UL Underwriters Laboratories
 - AWWA American Water Works Association
 - FM Factory Mutual
 - AGA American Gas Association
 - ABMA American Boiler Manufactures Association
 - APTA American Public Transportation Association
 - New York State Energy Code
 - NFPA National Fire Protection Association
 - NEMA National Electrical Manufacturer's Association
 - IES Illuminating Engineering Society
 - CBM Certified Ballast Manufacturer's Association
 - ETL Electrical Testing Laboratories
 - IEEE Institute of Electrical and Electronic Engineers

VI. INFORMATION AND MATERIALS PROVIDED BY THE AUTHORITY

The documents specified below were prepared for the subject work and form a part of this Agreement.

All documents, will be made available to the recipients of the Request for Proposals and the Consultant from the Project Manager, listed herein at the Port Authority offices at ***, New York, New York 10048 during regular business hours.

Said documents are as follows:

Permanent World Trade Center PATH Terminal:

- Section Looking North
- Upper Concourse Level Plan
- Lower Concourse Level Plan
- Church Street Level Plan
- PATH Platform Level
- PATH Mezzanine Level

VI. CONDITIONS AND PRECAUTIONS

A. General

The Consultant shall immediately inform the Authority of any unsafe condition discovered at any time during the course of this work.

Vehicular traffic at the World Trade Center Site shall always have priority over any of the Consultant's operations

B. Work Areas

The Consultant shall limit his inspection work to the areas necessary for the performance of such inspection and shall not interfere with the operation of the facility without first obtaining specific approval from the Chief Engineer.

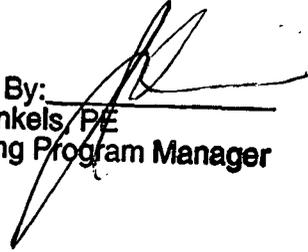
During all periods of time when he is not performing operations at the work site, the Consultant shall store all equipment being used for the inspection in areas designated by the Chief Engineer and shall provide all security required for such equipment.

The Consultant shall not permit any objects or pieces of equipment to lie unattended on sidewalks, roadways or structures at any time.

C. Work Hours

The Consultant shall perform his work at the site between the hours of 8:00 A.M. and 4:00 P.M., Monday through Friday, unless otherwise directed by the Chief Engineer.

In any case, no work shall be performed at the site on a legal holiday of either the State of New York or the State of New Jersey, unless otherwise directed by the Chief Engineer.

Approved By: 
Jerrold Dinkels, PE
Engineering Program Manager

DMJM+HARRIS
Permanent WTC PATH Terminal
Personnel/Salary Roster

Adams, Paul	Senior Project Controls	\$ 75.97
Boucher, Paul A.	Project Controls	\$ 35.34
Butler, Nancy **	FTA Liasion	\$ 85.00
Cohen, Edward	Senior Architect	\$ 62.55
Dorkings, Danielle I.	Engineer	\$ 24.04
Edwards, F Ross	Senior Project Management	\$ 79.33
Elmeged, Amr A.	Senior Project Controls	\$ 69.01
Escobar, Roxana Y.	Engineer	\$ 23.55
Fung, Dominic C.	Project Controls	\$ 24.53
Green, Jim *	Principal Architect	\$ 80.62
Griffin, Kenneth W.	Senior Architect	\$ 73.08
Kolb, Kelly	Project Controls	\$ 36.06
Leverenz, David G.	Project Integration	\$ 66.83
Levy, David **	Constructibility	\$ 85.00
Lipson, Enoch	Senior Engineer	\$ 63.95
Lowe, Robert	Senior Engineer	\$ 64.91
Mauritz, Peter	Engineer	\$ 49.61
McManus, Timothy **	Constructibility	\$ 85.00
Mueller, Werner *	Architect	\$ 45.30
Pierce, Kevin	Senior Project Management	\$ 75.97
Pinghero, Robert	Senior Engineer	\$ 63.71
Procell, Adam	Senior Engineer	\$ 67.31
Raine, Alden	Principal Planner	\$ 80.77
Russo, Frank	Constructibility	\$ 88.94
Samach, Raffie	Senior Architect	\$ 71.79
Schiff, Michael	Architect	\$ 38.97
Scurci, Louis	Architect	\$ 38.43
Sewell, William	Principal Engineer	\$ 86.54
Spooner, Herbert G.	Principal Project Management	\$ 88.95
Tieman, Christine	Senior Environmental Planner	\$ 60.10
Walker, Bernard	Senior Engineer	\$ 63.71
Weinstein, James **	Agency Interface	\$ 85.00

* DMJM Design Employee

** Salary capped

STV Incorporated
Permanent WTC PATH Terminal
Personnel/Salary Roster

<i>Employee</i>	<i>Title</i>	<i>Rate</i>
Alexiou, C.	Junior Planner	29.57
Amodei, R.	Planning Engineer	56.04
Augustine, D.	Chief Architect	63.60
Bank, B.	Senior Engineer	42.60
Basta, A.	Project Control Manager	56.38
Bayer, A.	Supervising Engineer	55.01
Bayuelo, A.	Engineer	33.62
Bianco, J.	Technical Assistant	27.29
Bonamusa, J.	Technical Assistant	35.63
Boyajian, A.	Scheduler	65.88
Bracco, S.	Senior Architect	38.94
Brodsky, V.	Chief Engineer	77.95
Cerovesek, H.	Supervising Engineer	50.50
Chang, E.	Architect	28.37
Chen, C.S.	Engineer	44.50
Cohn, J.	Chief Architect	53.02
Costello, P.	Technical Assistant	38.95
Dennis, Y.	Document Control Technician	25.44
Dewes, P.	Task Manager	67.00
Doshi, K.	Chief Structural Engineer	75.63
Friedman, M.	Supervising Engineer	51.10
Frisina, V.	Chief Environmental	61.00
Gagliardi, M.	Project Management	88.33
Gan, A.	Architect	25.09
Gilboa, J.	Supervising Engineer	56.30
Gombos, B.	Design Manager	70.12
Gorodetsky, J.	Designer/CADD	20.09
Goykham, D.	Supervising Engineer	43.32
Hannah, J.	Assistant Chief Engineer	61.92
Hartman, M.	Assistant Chief Engineer	59.74
Ho, W.	Senior Engineer	37.50
Jabbonsky, B.	Facilities Architect	56.66
Jepsen, P.	Senior Planner	46.29
Jin, L.	Senior Architect	33.90
Kissoon, V.	Estimator	63.97
Koumjian, G.	Chief Engineer	68.17
Lajci, N.	Engineer	21.30
Lam, M.	Senior Engineer	68.32
Lee, J-H	Designer/CADD	22.20
Lem, R.	Project Architect	45.67
Livshitz, S.	Designer/CADD	22.82
Lucca, J.	Package Manager	64.06
MacQueen, M.	Senior Env. Planner	62.86
Magella, J.	Senior Architect	30.35
Malek-Mansour, A.	Project Controls Coordinator	50.50
Marcus, G.	Geotechnical Engineer	31.49
McIntyre, S.	Deputy Project Director	73.90
Ni, H.Y.	Engineer	42.55

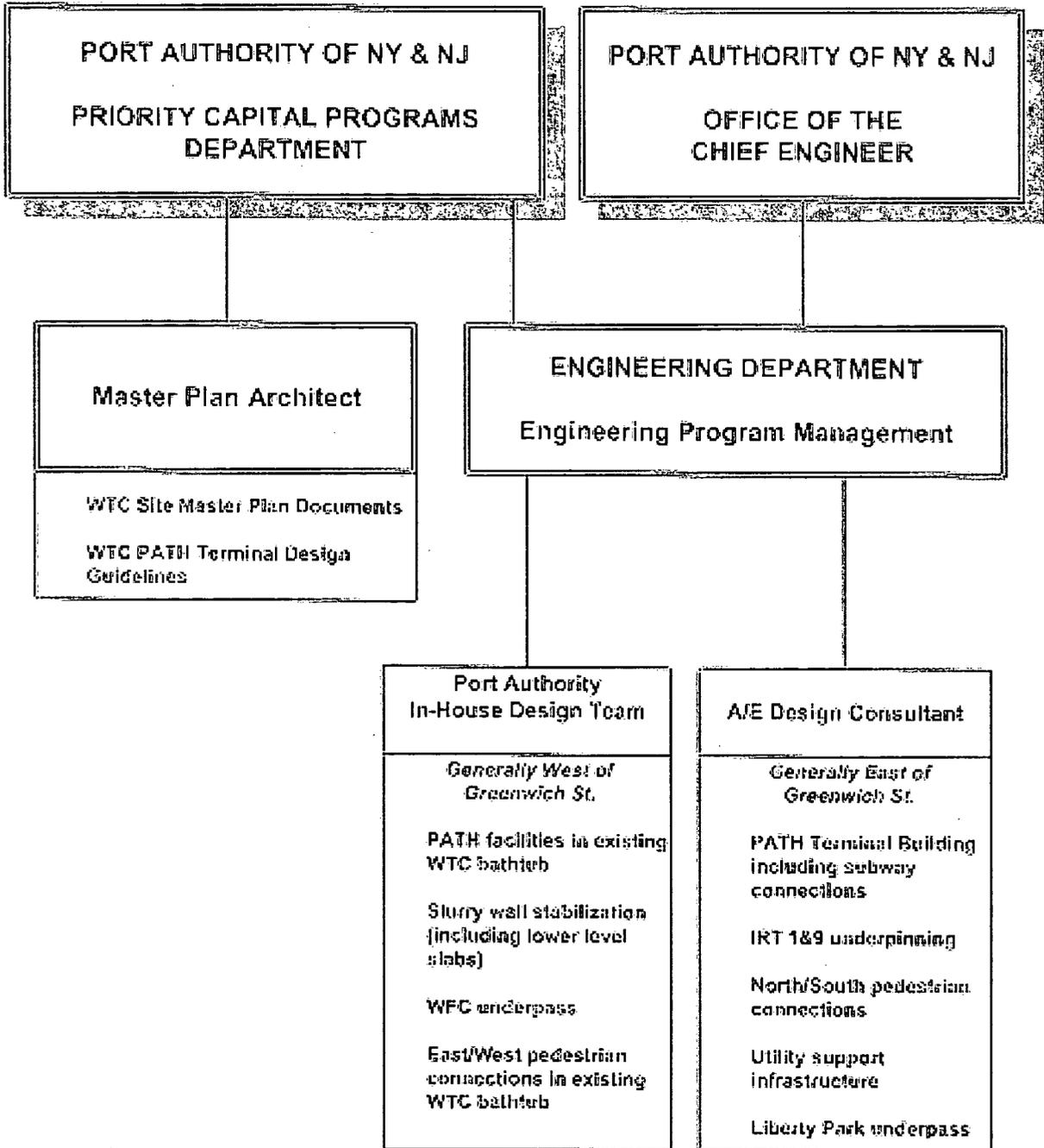
Approved By: 
Jerrold Dinkels, RE
Engineering Program Manager

STV Incorporated
Permanent WTC PATH Terminal
Personnel/Salary Roster

<i>Employee</i>	<i>Title</i>	<i>Rate</i>
Nitichaivorakul, N.	Geotechnical Engineer	27.77
Petrou, E.	Chief Civil	98.56
Pinuela, L.	Senior Architect	34.20
Quickel, R.	Scheduler	30.79
Rajan, M.	Supervising Engineer	47.68
Ramabhushanam, E.	Chief Engineer	69.18
Romeo, J.	Junior Planner	28.04
Rosenberg, L.	Project Management	85.10
Scalici, S.	Task Leader	63.28
Schuller, P.	Chief Engineer	72.00
Shaaban, S.	Supervising Engineer	54.34
Sirakis, C.	Engineer	28.72
Son, J.	Supervising Engineer	38.78
Sparacin, W.	Chief Geotechnical Engineer	71.48
Thompson, A.	Supervising Engineer	64.10
Ungar, H.	Senior Engineer	55.85
Wingate, R.	Designer/CADD	26.38
Yue, D.	Chief Civil Engineer	77.64

PERMANENT WTC PATH TERMINAL Organizational Structure

June 2003



EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

August 3, 2011

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE
President, AECOM, Inc.

**SUBJECT: CREDIT CHANGE ORDER FOR UNUSED FUNDS – CHANGE ORDER
#CO-09-007(A), PROFESSIONAL SERVICES FOR STAND-ALONE vs.
INTEGRATED DESIGN – EAST BATHTUB – DESIGN DEVELOPMENT/
PRELIMINARY ENGINEERING AND FINAL DESIGN – DESIGN
CONTRACT CHANGE [DCC] #505**

Ref.: (1) Performance of Expert Architectural and Engineering Services for the Permanent World Trade Center PATH Terminal on a Task Order Basis (P.A. Agreement No. 407-03-013, Contract No. 4600004824 and P.O. No. 4900000675)

(2) CHANGE ORDER #CO-09-007 – DESIGN CONTRACT CHANGE [DCC] #505 - STAND-ALONE vs. INTEGRATED DESIGN – EAST BATHTUB – DESIGN DEVELOPMENT/PRELIMINARY ENGINEERING AND FINAL DESIGN

Dear Mr. Levy:

This letter acknowledges that you have performed and completed expert professional architectural and engineering services for Stand-Alone vs. Integrated Design – East Bathtub – Design Development/Preliminary Engineering and Final Design (DCC #505) for the Permanent World Trade Center PATH Terminal and have identified unused funds from the total amount obligated for the original scope of work under Change Order #CO-09-007. Therefore, the Authority hereby accepts your proposal, dated July 29, 2011, for the remaining amount, which is attached hereto and incorporated into the subject agreement by reference.

The total unused funds remaining in the total amount obligated under the original base scope of work for Change Order #CO-09-007, as identified in your proposal dated July 29, 2011, is

THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

(\$1,581,996). Therefore, the previously authorized total amount for this change order is hereby decreased from \$6,500,000 to \$4,918,004.

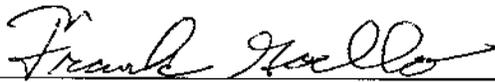
The total amount for the referenced agreement in decreased from \$256,511,529 to 254,929,533.

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

Please return two signed originals of this letter to the attention of Kathy L. Murphy, Contract Specialist, FTA/WTC Site Projects, Procurement Department, 115 Broadway, 19th Floor, New York, NY 10006.

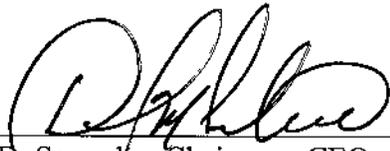
Any questions relating to the performance of the subject services may be directed to Mr. Frank Gallo, Assistant Director, WTC Construction, telephone no. (212) 435-5333.

Sincerely,



Frank Gallo
Assistant Director
WTC Construction Department

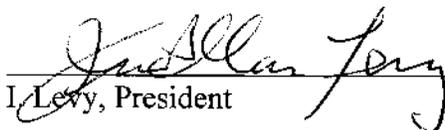
Accepted:
Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated



D. Servedio, Chairman, CEO

8/10/11

Date



I. Levy, President

8/9/11

Date



**DOWNTOWN
DESIGN PARTNERSHIP**

100 Broadway, 3rd & 4th Floor, • New York, NY 10005
Phone: 917-522-2800 • Fax: 212-785-2951

July 29, 2011

Ref #: DDP-PA-0824-11

Port Authority of New York and New Jersey
115 Broadway – 19th Floor
New York, NY 10006

Attention: **Kathy Murphy**

Subject: **Change Order #09-007 - Credit
Design Contract Change (DCC 505)**

Reference: **WTC Transportation Hub Project**

Dear Ms. Murphy,

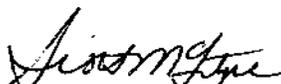
With regards to CO#09-007, DCC 505 – Stand Alone vs. Integrated Design, East Bathtub Design Development – Preliminary Engineering – Final Design (Plan B), it is our understanding that this task is complete and that no further effort will be required by the Port Authority.

This charge order had an approved budget of \$6,500,000. The costs incurred to date are \$4,918,003.77, leaving an unspent balance of \$1,581,996.23. Therefore, based on the Port Authority's confirmation that the CO#09-007 is complete, DDP is agreeable to a credit to the change order as follows:

CO-09-007 Original Amount	\$6,500,000.00
CO-09-007 Credit Amount	\$1,581,996.23
CO-09-007 Final Amount	\$4,918,003.77

Sincerely,

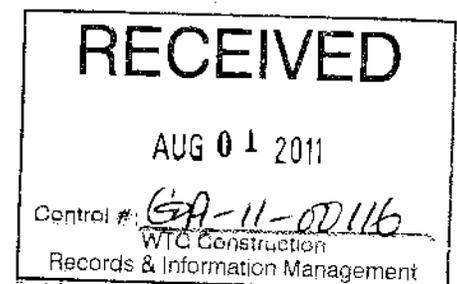
Downtown Design Partnership


Scott McIntyre, P.E.
Project Director

CC: R. Perez/PANYNJ,
J. Zafonte,

F. Gallo/PANYNJ,
J. Son,

File



**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

July 23, 2013

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE
President, AECOM, Inc.

**SUBJECT: PROFESSIONAL SERVICES CHANGE ORDER #13-002 - ADDITIONAL
DESIGN SERVICES FOR THE WORLD TRADE CENTER
TRANSPORTATION HUB**

Reference: (a) Performance of Expert Architectural and Engineering Services for the Permanent World Trade Center PATH Terminal on a Task Order Basis (Contract No. 4600004824, PA Agreement No. 407-03-013 and PO No. 4900000675), as amended – Supplemental Agreement #1

Dear Mr. Levy:

The Authority hereby accepts your proposal dated May 20, 2013, which is attached hereto and incorporated into the referenced agreement by reference, for performance of the services in the scope of additional services request, which formed the basis for submission of your proposal.

Total compensation for the performance of the above-mentioned services shall not exceed the amount of **\$2,561,698** (inclusive of Consultant's Fixed Fee). The Consultant shall employ, to every extent possible, the most cost effective methods of performing the Scope of Services as defined in the attached. This includes, but is not limited to, utilizing appropriate staff as needed (i.e. combining management and technical efforts) and tracking hours of technical staff. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to-exceed total amount noted above. The Consultant shall continue to render the additional services to the point when the Consultant's compensation reaches 100% of such amount, at which time either additional written authorization will be given to continue or the scope of work will be deemed complete. Consultant shall provide reasonable efforts to submit all deliverables by August 15, 2013.

The total Fixed Fee for this Change Order is \$174,035.

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

The previously authorized total amount for the referenced agreement is increased from \$314,654,594 to \$317,216,292.

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

Any questions relating to the performance of the subject services may be directed to Mr. Gallo at (212) 435-5333.

Sincerely,

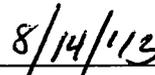


Frank Gallo, Assistant Director
WTC Construction

Approved:



Steven Plate, Deputy Chief of Capital Planning/Director
WTC Construction

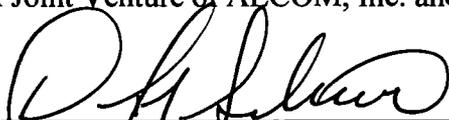


Date

Copy To: T. Grassi, M. Pagliettini, R. Perez, N. Ranalli, M. Socrates, WTCC Document Control

Accepted:

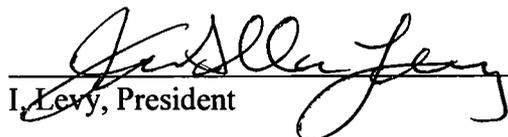
Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated



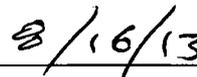
D. Servedio, Chairman, CEO



Date



I. Levy, President



Date



**DOWNTOWN
DESIGN PARTNERSHIP**

100 Broadway, 3rd Floor • New York, NY 10005
Phone: 917.522.2800 Fax: 212.566.5214

May 20, 2013

Ref #: DDP-PA-0163-13

Port Authority of New York and New Jersey
115 Broadway – 19th Floor
New York, NY 10006

Attention: **Richard Perez**

Subject: **P.A. Agreement No. 407-03-013
Performance of Expert Professional
Architectural and Engineering Services for the
World Trade Center Transportation Hub**

Reference: **Technical and Revised Cost Proposal for Port Authority
Change Order # 13-002 - Additional Design Services**

Dear Mr. Perez,

Per your request, attached please find Downtown Design Partnership's technical and revised cost proposal for Port Authority Change Order No. 13-002 - Additional Design Changes.

This proposal supersedes our earlier proposal attached to letter Ref. #DDP-PA-0121-13, dated April 26, 2013.

Should you have any questions regarding the attached, please do not hesitate to call.

Sincerely,

Downtown Design Partnership


Scott R. McIntyre, P.E.
Project Director

CC: J. Zafonte,

J. Son,

File

**FOR EXPERT PROFESSIONAL ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL WITH DOWNTOWN DESIGN PARTNERSHIP (DDP),
A JOINT VENTURE OF AECOM AND STV, INC.**

**PA AGREEMENT #407-03-013
Purchase Order #4900000675
SCOPE OF WORK DESCRIPTION**

**Change Order (CO) # 13-002
Additional Design Services**

Under DDP Change Order (CO) #10-002 and Task Order (TO) #10-002, the Port Authority authorized DDP to proceed with Final Design Wrap-Up services. However, due to unforeseen changes to the scope, staging, phasing, sequencing, and logistics of the Hub project, it is necessary for DDP to perform additional design services. The following scope is to provide architectural and engineering services as outlined below. The scope of services for this proposal includes the following:

I. SCOPE OF WORK DESCRIPTION

TASK A - ADDITIONAL ESTIMATING SERVICES

Scope of Work (Task is complete).

DDP shall:

1. Separate each addendum estimate submission for the WTC 264 contract starting with Addendum 11 dated February 1, 2010 into four distinct estimate packages as listed below:
 - Contract WTC 234.544 – Structural Steel, Precast and Intumescent (DCM) Scope of work for the West Bathtub/1-Line Scope of Work. (Areas 1 & 2).
 - DCM Scope of Work estimate for East Bathtub Scope of Work. (Area 3).
 - Skanska Granite Skanska JV (SGS) Scope of Work Estimate.
 - Remaining portion of estimate for the east side trade contracts.

All estimate details to be broken down per plan sheet.

2. Provide estimating services for various PIN's directly affecting DDP Design Drawings for scope of work related to Contract WTC-234.544. (I.e. transfer of scope from one contractor to another, RFI's not incorporated into Addendums, etc.)
3. Continue negotiation support services for the DCM Contract including addendums 23, 25, 26 and all future applicable addenda. Services to include: attendance at scope clarification and negotiation/pre-negotiation meetings as required by the PA/TTJV. Submission of variance analysis from the contractor's proposals and recommendations for reconciliation of major scope variances between estimates and proposals.

4. Provide negotiation support services for the SGS contract for all applicable addendum beyond Addendum #11 and all future applicable addenda. Services to include attendance at scope clarification and negotiation/pre-negotiation meetings as required by the PA/TTJV. Submission of variance analysis from the contractor's proposals and recommendations for reconciliation of major scope variances between estimates and proposals.
5. Provide additional estimating support for DCM/URSSA scope related to Addenda 23 and 25.
6. Provide additional estimating support.

TASK B - UPDATE WTC TRANSPORTATION HUB WBS DIAGRAMS

Scope of Work (Task is complete).

DDP shall update the WTC Transportation Hub WBS diagrams to reflect the design as issued in Addendum #31.

TASK C - WP 18BY ADDITIONAL WORK

Scope of Work (Task is complete).

DDP shall perform the following additional work on Package 18BY:

1. DDP shall provide construction sequence for Package 18BY, previously shown on S806 and S807, and determine if there are any changes to truss bracing shown on drawings S815 – S818. The assumptions that DDP shall follow for the construction sequence are as follows:
 - a) Package 18BY work will not begin until Phoenix work in the 9A Underpass in Package 18B is complete
 - b) When Phoenix completes their work at the 9A Underpass they will remove the bracing struts that are currently in place
 - c) Package 18BY work will not begin until the backfill and drivable surface are installed above the roof of the Phoenix portion of the 9A Underpass.
2. DDP shall obtain drawings from the Port Authority Security Project Management group of the existing track level concrete encased duct banks on either side of the tracks. DDP shall determine if these existing track level duct banks necessitate a change in the column encasement of columns 84/1 and 84/5. If a change is required, DDP shall contact Weidlinger Associates and advise on time required to revise the design.
3. DDP shall revise & issue shielding drawing S832 showing concrete and metal deck pre-slab to be installed below the existing slab at the ceiling of the Signal Relay Room.

4. DDP shall revise drawings with the existing slab of Signal Relay Room to remain and a 12" slab being installed under it. DDP will revise drawings to show new slab will be placed in area of existing slab with the pre-slab under it.
5. DDP shall issue sketches showing the Limits of Work of Package 18BY. Sketches will be used by TTJV as part of the scope description.
6. DDP shall provide the required design loads for the el 253' debris shield.
7. DDP shall review and revise if necessary the Instrumentation drawing for the 18BY work.

TASK D - REDESIGN/ANALYSIS OF AS1/D19 AND BS1/D19 COLUMNS FROM 70 KSI TO 50 KSI

Scope of Work (Task is complete).

DDP shall:

1. Redesign AS1/D19 and BS1/D19 Columns from 70Ksi to 50 Ksi
2. Perform additional structural analysis resulting from the redesign of AS1/D19 & BS1/D19 Columns from 70Ksi to 50 Ksi
3. Revise WTC Transportation Hub drawings because of items 1 and 2 above.

TASK E - ANALYSIS OF H&M WALL ALONG NYCT R&W LINE

Scope of Work (Task is complete).

The current Transit Hall construction sequence requires the completion of the construction of the structure at and below El 274' including T2 and T3 prior to the removal of the H&M wall per S9301. DDP shall provide analysis to verify the feasibility of H&M wall removal after the construction of the portion of the Transit Hall slabs and walls east of and including shear wall 3 to El 274 without the presence of T2 and T3 and without the horizontal struts at the corner of the H&M and slurry walls.

TASK F - ANALYSIS OF DISASSEMBLING THE 18000 CRANE ON THE 237' SLAB

Scope of Work (Task is complete).

DDP shall analyze the impact of disassembling the 18000 crane on the 237' slab adjacent to the crane perch to mitigate schedule delays in the East Basement.

DDP shall evaluate demobilization of the 18000 crane from the 237' slab.

TASK G - POST INSTALLATION ALTERNATIVES FOR PHTH - COLUMNS @ 266'

Scope of Work (Task is complete).

DDP shall investigate possible alternative design for security protection of columns AP2/D25 and AP2/D4. Alternatives are to be based on existing conditions relative to the construction of Stair U.

Upon concurrence by PA, structural drawings shall be revised to reflect the chosen alternative in a future addendum.

TASK H - STUDY/REDESIGN FOR MTA GRATINGS ALONG CHURCH STREET

Scope of Work (Task is complete).

NYCT vent grates exist at the sidewalk along Church Street (fronting Hub Plaza). It was the Hub project's understanding that they were to be removed. NYCT identified these vent grates as existing to remain. There are portions of structure that cannot be built, as well as the proposed R/W to E connector. DDP shall:

1. Attend meetings with PA and NYCT.
2. Visit the site to observe existing conditions.
3. Develop alternative venting approach.
4. Develop contract plans based on architectural sketches, dated 9/30/10. For design purposes, existing conditions assumed to be in accordance with drawings as provided by NYCT and PA.

TASK I - NORTH PROJECTION LINER WALL

Scope of Work (Task is complete).

DDP shall evaluate and modify the proposed liner wall inside the North Projection fin, a localized area, to accommodate the Flood Gate Project's request. DDP shall:

1. Perform Model Development/Analysis
 - Revisit previously developed model.
 - Replace 30" liner with 12" liner system.
 - Strengthen stairwell slab system.
2. Prepare hardening calculations.

3. Prepare written report documenting model development, analysis details, interpretation of results and recommendations.
4. Implement design changes resulting from analysis.

TASK J - DRAINAGE TROUGH IN THE EAST COFFERDAM OF THE ROUTE 9A UNDERPASS

Scope of Work (Task is complete).

DDP shall develop one (1) concept design and prepare contract documents (WP 18B – Bulletin #TBD) based on the concept design for a secondary under drainage system, for the Route 9A Underpass running east/west in zones 3, 4 and 5. The proposed drainage system shall run along the north and south walls and shall tie into the existing sump pit on the western end of the underpass.

TASK K - STUDY TEMPORARY LINK BETWEEN NTA AND E/W CONNECTOR

Scope of Work (Task is complete).

DDP shall perform a study to provide a 30' wide temporary pedestrian passageway connection for North Temporary Access with East/West Connector.

TASK L - EVALUATION OF OCULUS STEEL FIRE RESISTANCE

Scope of Work (Task is complete).

DDP shall provide structural fire engineering services related to the potential elimination of intumescent fireproofing from portions of structural steel in the World Trade Center Transportation Hub. Based on the large size of these members and the separation of these from potential fire locations, it is expected that applied fireproofing material may not be required. In order to review the possibility of eliminating intumescent fireproofing from the structural elements above the Plaza elevation (per drawing SK-4706), DDP shall provide the following:

1. Analysis to establish exposure temperatures from fires originating on the upper concourse (el. 296') including a limited sensitivity study.
2. Compare exposure temperatures to steel failure temperatures established by building codes and associated structural fire resistance standards.
3. Develop a letter report to document the findings of the above reviews and to support approval of the removal of intumescent fireproofing, if deemed appropriate based on this analysis.

4. Meet with PA to discuss the findings of the above analysis, if required.

TASK M - ESTIMATING SUPPORT SERVICES FOR SORBARA CHANGE ORDER FROM BID DOCUMENTS (A5) THROUGH CONFORMED SET (A26)

Scope of Work (Task is complete).

DDP shall:

1. Identify, quantify, and estimate design changes between contract drawings in the Sorbara bid set (Rev. 00 through Addendum 5) and the next update of each contract drawing to determine costs related re-base lining the Sorbara Contract to current design scheme (as it pertains solely to Sorbara contract scope).
2. Provide estimate deliverable that includes new estimates (as identified above) for inclusion with previously submitted estimates to support negotiation of Sorbara contract change order through contractor's conformed set (Addendum 06 through Addendum 26).
3. Provide support for negotiation, as required, regarding any remaining variances between estimate and contractor's proposal.

TASK N - ALTERNATIVE FIRE PROTECTION COATING SPECIFICATION AND DESIGN REVISIONS

Scope of Work (Task is complete).

DDP will assist the PA in obtaining approval from the CoNY DOB for acceptance of the inherent fire resistance of the oculus steel (above grade) without application of a fire protection system.

Upon approval by the CoNY DOB, DDP will prepare an alternative specification for the fire protection coating for those steel elements in the transit hall and oculus that still require such coating. DDP shall:

1. Prepare specification for water based intumescent.
2. Revise drawings in PHTH package and the Oculus package to reflect the change in the extent and detail of the coating system.
3. The Documents (new specification and revised drawings) shall be issued as an addendum, as directed by PA.

TASK O - SUPPORT FOR NCRS (AREAS 1-3)

Scope of Work (Task is complete).

Scope of Work:

DDP shall perform additional structural evaluation and analysis involving revisiting the design models and making changes to the models to simulate as-built conditions. Accordingly, the retrofit details will be developed, if necessary, and submitted as a remedial measure. This approach will be implemented on the following NCRs:

1. 10-MED-TP-027: Evaluation of shear walls in Area 3 where the average concrete 28-day strength from three cylinder breaks came out as 4433 psi vs. 5000 psi.
2. 10-MED-TP-029: Evaluation of shear wall 16 in Area 2 where additional end of wall reinforcement was placed such that reinforcing bars are closely spaced and do not conform to ACI requirements.
3. 10-MED-TP-102: Evaluation of shear wall 26 in Area 3 where adequate splice length for drilled and grouted #11 bars was not provided at the 274' slab.
4. 10-MED-TP-115.17: Evaluation of SW33 in Area 1 where concrete cover to reinforcement measures 2"-3" that is in excess of the required 1" cover.

TASK P - OCULUS BOLTED CONNECTIONS ALTERNATIVE DESIGN

Scope of Work (Task is complete).

See Attachment – A.

DDP shall perform additional services related to Skanska-Koch (SK) submittal of alternate connection designs for the Oculus steel structure. There are four main connections under consideration that will require review by DDP.

- a. Intermediate Rafter Connection
- b. Rafter Base Connection
- c. Upper Portal to Transition Connection
- d. Arch to Arch Connection

The scope of work shall include:

1. Review of the engineer's (Buckland & Taylor) detailed signed and sealed design calculations for proposed alternate connection details. The review shall include confirming conformance with all conventional load conditions (dead loads, live loads, lateral loads and fatigue) and design intent, but will not include a review of the security loads or adherence to the project security performance criteria. DDP shall review, evaluate, and provide comments on the contractors alternate bolted connections for the following:
 - a. Rafter Base Connections (110) - Assuming 11 connections
 - b. Intermediary Rafter Connections (50) - Assuming 5 connection types
 - c. Upper Portal to Arch Connections (110) - Assuming 11 connection types

d. Arch to Arch Connection (112) - Assuming 11 connection types

2. It is understood that SK will not address security loads in their design, as the security performance criteria will not be provided to them. Per direction of the Port Authority, DDP shall retain Weidlinger Associates, as a sub-consultant, to review the Buckland & Taylor design for conformance to the project security performance criteria. An indemnity clause will be included as part of this DCC authorization to allow DDP to retain Weidlinger without incurring liability for Weidlinger's efforts relative to Buckland & Taylor's design. The indemnity clause shall be as follows,

"The Port Authority acknowledges that DDP has retained Weidlinger Associates for the purpose of providing a review of connection designs by Buckland & Taylor, relative to the project security performance criteria, as a convenience to the Port Authority and that DDP shall have no control over or responsibility for these sub-consultants or their services. Accordingly, the Port Authority shall release and hold DDP harmless for any liability resulting from said services performed by Weidlinger Associates. Furthermore, the Port Authority shall defend, indemnify, and protect DDP, its partners and their officers, directors and employees, from and against any and all losses, expenses, claims, demands and causes of action asserted against DDP, its partners and their officers, directors and employees by any third person, entity or party, including but not limited to death, or for loss of or damage to property, loss of use of property, or economic loss attributable to the services performed by Weidlinger Associates in connection with their work reviewing Buckland & Taylor's design. Notwithstanding the foregoing, the Port Authority has no obligation to defend indemnify, or protect DDP, its partners and their officers, directors and employees, from and against any and all losses, expenses, claims, demands and causes of actions arising out of their wrongful or intentional conduct."

Weidlinger will function as a Specialty Sub consultant to the Port Authority and, as such, the Port Authority alone will direct and manage Weidlinger's efforts relative to Buckland & Taylor's design.

3. Buckland & Taylor will be required to submit the proposed alternate connection detail and calculations, signed and sealed, to Weidlinger. Weidlinger will be required to analyze the proposed alternate connection details relative to security loading, and to propose design connection modifications, where necessary, to enable the connections to meet the security performance criteria. If modifications to Buckland & Taylor's design are required, Weidlinger will collaborate with Buckland & Taylor on the necessary changes. A final report that includes the connection design, including signed and sealed calculations for conventional loads by Buckland & Taylor, along with a signed and sealed report by Weidlinger stating that the connection design satisfies the project security performance criteria, will then be submitted to DDP.
4. Upon receipt of the design by Buckland & Taylor, DDP shall then review for approval the connections as stated in item 1 above. It is understood that a separate review by Weidlinger will not be necessary, as a signed and sealed report by Weidlinger, confirming that the design meets the project security performance criteria, would be

provided along with the Buckland & Taylor details and calculations as part of the design package.

DDP shall attend a maximum of two meetings with PA and SK to review/resolve comments, including Weidlinger Associates.

TASK Q - ANALYSIS OF DIAGONAL FIT UP WEST TRUSS

Scope of Work (Task is complete).

DDP shall perform an analysis of the west truss diagonal due to fit up issues based on the as-built survey information.

TASK R - DESIGN CHANGES TO FRESH AIR PLENUM - EL 229-6

Scope of Work (Task is complete).

DDP shall review the non-conforming concrete wall built around an under-excavated corner of the Fresh Air Plenum at EL 229'-6".

DDP shall evaluate if there is a solution to keep the non-conforming wall in place and maintain the performance of the plenum. Drawing A1106 demonstrates a potential work around, but results in the following design changes:

1. Stair BJ (precast) is required to be relocated north and redesigned to a switch back configuration.
2. Stair BJ top landing slab is required to be extended.
3. Additional & reconfigured insulated wall panels along eastern side of plenum are required.
4. Additional & reconfigured CIP roof slab and insulated ceiling panels along affected area of plenum is required.
5. Additional 12-ft of new 18" concrete wall is required.
6. Demolition of existing 18" concrete wall is required.

TASK S - UPDATE EAST/WEST CONNECTOR PEDESTRIAN CIRCULATION ANALYSIS

Scope of Work:

DDP shall:

1. Review the actual pedestrian counts provide by PATH and counts taken in February 2012.

2. Attend up to a maximum of two meetings.
3. Update the current Pedestrian Circulation Analysis to reflect the info provided by C. DeGraffe on 3/1/12.
4. Input new AM PATH ridership figures into STEPS model and rerun model.
5. Update the 2012 to 2016 ridership forecasts.
6. Summarize results in a brief Technical Memorandum, updating most recent model report.

TASK T - SHORING REMOVAL AT EBT AREA 3

Scope of Work (Task is complete).

Per a meeting on 4/12/12, PA informed DDP that removal of shores below the El 254 slab is required to allow trade work to proceed for the Central Fan Plant (CFP) fit-out. This is expected to take place before the SGS slabs will be placed under the 1 Line Box west of D1 line.

DDP shall perform the following checks on the existing structure:

1. Assume the elevation 274 slab is placed up to the D1 line except for within limits of grand stair where it is held back to ring beam with the following conditions:
 - The elevation 274 slab shored down to the elev 254 slab only with its own dead load and reasonable construction live load (75 psf) imposed.
 - No tie from grand stair to elevation 266 SGS slab will be in place.
2. Assume the elevation 254 slab is placed up to D1 columns, including the edge beam between columns with the following conditions:
 - The slab from west face of D1 columns westward will not be placed.
 - All shoring below the elevation 254 slab is removed with slab under its own dead load and reasonable construction live load (75 psf) imposed, in addition to elevation 274 level shores above.
3. Should there be overstresses, additional limited shore post locations may be acceptable to the program, such as utilizing the DCM steel. These shall be reviewed on a case-by-case basis, as requested by PA.

TASK U - ANALYSIS NORTHEAST CORNER- COLUMN EXISTING TOPO AT PROPOSED BEAM LOCATION

Scope of Work (Task is complete).

DDP shall:

1. Review survey data received from PA survey showing the concrete surface elevations for the northeast column to be relocated.
2. Attend a maximum of three meetings as requested by PA.
3. Prepare sketches showing a temporary erection post below the permanent base plate.
4. Perform analysis on the NE corner column.
5. Update contract drawings and calculations to reflect agreed upon final layouts based on field conditions.
6. Review new beam connections and fabrication drawings required by the Contractor to accommodate final layouts.

TASK V - INDEPENDENT INSTRUMENTATION PATH ROOF & 1-LINE LOAD TRANSFER

Scope of Work (Task is complete).

In accordance with discussions with PA, DDP shall monitor load transfer of PATH Hall Roof Structure and 1-Line tied arches. DDP shall install strain gages at various locations. During the load transfer operations, strain gage readings shall be taken at regular intervals on a daily basis to monitor structural behavior of various elements.

TASK W - PATH HALL ROOF CONSTRUCTION SEQUENCE ANALYSIS

Scope of Work (Task is complete).

DDP shall utilize sub-consultant Halcrow Yolles to perform the below noted professional services. See Attachment – B.

1. Halcrow Yolles (HY) shall perform a sensitivity analysis of the PATH Hall Roof structure by creating a model of the original construction sequence as described by the contract documents and a revised model of the construction sequence provided by the Port Authority describing steps 1-4.
2. HY analysis shall include a comparative analysis between the baseline model and revised model of the stresses/deflections in the temporary shoring as well as the temporary stresses/deflections in the permanent structure at specific milestones during the construction process. Milestones to include:
 - a. Before/After Vierendeel is connected
 - b. Before/After AS-1/BS-1 Girders are attached
 - c. Before/After Shoring is fully released
3. HY shall perform specific analysis as needed that vary from revised construction sequence to aid in coordinating concrete operations and steel erection to ensure

ongoing construction is not adversely affecting permanent structure displacement and stress distribution as well as in the temporary supports.

4. HY shall perform design and support during construction services for bracing modifications to the PATH Hall roof to provide temporary openings in tree pit slab areas in order to provide additional construction access and ventilation in the PATH Hall roof.
5. HY shall review and comment on as-built survey information of horizontal and vertical position of permanent structural elements before and after each milestone (See item 2. a, b, c above) to verify predicted displacements are being realized. Elements will include free ends of ribs at future vierendeel connection, vierendeel location, and concrete slab elevations. Surveys will be provided by others.
6. HY shall provide design and construction support services to perform temporary bracing design detailing to support the BS2 Concrete Girder and the Fulton Street concrete slab between BS1 and BS2. Bracing to be designed for use of the Fulton Street slab in its full design capacity as a working street. Loading condition from the future PAC area is to be excluded. Coordinate the design with the provided SGSJV shoring system to construct the aforementioned work.
7. HY shall perform H Frame reinforcement design to enable concrete protection slab to be placed in service alleys before roof jack down.
8. HY shall perform a super column bracing analysis. Determine whether first lift of concrete is sufficient for bracing of super columns for PATH Hall Load Transfer and 1 Line Gravity Load transfer (steel dead weight only).
9. HY shall perform a feasibility study for alternate 1 Line load transfer methodology from suggested sequence on contract documents.
10. All design and analysis work by HY will be stamped by a New York State Licensed Professional Engineer.

DDP shall review drawings and calculations submitted by HY for impacts to the WTC Transportation Hub permanent design for studies described in items 1 through 10 above.

Upon notification by the Port Authority or its representatives (TTJV or PB/URS), the engineering analysis for the items identified above shall be provided by entities hired by DDP as sub consultants. The Port Authority acknowledges that DDP is providing the services of sub consultants for the purpose of providing an engineering analysis (per the above scope of services) as a convenience to the Port Authority and that DDP shall have no control over or responsibility for these sub consultants or their services. Accordingly, the Port Authority shall release and hold DDP harmless for any liability resulting from said services. Furthermore, the Port Authority shall defend, indemnify and protect the DDP, its partners and their officers, directors and employees, from and against any and all losses, expenses, claims, demands and causes of action asserted against DDP, its partners and their officers, directors and employees by any third person, entity or party, including but not limited to death, or for loss of or damage to property, loss of use of property, or economic loss.

TASK X – NYCT NO. 1 SUBWAY LINE JACKING CONSTRUCTION SEQUENCE ANALYSIS

Scope of Work (Task is complete).

DDP shall utilize sub-consultant Halcrow Yolles (HY) to perform the below noted professional services. See Attachment – C.

1. HY will develop an engineered procedure to perform the 1 Line load transfer from existing temporary pin pile structure to permanent east and west arches and invert structure based on 2012 field conditions. Deliverables will include verification of current field conditions, written procedure, sketches and calculations to substantiate procedure. Impacts and effects on both the existing 1 Line Invert and new 1 line arches, invert beams, and backspin support system will be analyzed, documented and submitted including resultant expected stresses and deflections. Analysis and result documentation will reflect the systematic sequential approach and modifications thereto as the work progresses and sequence adjustments are made if and as necessary.
2. HY will provide site support services (services during construction) during the jacking, pile cutting and load transfer operations: HY will provide a written report highlighting the results of each procedure.
3. HY will provide other services related to the 1 Line load transfer if, as, and when requested by the PANYNJ.
4. All design and analysis work by HY will be stamped by a New York State Licensed Professional Engineer.

DDP shall review drawings and calculations submitted by HY for impacts to the WTC Transportation Hub permanent design for studies described in items 1 through 3 above.

Item #3 above allows for further deflection analysis if deemed necessary to coordinate with track alignment and skeletonization of track work associated with Cortland Street Station project.

Upon notification by the Port Authority or its representatives (TTJV or PB/URS), the engineering analysis for the items identified above shall be provided by entities hired by DDP as sub consultants. The Port Authority acknowledges that DDP is providing the services of sub consultants for the purpose of providing an engineering analysis (per the above scope of services) as a convenience to the Port Authority and that DDP shall have no control over or responsibility for these sub consultants or their services. Accordingly, the Port Authority shall release and hold DDP harmless for any liability resulting from said services. Furthermore, the Port Authority shall defend, indemnify and protect the DDP, its partners and their officers, directors and employees, from and against any and all losses, expenses, claims, demands and causes of action asserted against DDP, its partners and their officers, directors and employees by any third person, entity or party, including but not

limited to death, or for loss of or damage to property, loss of use of property, or economic loss.

Deliverables:

DDP shall provide revised construction documents including, but not limited to, partial plans, geometry plans, elevations, sections, reflected ceiling plans, and applicable discipline plans, sections, schedules, etc. necessary to complete the above noted tasks. DDP shall attend meetings, as needed, at the Port Authority's request.

END STAGE IV SCOPE OF WORK

ATTACHEMENT - A



WEIDLINGER ASSOCIATES® INC
CONSULTING ENGINEERS

375 HUDSON STREET
NEW YORK NY
10014-3656
PHONE 212 367.3000
FAX 212 367.3030

<http://www.wai.com>

11 July 2011

Mark Pagliettini, P.E.
Assistant Director, WTC Construction Department
Port Authority of New York and New Jersey
115 Broadway
New York, NY

Re: Oculus Bolted Connections Alternative Design

Dear Mr. Pagliettini,

Weidlinger Associates, Inc. (WAI) is pleased to submit a fee proposal to the Port Authority of New York and New Jersey to review the Buckland & Taylor alternate connection designs for compliance with the contract documents related to the security loads and the project security performance criteria. WAI have provided structural security analysis and design services for the WTC PATH Hub and we developed detailed nonlinear explicit dynamic finite element models of the current portal leg concept. WAI is therefore well suited to revise the existing finite element models and to review the proposed alternate connection designs and determine whether they satisfy the project security criteria. WAI will not determine the performance of the alternate connection details in response to conventional service loads. In the event the proposed alternate details do not satisfy the security criteria, WAI will determine the extent to which the alternate connection details must be modified, in the form of dynamic connection forces, which Buckland & Taylor will use to develop revised connection details. WAI will not redesign the connection details but will reanalyze the modified details.

The scope of work was highlighted in the 7 June 2011 memo to Scott McIntyre titled "Oculus Bolted Connections Alternative Design." The memo references three main connections under consideration: intermediate rafter connection, rafter base connection, and arch to arch connection. The memo further states:

"DDP shall retain Weidlinger Associates, as a sub-consultant, to review the Buckland & Taylor design for conformance to the project security performance criteria....Weidlinger will function as a Specialty Subconsultant to the Port Authority and, as such, the Port Authority alone will direct and manage Weidlinger's efforts relative to Buckland & Taylor's design.

Buckland & Taylor will be required to submit the proposed alternate connection details and calculations, signed and sealed, to Weidlinger. Weidlinger will be required to analyze the proposed alternate connection details relative to security loading, and to propose design connection modifications, where necessary, to enable the connections to meet the security performance criteria. If modifications to Buckland & Taylor's design are required, Weidlinger will collaborate with

Buckland & Taylor on the necessary changes. A Final Report that includes the connection design, including signed and sealed calculations for conventional loads by Buckland & Taylor, along with a signed and sealed report by Weidlinger stating that the connection design satisfies the project security performance criteria, will then be submitted to DDP....

...DDP should assume two meetings with SK to review/resolve comments, including Weidlinger Associates.

WAI obtained the following Skanska Koch Inc. documents summarizing the three alternate connection design concepts that were used as a basis for this proposal:

- "WTC Transportation Hub Alternate Connection Design Submittal, Volume 1: Rafter Base Connection: 1/2" Rafter Web Thickness," Revision 1, Dated 03/18/2011, Ref#: CP-SK-SUB.05120.0002
- "WTC Transportation Hub Alternate Connection Design Submittal, Volume 2: Intermediate Rafter Connection: 3/8" Rafter Web Thickness," Revision 00, Dated 03/30/2011, Ref#: CP-SK-SUB.05120.0007
- "WTC Transportation Hub Alternate Connection Design Submittal, Arch to Arch Connection," Dated 06/08/2011, Ref#: CP-SK-SUB.05120.0019

Based on the contents of the Skanska Koch, Inc. documents, listed above, WAI will complete the following tasks:

- Revise the finite element models of the Oculus structure, as per the signed and sealed drawings developed by Buckland and Taylor depicting the details of the alternate connection design
- Reanalyze the structure, as per the signed and sealed structural security calculations of the Oculus structure, that demonstrated compliance of the Downtown Design Partnership, Structural Security Strategy for the Oculus Structural System, Revision 0, June 25, 2009 and the Ducibella, Venter & Santore, "World Trade Center Permanent World Trade Center PATH Terminal: Security Performance Criteria," March 7, 2007.
- Calculate the performance of the alternate connection details relative to the Structural Security Strategy.
- Provide an interim summary of initial findings to the PANYNJ prior to finalizing the calculation package.
- In the event the revised connection detail is non-compliant with the Structural Security Strategy, WAI will identify the magnitude of forces that must be developed by the connection and Buckland & Taylor will provide modified connection details to WAI for reanalysis. WAI will perform one cycle of reanalysis.
- Prepare a signed and sealed calculation summary report for the vulnerability assessment. The detailed calculation submittal will follow quality assurance and quality control (QA/QC) protocols in a manner consistent with all calculation submittals provided to date in support of the DDP.

- WAI will support two meetings with the Port Authority to discuss matters pertaining to project specifics or technical details.

The level of effort required to evaluate the performance of the three Oculus alternate connection details is 10 FTE weeks (\$48,619.62), as indicated in the following breakdown. The initial analyses will be completed no sooner than an 7 calendar weeks from the notice to proceed; however, this does not include the time it takes for Buckland & Taylor to modify the connection detail. Evaluations of a subsequent revision to all three connections will take an additional 5 FTE weeks (\$25,998.41).

Base Effort

	Engineer IV	Engineer VI	Principal	
Model Modifications	80 hours	24 hours	16 hours	
Analysis	96 hours	32 hours	8 hours	
Post-processing	40 hours	16 hours	8 hours	
Calculation Summary	40 hours	16 hours	8 hours	
Total	256 FTE hrs	88 FTE hrs	40 FTE hrs	384 FTE hrs
Estimated Value	\$25,431.70	\$15,157.92	\$8,000.00	\$48,619.62

Reanalysis Effort

	Engineer IV	Engineer VI	Principal	
Model Modifications	64 hours	16 hours	8 hours	
Analysis	96 hours	24 hours	8 hours	
Total	160 FTE hrs	40 FTE hrs	16 FTE hrs	216 FTE hrs
Estimated Value	\$15,894.81	\$6,903.60	\$3,200.00	\$25,998.41

Weidlinger is looking forward to working with the Port Authority, Downtown Design Partnership, and Buckland and Taylor to evaluate the alternate connection designs for the Oculus structure.

Sincerely,



Dr. Robert Smilowitz
Principal

ATTACHEMENT - B

Halcrow Yolles
A CH2M HILL Company
22 Cortlandt Street 31st Floor, New York NY 10007
tel +1 212 608 3990 fax +1 212 566 5059
halcrowyolles.com



May 16th, 2012

Mr. Scott McIntyre, P.E.
Project Director
Downtown Design Partnership
100 Broadway, 3rd Floor
New York, NY 10005

Dear Mr. McIntyre

**Re: PATH Hall Roof Construction Sequence Analysis
BS2 Concrete Girder and Fulton Street Slab between BS1 ad BS2
H-Frame reinforcement
Super Column Bracing analysis
Feasibility Study for Alternate 1 Line Load Transfer Methodology
Change Order #09-006 – Task 3.14
Your reference: DDP-HY-003-11
Our Reference: PKA276**

Thank you for inviting us to submit a revised proposal for consulting engineering services for the scope of work outlined in the attached appendix.

We have outlined below our understanding of the project and our proposed scope of services, together with our fee proposal and the assumptions made in arriving at our fee.

Project Description

Based on the revised scope outlined in the attached appendix, on several discussions and meetings held between your office, that of the PANYNJ and our office, we understand our mandate to be generally defined as follows:

1. General

The scope of work of applies solely to the areas for which the Downtown Design Partnership (DDP) has responsibility as Engineers of Record.

The fabrication and subsequent erection of steel members and the ensuing concreting sequence are proposed to vary from the suggested baseline construction sequence as depicted in the Contract Documents prepared by DDP. This will have an effect on two contracts, namely those of the structural steel erector and of the concrete contractor. An engineering analysis is required to allow DDP to verify that the change in sequence will not adversely affect the permanent structure, either structural steel or concrete. An engineering analysis is

PATH Hall Roof Construction Sequence Analysis
BS2 Concrete Girder and Fulton Street Slab between BS1 and BS2
H-Frame reinforcement
Super Column Bracing analysis
Feasibility Study for Alternate 1 Line Load Transfer Methodology
Change Order #09-006 – Task 3.14
Your reference: DDP-HY-003-11
Our Reference: PKA276
May 16, 2012

also required to verify that changing the construction sequence does not adversely affect the existing shoring system as it will be subjected to different loading conditions from those for which it was originally designed. The Port Authority of New York and New Jersey has requested that Halcrow Yolles perform these studies.

2. Consultant Scope of Work includes:

1. A sensitivity analysis of the PATH Hall Roof structure by creating a construction sequencing model, based on DDP's analytical SAP model, of the original construction sequence as described by the base building contract documents prepared by DDP, and a revised model of the construction sequence distributed by the Port Authority described in steps 2 to 4 below.
2. An analysis including comparative analyses of the stresses and deflections in the temporary shoring elements as well as the temporary stresses and deflections in the permanent structure at specific milestones during the construction process. The comparison is between result for the baseline model following the sequence originally suggested in the base building construction documents and the results for the revised model following the revised construction sequence. Comparisons are between the following milestones:
 - a. Before/After Vierendeel is connected
 - b. Before/After AS-1/BS-1 Girders are attached
 - c. Before/After Shoring is fully released

A design, where judged appropriate and necessary, of modifications to the temporary shoring elements, after discussion with DDP and the PANYNJ, and the contractors if/as necessary, so as to allow the work to proceed along the proposed revised construction sequence.

Providing also the shear forces in the pins at the end of the ribs along the AS-1 and BS-1 lines for the condition when the shoring is fully released.

Performing specific analysis of the sequence already agreed to with DDP and the PANYNJ and that reflect the variation from the revised construction sequence to aid in coordinating concrete operations and steel erection to ensure the additional proposed revisions to the construction sequence do not adversely effect the temporary shoring elements and the permanent structure, their displacement behavior, and their stress distribution. Design, where judged appropriate and necessary, modifications to the temporary shoring elements, after discussion with DDP and the PANYNJ, and the contractors if/as necessary, so as to allow the work to proceed along the proposed revised construction sequence.

PATH Hall Roof Construction Sequence Analysis
BS2 Concrete Girder and Fulton Street Slab between BS1 ad BS2
H-Frame reinforcement
Super Column Bracing analysis
Feasibility Study for Alternate 1 Line Load Transfer Methodology
Change Order #09-006 – Task 3.14
Your reference: DDP-HY-003-11
Our Reference: PKA276
May 16, 2012

3. Perform analyses of the PATH Hall roof structure incorporating temporary openings in tree pit slab areas that will provide additional construction access and ventilation to the spaces below. This analysis is broken down into two phases. In the first phase, a high level evaluation and analysis, identify if such openings are feasible and, if so, what the best location from a structural point of view are. In a second phase, if these openings are deemed necessary by the client, carry out a full analysis and design of the support systems and of the necessary strengthening of the resulting unbraced permanent structure in and around these temporary openings so as to allow the construction sequence to otherwise continue in accordance with its general intended sequence.
4. Review and comment, if requested, on as-built survey information, if provided to us, of horizontal and vertical position of permanent structural elements before and after each milestone (See item 2. a, b, c above) to verify that predicted displacements are being realized. Elements to include free ends of ribs at future vierendeel connection, vierendeel at axes locations, concrete slab elevations. The surveys are to be provided by others in a timely manner.
5. Provide analysis, design and construction support services associated with the temporary bracing to support the BS2 Concrete Girder and the Fulton Street concrete slab between grids BS1 and BS2. The intent of the bracing is to be designed to allow the full use of the Fulton Street slab in its final design capacity intent as a working street. Loading condition from the future Performing Arts Center area is to be excluded for this purpose. The design is to be coordinated with the Skanska Granite shoring system necessary to construct the aforementioned work.
6. Analyze the structure, in its sequential construction, to include the advanced placement of the super-imposed dead load of the water proofing membrane and the companion concrete top protection slab as per the request of the PANYNJ.
7. Perform Path Hall roof support H-Frame reinforcement analysis and design to enable concrete protection slab to be placed in service alleys before roof jack down
8. Undertake Super Column Bracing analysis for various incremental construction conditions and loading cases. In particular, determine whether first lift of concrete is sufficient for bracing of super columns for PATH Hall Load Transfer and 1 Line Gravity Load transfer (Steel dead weight only).
9. Undertake a preliminary feasibility study for an approach to the 1 Line load transfer methodology alternate to the load transfer method and sequence shown on the contract documents.

PATH Hall Roof Construction Sequence Analysis
BS2 Concrete Girder and Fulton Street Slab between BS1 ad BS2
H-Frame reinforcement
Super Column Bracing analysis
Feasibility Study for Alternate 1 Line Load Transfer Methodology
Change Order #09-006 – Task 3.14
Your reference: DDP-HY-003-11
Our Reference: PKA276
May 16, 2012

10. All our design and analysis work will be stamped by a New York State Licensed Professional Engineer.

Deliverables

Deliverables are:

1. Regular updates of our progress in developing and analyzing the models of the structure as defined in the base contract documents and the revised structure and its temporary supports, and its revised construction sequence,
2. Reports, as requested by DDP and the PANYNJ, summarizing at critical milestones as established above, the loads imposed, the construction sequence steps to the milestone in question, the deflections and forces at strategic locations in both the permanent structure in its various stages of partial erection and construction and in the temporary support structure forming part of the means and methods of erection and construction.
3. Reports on the analysis and reinforcement and modifications to the temporary support works to enable the proposed sequence of construction to be implemented.
4. Design calculations and drawings for the reinforcement and modifications to the temporary support works necessary to enable the proposed sequence of construction to be implemented.

PATH Hall Roof Construction Sequence Analysis
BS2 Concrete Girder and Fulton Street Slab between BS1 ad BS2
H-Frame reinforcement
Super Column Bracing analysis
Feasibility Study for Alternate 1 Line Load Transfer Methodology
Change Order #09-006 – Task 3.14
Your reference: DDP-HY-003-11
Our Reference: PKA276
May 16, 2012

We will also:

1. Participate in meetings with DDP and the PANYNJ and their contractors as necessary,
2. Review the contractors' work as it pertains to the temporary supports and their reinforcement and modifications,
3. Provide written reports of our observations and any deficiencies noted in the reviewed work defined above.

Fees and Related Invoicing

Our proposed fee for our services will be invoiced on an hourly basis in accordance with the unit rates embodied in our subcontracting agreement with DDP.

At this time we anticipate, based on the knowledge we currently have, the discussions that have occurred between our offices and with the PANYNJ, our understanding of the project and its complexities and the importance of the schedule, that our fees will be approximately \$455,000

Our fees will be invoiced monthly on an hourly basis. Payment is due in accordance with the terms of our subcontracting agreement with DDP.

PATH Hall Roof Construction Sequence Analysis
BS2 Concrete Girder and Fulton Street Slab between BS1 ad BS2
H-Frame reinforcement
Super Column Bracing analysis
Feasibility Study for Alternate 1 Line Load Transfer Methodology
Change Order #09-006 – Task 3.14
Your reference: DDP-HY-003-11
Our Reference: PKA276
May 16, 2012

Fee Assumptions

Our proposed fee is based on the assumptions that if the scope of the project changes significantly, or if re-design and re-drawing of the structural components is required, we will advise you that the estimated fee will need to be revised upwards to reflect the additional services.

We trust this proposal meets with your approval. As you are aware, we have already started our work on this project quite some time ago and will continue unless instructed in writing to stop. Should you have any comments or questions, please contact me.

Sincerely,
Halcrow Engineers PC doing business as Halcrow Yolles

**Pierre
Desautels**

Digitally signed by Pierre Desautels
DN: cn=Pierre Desautels, o=Halcrow
Yolles, ou, email=pierre.
desautels@halcrowyolles.com, c=US
Date: 2012.05.16 15:48:55 -04'00'

Per: Pierre Desautels
Principal, Vice-President
pierre.desautels@halcrowyolles.com
Direct dial +1 646 253-8620

ATTACHEMENT - C

Halcrow Yolles, a CH2M HILL Company

22 Cortlandt Street New York NY 10007

tel +1 212 608 4962 fax +1 212 566 5059

halcrowyolles.com

Halcrow Yolles

A CH2M HILL COMPANY

17 December 2012

Mr. Scott McIntyre, P.E.

Project Director

Downtown Design Partnership

100 Broadway, 3rd Floor

New York, NY 10005

Re: WTC Transportation Hub - Request for Proposal

MTA 1-Line Jacking

Our project PKA276-203942, Rev 1.0

Your reference: DDP-HY-001-12

Dear Mr. McIntyre

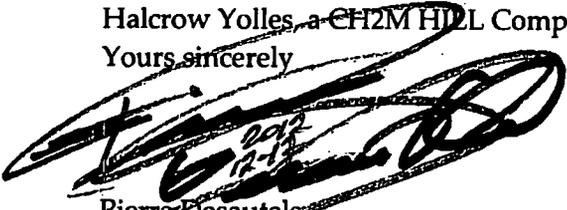
Thank you for your letter of November 15, 2012, in which you request a proposal for our services for the MTA 1-Line Jacking.

We have read the RFP, have familiarized ourselves and agree with the scope of work you have outlined, understand the immediacy of services required on the active site and will respond to deliver technical services in a timely and expedited manner. We have read and taken note of the insurance requirements which are the same as in the prime agreement dated 15 March, 2011 defining the terms and conditions of our agreement for our previous work for you at the WTC. We are treating this part of the project with the same confidentiality as we did our previous work for you.

We have met with the PANYNJ this afternoon to receive their comments and have taken those into account in our revised proposal. We submit herewith our services proposal including our firm qualifications, our approach to the work and our proposed consultant staff. Please do not hesitate to call me if you have any questions on our submission. We look forward to working with you again on this project.

Halcrow Yolles, a CH2M HILL Company

Yours sincerely



Pierre Desautels

Principal / Vice President

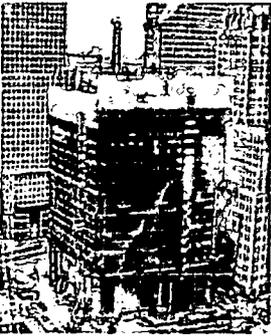
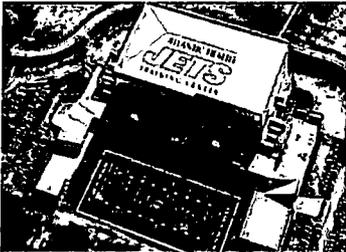
pierre.desautels@halcrowyolles.com

Direct dial +1 646 253 8620

WTC Transportation Hub
MTA 1-Line Jacking

FIRM QUALIFICATIONS

The Halcrow Group, now part of the CH2M HILL family since November 2011, has established itself globally as one of the premier consulting engineering practices. Now with 30,000 staff worldwide the CH2M HILL group provides a full range of engineering services globally. The Property Group, Halcrow Yolles, operates from North American offices in New York, Chicago, Las Vegas, Toronto, Calgary; it also offers services from London and throughout the UK, and the Middle East. Its portfolio includes projects in the Americas, Europe, North Africa, the Middle East and Asia. Halcrow Yolles has developed a solid reputation in the commercial, hospitality, sports, parking, entertainment, healthcare, residential, transportation and institutional building sectors. Notable project experience includes New York projects such as the World Trade Center means and methods work for the Transit Hub, including work in the vicinity of the MTA's 1-Line; work at the WTC also includes means and methods for WTC Tower1 and WTC Tower 4. Other New York area work includes the World Financial Center, 200 West Street in Battery Park City, The Intrepid Sea, Air and Space Museum, Rockefeller University, as well as projects in many other locations such as Canary Wharf in London, Daimler Chrysler Canada Headquarters, the NY Knicks, Liberty and Rangers Training Center in Greenburgh, NY and Swiss Reinsurance Headquarters in New Castle, NY, Pearson International Airport in Toronto, MGM Las Vegas City Center. Our clients include architects, developers such as Tishman Speyer, and contractors such as Tishman Construction and Turner Construction. Our means and methods experience at the WTC in New York includes work we have undertaken for structural steel and concrete contractors. The work includes the worker access and protective three dimensional cocoons atop WTC-1 and WTC-4, the single structural unit 16 levels external inter floor access construction stairways on WTC1, and the material delivery draw bridge platform systems on WTC1. A few sample projects are shown below.

 <p>WTC1 Cocoon, Access Stair and Drawbridges</p>	 <p>The Atlantic Health Jets Corporate Headquarters and Training Facility, Florham Park, NJ</p>	 <p>New York Knicks, Liberty & Rangers Training Center</p>
 <p>CityCenter, Block C, Las Vegas</p>	 <p>World Financial Center</p>	 <p>The Bow, Corporate HQ Calgary</p>

WTC Transportation Hub
MTA 1-Line Jacking

APPROACH TO THE WORK

Our approach to the scope of work:

- Developing an understanding of the base structure of the MTA 1-Line and east and west arches from contract documents and from the existing conditions in the field,
- Develop an understanding of the temporary works in place supporting the MTA 1-Line,
- Study, in a general and global manner, the MTA 1-Line structure behavior in response to loads and to jacking,
- Understand the recommended construction sequence indicated on the contract documents and its effects, at a high level, on the MTA 1-Line,
- Understand how the existing conditions in the field, deviating from the contract documents, affect the behavior of the MTA 1-Line under the jacking process,
- Listen to and understand the needs of the Client and the Contractors for a revised construction sequence,
- Appreciate the schedule and deliverable constraints that are driving the project, from the client's, the Engineers of Record and the MTA points of view,
- Devise a jacking sequence responding to all of the above,
- Provide site review and assistance as requested from time to time in the framework of our scope and areas of responsibility..

Our modeling and analytical work consists of developing three dimensional time lapsed general models representing the existing conditions and reflecting the proposed jacking sequences along with support reduction and eventual release sequence.

Loads considered include self weight of the 1-Line box, the east and west arches, the top and bottom girders and the concrete slabs superimposed loads, jacking loads, and construction live loads. These loads vary through time due to the construction sequence with the analysis reflecting these realities.

The jacking sequence reflects the available jacking material, the time constraints associated with jacking and required shutting down of the MTA operations, deflection value estimates, interim and final at the end of the jacking.

Our services include availability and presence during all jacking sequences with staff on site to review progress and monitor developments.

WTC Transportation Hub
MTA 1-Line Jacking

PROPOSED CONSULTANT STAFF

Our proposed consultant staff roster will be composed of individuals who are very familiar with the WTC Site project, having been involved in various aspects of its construction in providing structural engineering services for means and methods to structural steel and concrete contractors as well as to the Port Authority of New York and New Jersey for the Transit Hub west of the MTA's 1-Line. Our work at the WTC started in late April 2009 and continued uninterrupted since then until late summer 2012. Our very dedicated team is located across the street from the WTC Site and our offices at 22 Cortlandt Street overlook the site.

Our staff team will be composed of the following people with their respective roles and positions:

<u>Role</u>	<u>Staff Member</u>	<u>Company Classification</u>
Project Director	Pierre Desautels	Principal / Vice-President
Senior Project Engineer	Bill Ding	Senior Engineer
Senior Project Manager	Andy Chan	Senior Engineer
Intermediate Project Engineer	Franz Mirko Seborga	Intermediate Engineer
Intermediate Project Engineer	Alex Weinberg	Intermediate Engineer
Junior Project Engineer	Pawel Kolakowski	Junior Engineer
Project BIM Modeler/Cad Drafter	John Figueroa	BIM/CAD Modeler

ATTACHMENT C



WTC Transportation Hub Project
New York, NY

COST PROPOSAL
Task: 1-Line Jacking

Labor Classification ¹	Average Direct Salary Rate/Hour	Multiplier	Hourly Charge-out Rate ²	Person-Hours	Total Labor Cost
Pierre Desautels - Principal			\$ 260.00	120	\$ 31,200.00
Andy Chan - Associate - Senior Engineer			\$ 191.00	130	\$ 24,830.00
Franz Mirko Seborga - Project Engineer			\$ 135.00	50	\$ 6,750.00
Alexander Weinberg - Intermediate Engineer			\$ 135.00	600	\$ 81,000.00
Pawel Kolakowski - Junior Engineer			\$ 111.00	60	\$ 6,660.00
Subtotal labor					\$ 150,440.00
Direct Expenses (details of categories below)			1.50% (Estimate)		\$ 2,256.60
Total Amount Proposed					\$ 152,696.60

¹ Same Staff and Designation as for Base Contract

² Same Rates used here as for 2011 Base Contract

Direct Expenses

SWAC Registration/renewal costs and fees

Meals, ONLY when working significant evening overtime

Supplies for inspections

Transportation to home, ONLY when working significant evening overtime

Halcrow Yolles, a CH2M HILL Company
22 Cortlandt Street New York NY 10007
tel +1 212 608 4962 fax +1 212 566 5059
halcrowyolles.com



6 July 2011
Revisited and unchanged, 3 December 2012

WTC Path HUB PA Concrete Sequence, New York, NY
Project code: PKA276

Unit Rates

Classification	Hourly Rate
Principal	\$ 260.00
Senior Engineer	\$ 191.00
Senior BIM Modeler	\$ 140.00
Intermediate Engineer	\$ 135.00
Intermediate BIM Modeler	\$ 128.00
Junior Engineer	\$ 111.00



**GRAND SUMMARY
PROFESSIONAL SERVICES
CHANGE ORDER #13-002
ADDITIONAL DESIGN SERVICES**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant							
\$413.36	\$88.85	\$68.08	\$48.69	\$31.91	\$28.27	\$23.17							
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322							
\$413.36	\$202.80	\$154.10	\$108.80	\$74.42	\$65.93	\$54.03							
Hours	\$	Hours	\$	Hours	\$	Hours	\$						
-	\$0	60	\$12,168	90	\$13,869	95	\$10,327	-	\$0	-	\$0	-	\$0

TASK E - Analysis of H&M Wall Along NYCT R/W Line

TOTALS	
Hours	\$
245	\$36,364

Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task E:

TASK F - Analysis of Disassembling the 1800 Crane

-	\$0	16	\$3,245	20	\$3,119	-	\$0	-	\$0	-	\$0	-	\$0
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36	\$6,364
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task F:

TASK G - Post Installation Alt. for PHTHG - Column @ 266'

-	\$0	80	\$16,224	80	\$12,328	97	\$10,539	-	\$0	-	\$0	-	\$0
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257	\$39,091
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task G:

TASK H - Study/Redesign fro MTA Gratings along Church St.

-	\$0	80	\$16,224	80	\$12,328	40	\$4,356	-	\$0	80	\$5,275	-	\$0
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280	\$38,182
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task H:



**GRAND SUMMARY
PROFESSIONAL SERVICES
CHANGE ORDER #13-002
ADDITIONAL DESIGN SERVICES**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTALS		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	
	\$413.36		\$86.95		\$66.08		\$46.68		\$31.91		\$28.27		\$23.17			
	1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322			
	\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03			
TASK I - North Projection Liner Wall	-	\$0	18	\$3,245	16	\$2,466	-	\$0	-	\$0	24	\$1,563	-	\$0	58	\$7,273

Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task I:

TASK J - Drainage Trough in E. Cofferdam of Rte. 9A Underpass	-	\$0	20	\$4,056	30	\$4,623	20	\$2,178	-	\$0	84	\$5,507	-	\$0	154	\$16,364
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task J:

TASK K - Study Temp. Link bet. NTA and E/W Connector	-	\$0	140	\$28,391	200	\$30,820	208	\$22,607	-	\$0	-	\$0	-	\$0	548	\$91,819
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task K:

TASK L - Evaluation of Oculus Steel Fire Resistance	-	\$0	30	\$6,084	40	\$6,164	13	\$1,388	-	\$0	-	\$0	-	\$0	83	\$13,636
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task L:



**GRAND SUMMARY
PROFESSIONAL SERVICES
CHANGE ORDER #13-002
ADDITIONAL DESIGN SERVICES**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant	
\$413.36		\$88.95		\$88.08		\$46.69		\$31.91		\$28.27		\$23.17	
1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322	
\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.83		\$54.03	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	220	\$44,615	300	\$46,294	-	\$0	-	\$0	-	\$0	-	\$0

TASK M - Estimating Support Services for Sobara CO

TOTALS	
Hours	\$
520	\$90,809

Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task M:

TASK N - Alt. Fire Protection Coating Specification

-	\$0	20	\$4,056	20	\$3,082	80	\$6,499	-	\$0	-	\$0	-	\$0
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100	\$13,637
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task N:

TASK O - Support for NCR's (Areas 1-3)

-	\$0	80	\$18,224	300	\$48,231	94	\$10,273	-	\$0	-	\$0	-	\$0
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474	\$72,728
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task O:

TASK P - Oculus Bolted Connections Alternative Design

-	\$0	740	\$150,069	900	\$138,692	899	\$97,950	-	\$0	-	\$0	-	\$0
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2,539	\$386,711
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task P:

Other Direct Costs (PA Specialty Subconsultant): Weidlinger Associates

See Weidlinger Proposal dated, 7/11/11.



**GRAND SUMMARY
PROFESSIONAL SERVICES
CHANGE ORDER #13-002
ADDITIONAL DESIGN SERVICES**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant	
\$413.36		\$88.95		\$86.08		\$48.69		\$31.91		\$28.27		\$23.17	
1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322	
\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	20	\$4,056	33	\$5,035	-	\$0	-	\$0	-	\$0	-	\$0

Task Q - Analysis of Diagonal Fit Up West Truss

TOTALS	
Hours	\$
53	\$9,091

Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task Q:

Task R - Design Changes to Fresh Air Plenum - El. 229-6

-	\$0	80	\$16,224	160	\$24,656	-	\$0	-	\$0	83	\$5,484	-	\$0
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323	\$48,364
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task R:

Task S - Update E/W Connector Pedestrian Circulation Analysis

-	\$0	40	\$6,112	40	\$6,164	38	\$3,906	-	\$0	-	\$0	-	\$0
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116	\$18,182
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task S:

Task T - Shoring Removal at EBT Area 3

-	\$0	16	\$3,245	20	\$3,119	-	\$0	-	\$0	-	\$0	-	\$0
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36	\$6,364
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Fee (On all Labor, excluding Principals):
 Labor Subtotal (Incl. Overhead & Fee):
 Other Direct Costs:
Total Task T:



**GRAND SUMMARY
PROFESSIONAL SERVICES
CHANGE ORDER #13-002
ADDITIONAL DESIGN SERVICES**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant	
\$413.36		\$86.95		\$66.08		\$46.69		\$31.91		\$28.27		\$23.17	
1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322	
\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	120	\$24,335	240	\$36,985	105	\$11,407	-	\$0	-	\$0	-	\$0

**Task U - Analysis NE Corner -
Column Existing Topo**

TOTALS	
Hours	\$
465	\$72,727

Fee (On all Labor, excluding Principals): **\$7,273**
 Labor Subtotal (Incl. Overhead & Fee): **\$80,000**
 Other Direct Costs: **\$0**
Total Task U: \$80,000

**Task V - Instrumentation PATH
Roof & 1-Line Load Transfer**

-	\$0	400	\$81,118	241	\$37,063	-	\$0	-	\$0	-	\$0	-	\$0
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641	\$118,181
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Fee (On all Labor, excluding Principals): **\$11,818**
 Labor Subtotal (Incl. Overhead & Fee): **\$130,000**
 Other Direct Costs: **\$0**
Total Task V: \$130,000

**Task W - PATH Hall Roof
Construction Seq. Analysis**

-	\$0	30	\$6,084	20	\$3,007	-	\$0	-	\$0	-	\$0	-	\$0
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50	\$9,091
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Fee (On all Labor, excluding Principals): **\$909**
 Labor Subtotal (Incl. Overhead & Fee): **\$10,000**
 Other Direct Costs: **\$455,000**
Total Task W: \$485,000

Other Direct Costs (PA Specialty Subconsultant): Halcrow
 See Halcrow Yolles Proposal dated, May 16, 2012.

**Task X - No. 1-Line Subway Jacking
Construction Sequence**

-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
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-	\$0
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Fee (On all Labor, excluding Principals): **\$0**
 Labor Subtotal (Incl. Overhead & Fee): **\$0**
 Other Direct Costs: **\$152,696**
Total Task X: \$152,696

Other Direct Costs (PA Specialty Subconsultant): Halcrow
 See Halcrow Yolles Proposal dated, December 17, 2012.

**GRAND SUMMARY
PROFESSIONAL SERVICES
CHANGE ORDER #13-002
ADDITIONAL DESIGN SERVICES**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant	
\$413.36		\$86.95		\$66.08		\$48.69		\$31.91		\$28.27		\$23.17	
1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322	
\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	2,836.0	\$575,129	4,166.8	\$642,107	4,495	\$489,462	-	\$0	510.4	\$33,651	-	\$0

TOTAL CO#13-002

TOTALS	
Hours	\$
12,007.8	\$1,740,349

Fee (On all Labor, excluding Principals):

\$174,035

Subtotal Labor (Incl. Overhead & Fee):

\$1,914,384

Subtotal Other Direct Costs :

\$647,314

Grand Total CO#13-0012

\$2,561,698



**Professional Services Task Order # CO-13-002
Task A**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.36	\$86.95	\$66.08	\$46.60	\$31.91	\$28.27	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	500.0	\$101,398	1,000.0	\$154,102	2,328.8	\$253,591	0.0	\$0
	\$0	500.0	\$101,398	1,000.0	\$154,102	2,328.8	\$253,591	0.0	\$0
	\$0	500.0	\$101,398	1,000.0	\$154,102	2,328.8	\$253,591	0.0	\$0

TASK A - Additional Estimating Services

Labor & Overhead:

Fee (On all Labor, excluding Principals):

Total Labor Cost:

Other Direct Costs:

Grand Total Task A:

\$50,909
\$560,000
\$0
\$560,000



CO#13-002 - Task A
Breakdown by Staff Classification

Task A

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	12.5	x	20	=	500.0
Arch/Eng B	2	x	25.0	x	20	=	1,000.0
Arch/Eng C	3	x	38.8	x	20	=	2,328.8
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							3,828.8



**Professional Services Task Order # CO-13-002
Task B**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	40.0	\$8,112	110.0	\$16,951	187.3	\$20,392	0.0	\$0
	\$0	40.0	\$8,112	110.0	\$16,951	187.3	\$20,392	0.0	\$0
								337.3	\$45,455
								337.3	\$45,455

TASK B

TASK B - Update WTC Transp. Hub WBS Diagrams

Labor & Overhead:

Fee (On all Labor, excluding Principals):	\$4,545
Total Labor Cost:	\$50,000
Other Direct Costs:	\$0
Grand Total Task B:	\$50,000



CO#13-002 - Task B
Breakdown by Staff Classification

Task B

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	3	x	4.4	x	3	=	40.0
Arch/Eng B	2	x	18.3	x	3	=	110.0
Arch/Eng C	2	x	31.2	x	3	=	187.3
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							337.3



**Professional Services Task Order # CO-13-002
Task C**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
\$413.36	\$86.95	\$66.08	\$48.89	\$31.91	\$28.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03

TOTAL

TASK C

TASK C - WP 18BY Add'l Work

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	80.0	\$16,224	220.0	\$33,903	312.7	\$34,050	0.0	\$0	240.0	\$15,824	0.0	\$0	852.7	\$100,000		
	\$0	80.0	\$16,224	220.0	\$33,903	312.7	\$34,050	0.0	\$0	240.0	\$15,824	0.0	\$0	852.7	\$100,000		

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$10,000

Total Labor Cost:

\$110,000

Other Direct Costs:

\$0

Grand Total Task C:

\$110,000



CO#13-002 - Task C
Breakdown by Staff Classification

Task C

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x		x	1	=	0.0
Arch/Eng A	1	x	20.0	x	4	=	80.0
Arch/Eng B	2	x	27.5	x	4	=	220.0
Arch/Eng C	3	x	26.1	x	4	=	312.7
Arch/Eng D	1	x	0.0	x	4	=	0.0
CADD	3	x	20.0	x	4	=	240.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							852.7



**Professional Services Task Order # CO-13-002
Task D**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$68.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

TASK D

TASK D - Redesign/Analysis of AS1/D19 and BS1/D19 Columns

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	8.0	\$1,622	7.2	\$1,105	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	15.2	\$2,727
	\$0	8.0	\$1,622	7.2	\$1,105	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	15.2	\$2,727

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$273

Total Labor Cost:

\$3,000

Other Direct Costs:

\$0

Grand Total Task D:

\$3,000



CO#13-002 - Task D
Breakdown by Staff Classification

Task D

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	8.0	x	1	=	8.0
Arch/Eng B	1	x	7.2	x	1	=	7.2
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							15.2



**Professional Services Task Order # CO-13-002
Task E**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Aselstant
\$413.36	\$86.95	\$66.08	\$46.89	\$31.91	\$28.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03

TASK E

TASK E - Analysis of H&M Wall Along NYCT R/W Line

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Aselstant		TOTAL	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	60.0	\$12,168	90.0	\$13,869	94.8	\$10,327		\$0	0.0	\$0	0.0	\$0	244.8	\$36,364
-	\$0	60.0	\$12,168	90.0	\$13,869	94.8	\$10,327	0.0	\$0	0.0	\$0	0.0	\$0	244.8	\$36,364

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$3,636

Total Labor Cost:

\$40,000

Other Direct Costs:

\$0

Grand Total Task E:

\$40,000



**CO#13-002 - Task E
Breakdown by Staff Classification**

Task E

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	15.0	x	2	=	60.0
Arch/Eng B	2	x	22.5	x	2	=	90.0
Arch/Eng C	2	x	23.7	x	2	=	94.8
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							244.8



CO#13-002 - Task F
Breakdown by Staff Classification

Task F

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	4	=	0.0
Arch/Eng A	1	x	4.0	x	4	=	16.0
Arch/Eng B	1	x	5.1	x	4	=	20.2
Arch/Eng C	1	x	0.0	x	4	=	0.0
Arch/Eng D	1	x	0.0	x	4	=	0.0
CADD	1	x	0.0	x	4	=	0.0
Technical Assistant	1	x	0.0	x	4	=	0.0
							<u>36.2</u>



**Professional Services Task Order # CO-13-002
Task G**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$88.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

TASK G

TASK G - Post Installation Alt. for PHTHG - Column @ 266'

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	80.0	\$16,224	80.0	\$12,328	96.8	\$10,539	0.0	\$0	0.0	\$0	0.0	\$0	256.8	\$39,091
	\$0	80.0	\$16,224	80.0	\$12,328	96.8	\$10,539	0.0	\$0	0.0	\$0	0.0	\$0	256.8	\$39,091

Labor & Overhead:

Fee (On all Labor, excluding Principals):	\$3,909
Total Labor Cost:	\$43,000
Other Direct Costs:	\$0
Grand Total Task G:	\$43,000



CO#13-002 - Task G
Breakdown by Staff Classification

Task G

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	26.7	x	3	=	80.0
Arch/Eng B	1	x	26.7	x	3	=	80.0
Arch/Eng C	1	x	32.3	x	3	=	96.8
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							256.8



CO#13-002 - Task H
Breakdown by Staff Classification

Task H

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	10.0	x	4	=	80.0
Arch/Eng B	2	x	10.0	x	4	=	80.0
Arch/Eng C	2	x	5.0	x	4	=	40.0
Arch/Eng D	1	x	0.0	x	4	=	0.0
CADD	2	x	10.0	x	4	=	80.0
Technical Assistant	1	x	0.0	x	4	=	0.0
							280.0



**Professional Services Task Order # CO-13-002
Task I**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	16.0	\$3,245	16.0	\$2,466	0.0	\$0	0.0	\$0
								23.7	\$1,563
								0.0	\$0
								55.7	\$7,273
	\$0	16.0	\$3,245	16.0	\$2,466	0.0	\$0	0.0	\$0
								23.7	\$1,563
								0.0	\$0
								55.7	\$7,273

TASK I
TASK I - North Projection Liner Wall

Labor & Overhead:

Fee (On all Labor, excluding Principals):	\$727
Total Labor Cost:	\$8,000
Other Direct Costs:	\$0
Grand Total Task I:	\$8,000

CO#13-002 - Task I
Breakdown by Staff Classification



Task I

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	16.0	x	1	=	16.0
Arch/Eng B	1	x	16.0	x	1	=	16.0
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	23.7	x	1	=	23.7
Technical Assistant	1	x	0.0	x	1	=	0.0
							<u>55.7</u>



Professional Services Task Order # CO-13-002 Task J

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
\$413.36		\$86.95		\$66.08		\$48.69		\$31.91		\$28.27		\$23.17			
1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322			
\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$85.93		\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	20.0	\$4,056	30.0	\$4,623	20.0	\$2,178	0.0	\$0	83.5	\$5,507	0.0	\$0	153.5	\$16,364
Labor & Overhead:															
-	\$0	20.0	\$4,056	30.0	\$4,623	20.0	\$2,178	0.0	\$0	83.5	\$5,507	0.0	\$0	153.5	\$16,364

TASK J
TASK J - Drainage Trough in E. Cofferdam of Rte. 9A Underpass

Fee (On all Labor, excluding Principals):	\$1,636
Total Labor Cost:	\$18,000
Other Direct Costs:	\$0
Grand Total Task J:	\$18,000



CO#13-002 - Task J
Breakdown by Staff Classification

Task J

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	10.0	x	2	=	20.0
Arch/Eng B	2	x	7.5	x	2	=	30.0
Arch/Eng C	1	x	10.0	x	2	=	20.0
Arch/Eng D	1	x	0.0	x	2	=	0.0
CADD	2	x	20.9	x	2	=	83.5
Technical Assistant	1	x	0.0	x	1	=	0.0
							153.5



**Professional Services Task Order # CO-13-002
Task K**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.60	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

TASK K

TASK K - Study Temp. Link bet. NTA and E/W Connector

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	TOTAL	\$
	\$0	140.0	\$28,391	200.0	\$30,820	207.6	\$22,607	0.0	\$0	0.0	\$0	0.0	\$0	547.6	\$81,819		
	\$0	140.0	\$28,391	200.0	\$30,820	207.6	\$22,607	0.0	\$0	0.0	\$0	0.0	\$0	547.6	\$81,819		

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$8,182

Total Labor Cost:

\$90,000

Other Direct Costs:

\$0

Grand Total Task K:

\$90,000



**CO#13-002 - Task K
Breakdown by Staff Classification**

Task K

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	23.3	x	3	=	140.0
Arch/Eng B	2	x	33.3	x	3	=	200.0
Arch/Eng C	2	x	34.6	x	3	=	207.6
Arch/Eng D	2	x	0.0	x	3	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							547.6



**Professional Services Task Order # CO-13-002
Task L**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

TASK L

TASK L - Evaluation of Oculus Steel Fire Resistance

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	30.0	\$6,084	40.0	\$6,164	12.8	\$1,388	0.0	\$0	0.0	\$0	0.0	\$0	82.8	\$13,636
	\$0	30.0	\$6,084	40.0	\$6,164	12.8	\$1,388	0.0	\$0	0.0	\$0	0.0	\$0	82.8	\$13,636

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$1,364

Total Labor Cost:

\$15,000

Other Direct Costs:

\$0

Grand Total Task L:

\$15,000



**CO#13-002 - Task L
Breakdown by Staff Classification**

Task L

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	15.0	x	1	=	30.0
Arch/Eng B	2	x	20.0	x	1	=	40.0
Arch/Eng C	1	x	12.8	x	1	=	12.8
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							82.8



**Professional Services Task Order # CO-13-002
Task M**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	\$413.36		\$86.95		\$86.08		\$46.69		\$31.91		\$28.27		\$23.17		
	1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322		
	\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	220.0	\$44,615	300.4	\$46,294	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	520.4	\$90,909
	\$0	220.0	\$44,615	300.4	\$46,294	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	520.4	\$90,909

TASK M
TASK M - Estimating Support Services for Sobara
CO

Labor & Overhead:

Fee (On all Labor, excluding Principals): **\$9,091**
 Total Labor Cost: **\$100,000**
 Other Direct Costs: **\$0**
 Grand Total Task M: **\$100,000**



CO#13-002 - Task M
Breakdown by Staff Classification

Task M

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	27.5	x	4	=	220.0
Arch/Eng B	3	x	25.0	x	4	=	300.4
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							520.4



**Professional Services Task Order # CO-13-002
Task N**

Principel	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93

TOTAL	
Hours	\$
99.7	\$13,637

TASK N

TASK N - Alt. Fire Protection Coating Specification

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	20.0	\$4,056	20.0	\$3,082	59.7	\$6,499	-	\$0	-	\$0	-	\$0
-	\$0	20.0	\$4,056	20.0	\$3,082	59.7	\$6,499	0.0	\$0	0.0	\$0	0.0	\$0

Labor & Overhead:

Hours	\$
99.7	\$13,637
99.7	\$13,637

Fee (On all Labor, excluding Principals):

\$1,364

Total Labor Cost:

\$15,000

Other Direct Costs:

\$0

Grand Total Task N:

\$15,000



CO#13-002 - Task N
Breakdown by Staff Classification

Task N

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	20.0	x	1	=	20.0
Arch/Eng B	1	x	20.0	x	1	=	20.0
Arch/Eng C	2	x	29.8	x	1	=	59.7
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							99.7



**Professional Services Task Order # CO-13-002
Task O**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
\$413.36	\$86.95	\$68.08	\$46.69	\$31.91	\$28.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03

TOTAL	
Hours	\$
474.3	\$72,728

TASK O

TASK O - Support for NCR's (Areas 1-3)

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	80.0	\$16,224	300.0	\$46,231	94.3	\$10,273		\$0		\$0		\$0
	\$0	80.0	\$16,224	300.0	\$46,231	94.3	\$10,273	0.0	\$0	0.0	\$0	0.0	\$0

Labor & Overhead:

Hours	\$
474.3	\$72,728
474.3	\$72,728

Fee (On all Labor, excluding Principals):

\$7,273

Total Labor Cost:

\$80,000

Other Direct Costs:

\$0

Grand Total Task O:

\$80,000

CO#13-002 - Task O
Breakdown by Staff Classification



Task O

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	5.0	x	16	=	80.0
Arch/Eng B	2	x	9.4	x	16	=	300.0
Arch/Eng C	1	x	5.9	x	16	=	94.3
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							474.3



**Professional Services Task Order # CO-13-002
Task P**

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
Average Rate	\$413.36	\$88.95	\$86.08	\$46.69	\$31.91	\$29.27
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.83

TASK P

TASK P - Oculus Bolted Connections Alternative Design

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	740.0	\$150,069	900.0	\$138,692	899.5	\$97,950		\$0		\$0		\$0	2,539.5	\$386,711
Labor & Overhead:															
-	\$0	740.0	\$150,069	900.0	\$138,692	899.5	\$97,950	0.0	\$0	0.0	\$0	0.0	\$0	2,539.5	\$386,711

Note:

Weidinger (WAI) is a Specialty Support Subconsultant (Pass-Through). See attached Weidinger proposal dated, 7/11/11.

(See attached)

Fee (On all Labor, excluding Principals):	\$38,671
Total Labor Cost:	\$425,382
Other Direct Costs:	\$39,618
Grand Total Task P:	\$485,000



CO#13-002 - Task P
Breakdown by Staff Classification

Task P

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	14.2	x	26	=	740.0
Arch/Eng B	2	x	17.3	x	26	=	900.0
Arch/Eng C	2	x	17.3	x	26	=	899.5
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							2,539.5



**Professional Services Task Order # CO-13-002
Task Q**

Average Rate
Average Overhead
Average Rate with Overhead

Prinicipal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
\$413.36	\$88.95	\$66.06	\$46.69	\$31.01	\$28.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03

TOTAL	
Hours	\$
52.7	\$9,091

TASK Q

Task Q - Analysis of Diagonal Fit Up West Truss

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
20.0	\$4,056	32.7	\$5,035	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	52.7	\$9,091

Labor & Overhead:

20.0	\$4,056	32.7	\$5,035	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	52.7	\$9,091
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Fee (On all Labor, excluding Principals):

\$909

Total Labor Cost:

\$10,000

Other Direct Costs:

\$0

Grand Total Task Q:

\$10,000



**CO#13-002 - Task Q
Breakdown by Staff Classification**

Task Q

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	10.0	x	2	=	20.0
Arch/Eng B	1	x	16.3	x	2	=	32.7
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							52.7



**Professional Services Task Order # CO-13-002
Task R**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03

TOTAL

TASK R

Task R - Design Changes to Fresh Air Plenum - El. 229-6

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	80.0	\$16,224	160.0	\$24,656	0.0	\$0		\$0	83.2	\$5,484		\$0	323.2	\$46,364
	\$0	80.0	\$16,224	160.0	\$24,656	0.0	\$0	0.0	\$0	83.2	\$5,484	0.0	\$0	323.2	\$46,364

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$4,636

Total Labor Cost:

\$51,000

Other Direct Costs:

\$0

Grand Total Task R:

\$51,000

**CO#13-002 - Task R
Breakdown by Staff Classification**



Task R

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	13.3	x	3	=	80.0
Arch/Eng B	2	x	26.7	x	3	=	160.0
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	2	x	13.9	x	3	=	83.2
Technical Assistant	1	x	0.0	x	1	=	0.0
							323.2



Professional Services Task Order # CO-13-002 Task S

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

TASK S

Task S - Update E/W Connector Pedestrian Circulation Analysis

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	40.0	\$8,112	40.0	\$6,164	35.9	\$3,906		\$0		\$0		\$0	115.9	\$18,182
Labor & Overhead:															
	\$0	40.0	\$8,112	40.0	\$6,164	35.9	\$3,906	0.0	\$0	0.0	\$0	0.0	\$0	115.9	\$18,182

Fee (On all Labor, excluding Principals):	\$1,818
Total Labor Cost:	\$20,000
Other Direct Costs:	\$0
Grand Total Task S:	\$20,000



**CO#13-002 - Task S
Breakdown by Staff Classification**

Task S

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	2	x	5.0	x	4	=	40.0
Arch/Eng B	1	x	10.0	x	4	=	40.0
Arch/Eng C	1	x	9.0	x	4	=	35.9
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							115.9



**Professional Services Task Order # CO-13-002
Task T**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$26.27	\$23.17							
	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03							
TASK T														
Task T - Shoring Removal at EBT Area 3	-	\$0	16.0	\$3,245	20.2	\$3,119	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0
Labor & Overhead:	-	\$0	16.0	\$3,245	20.2	\$3,119	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0

Fee (On all Labor, excluding Principals):	\$636
Total Labor Cost:	\$7,000
Other Direct Costs:	\$0
Grand Total Task T:	\$7,000



**CO#13-002 - Task T
Breakdown by Staff Classification**

Task T

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	8.0	x	2	=	16.0
Arch/Eng B	1	x	10.1	x	2	=	20.2
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							36.2



**Professional Services Task Order # CO-13-002
Task U**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.36	\$86.05	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$0	120.0	\$24,335	240.0	\$36,985	104.8	\$11,407		\$0
								464.8	\$72,727
	\$0	120.0	\$24,335	240.0	\$36,985	104.8	\$11,407	0.0	\$0
								464.8	\$72,727

TASK U
Task U - Analysis NE Corner - Column Existing Topo

Labor & Overhead:

Fee (On all Labor, excluding Principals): **\$7,273**
 Total Labor Cost: **\$80,000**
 Other Direct Costs: **\$0**
 Grand Total Task U: **\$80,000**



CO#13-002 - Task U
Breakdown by Staff Classification

Task U

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	24.0	x	5	=	120.0
Arch/Eng B	2	x	24.0	x	5	=	240.0
Arch/Eng C	2	x	10.5	x	5	=	104.8
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							464.8



**Professional Services Task Order # CO-13-002
Task V**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$26.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

TASK V

Task V - Instrumentation PATH Roof & 1-Line Load Transfer

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	400.0	\$81,118	240.5	\$37,063	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	640.5	\$118,181
-	\$0	400.0	\$81,118	240.5	\$37,063	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	640.5	\$118,181

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$11,818

Total Labor Cost:

\$130,000

Other Direct Costs:

\$0

Grand Total Task V:

\$130,000



CO#13-002 - Task V
Breakdown by Staff Classification

Task V

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	3	x	22.2	x	6	=	400.0
Arch/Eng B	2	x	20.0	x	6	=	240.5
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							640.5



**Professional Services Task Order # CO-13-002
Task W**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
\$413.36	\$86.95	\$86.08	\$48.89	\$31.91	\$28.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.60	\$164.10	\$108.90	\$74.42	\$65.93	\$54.03

TASK W

Task W - PATH Hall Roof Construction Seq.
Analysis (Halcrow)

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	30.0	\$6,084	19.5	\$3,007	0.0	\$0		\$0		\$0		\$0	49.5	\$9,091
-	\$0	30.0	\$6,084	19.5	\$3,007	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	49.5	\$9,091

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$909

Total Labor Cost:

\$10,000

Other Direct Costs (PA Specialty Subconsultant):

\$455,000

See Halcrow Yolles Proposal dated, May 16, 2012.

Grand Total Task W:

\$465,000



**CO#13-002 - Task W
Breakdown by Staff Classification**

Task W

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	3.8	x	8	=	30.0
Arch/Eng B	1	x	2.4	x	8	=	19.5
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							49.5



CO#13-002 - Task X
Breakdown by Staff Classification

Task X

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	1	=	0.0
Arch/Eng A	1	x	0.0	x	1	=	0.0
Arch/Eng B	1	x	0.0	x	1	=	0.0
Arch/Eng C	1	x	0.0	x	1	=	0.0
Arch/Eng D	1	x	0.0	x	1	=	0.0
CADD	1	x	0.0	x	1	=	0.0
Technical Assistant	1	x	0.0	x	1	=	0.0
							<u>0.0</u>



**Professional Services Task Order # CO-13-002
Task X**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
\$413.36	\$86.95	\$66.08	\$46.89	\$31.91	\$28.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.80	\$154.10	\$108.80	\$74.42	\$65.93	\$54.03

TASK X

Task X - No. 1-Line Subway Jacking Construction Sequence (Halcrow)

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	0.0	\$0	0.0	\$0	0.0	\$0		\$0		\$0		\$0	0.0	\$0
	\$0	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0	0.0	\$0

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$0

Total Labor Cost:

\$0

Other Direct Costs (PA Specialty Subconsultant):

\$152,696

See Halcrow Yolles Proposal dated, December 17, 2012.

Grand Total Task X:

\$152,696

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

January 31, 2013

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE
President, AECOM, Inc.

**SUBJECT: SUPPLEMENTAL SERVICES TASK ORDER #TO-12-003 - STRUCTURAL
FEASIBILITY STUDY OF RETAIL REQUESTED SLAB OPENINGS AT
LEVEL B1 – NORTHEAST OCULUS QUADRANT**

Reference: Performance of Expert Architectural and Engineering Services for the Permanent World Trade Center PATH Terminal on a Task Order Basis (Contract No. 4600004824, PA Agreement No. 407-03-013 and PO No. 4900000675), as amended – Supplemental Agreement #1

Dear Mr. Levy:

The Authority hereby accepts your proposal dated December 6, 2012, which is attached hereto and incorporated into the referenced agreement by reference, for performance of the services in the scope of additional services request, which formed the basis for submission of your proposal.

Total compensation for the performance of the above-mentioned services shall not exceed the amount of **\$22,000**. The Consultant shall employ, to every extent possible, the most cost effective methods of performing the Scope of Services as defined in the attached. This includes, but is not limited to, utilizing appropriate staff as needed (i.e. combining management and technical efforts) and tracking hours of technical staff. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to-exceed total amount noted above. The Consultant shall continue to render the additional services to the point when the Consultant's compensation reaches 100% of such amount, at which time either additional written authorization will be given to continue or the scope of work will be deemed complete. The time for completion for the additional services is three (3) weeks from the NTP.

The previously authorized total amount for the referenced agreement is increased from \$77,820,887 to \$77,842,887.

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

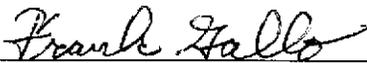
**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

Any questions relating to the performance of the subject services may be directed to Mr. Joe Pinheiro, Project Manager, telephone (212) 435-6558 or Mr. Jeff Bryant, Senior Project Manager, telephone (212) 435-5322.

Sincerely,



Frank Gallo
Assistant Director
WTC Construction Department

Accepted:
Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated



D. Servedio, Chairman, CEO

1/31/13
Date



I. Levy, President

1/31/13
Date



**DOWNTOWN
DESIGN PARTNERSHIP**

100 Broadway, 3rd Floor • New York, NY 10005
Phone: 917.522.2800 Fax: 212.566.5214

12-07-12 A09:44 RCVD

December 6, 2012

Ref #: DDP-PA-0348-12

Port Authority of New York and New Jersey
115 Broadway – 19th Floor
New York, NY 10006

Attention: **Kathy Murphy**

Subject: **P.A. Agreement No. 407-03-013
Performance of Expert Professional
Architectural and Engineering Services for the
World Trade Center Transportation Hub**

Reference: **Revised - Technical and Cost Proposal for Port Authority
Task Order # 12-003
Structural Feasibility Study of Retail Requested Slab Openings at Level B1
Northeast Oculus Quadrant**

Dear Ms. Murphy,

Attached please find Downtown Design Partnership's revised proposal for Port Authority Task Order # 12-003 for Structural Feasibility Study of Retail Requested Slab Openings at Level B1 - Northeast Oculus Quadrant. The attached supersedes our earlier proposal attached to letter Ref. # DDP-PA- 0330-12, dated November 16, 2012.

Please provide a letter authorizing budget for this work.

Should you have any questions regarding the attached, please do not hesitate to call.

Sincerely,

Downtown Design Partnership

Scott R. McIntyre, P.E.
Project Director

CC: J. Zafonte,
K. Patel,

J. Charalambous,
J. Son,

J. Parnes,
File

B. Altabba,

**PERFORMANCE OF EXPERT PROFESSIONAL ARCHITECTURAL AND
ENGINEERING SERVICES FOR THE PERMANENT WORLD TRADE CENTER
PATH TERMINAL ON A TASK ORDER BASIS**

**CONTRACT #4600004824
PA AGREEMENT #407-03-013
Supplemental Agreement #1
Purchase Order #4900000675
SCOPE OF WORK DESCRIPTION**

**Revised - Supplemental Services Task Order #TO-12-003
Structural Feasibility Study of Retail Requested Slab Openings at Level B1
Northeast Oculus Quadrant**

The following Scope is to provide additional engineering services as an additional work item. Unless stated otherwise, all scope of work and associated design costs do not include Stage IV - Services During Construction efforts. The scope of services for this proposal includes the following:

1. Structural Feasibility Study of Retail-Requested Slab Openings at Level B1

Background:

The PANYNJ and their Retail Joint Venture Partner, Westfield, require the performance of a structural feasibility study on providing openings in the Level B1 structural slab for a future potential Tenant stair and elevator. These openings are intended to make this particular Retail Tenant space attractive for a potential Duplex Retail Tenant.

Scope of Work:

DDP shall provide a structural analysis **only** to determine the feasibility of providing slab openings where located and sized per the accompanying Westfield Sketch #W-SK-005. The objective of this study is to understand the magnitude of the changes necessary to the structure as currently designed to determine whether the changes are cost feasible. At this time, changes to plans and specifications are NOT required.

The study shall entail two openings: one for a future elevator; and another for a future stair. Penetrations to the Level B2 structural slab are not necessary for this study. The elevator pit will not penetrate the Level B2 structure. Instead, the B2 structural slab will serve as the pit floor.

PA to provide the following information prior to the start of work:

- Sketches/drawings of proposed stairs and elevator with estimates of weight and design loads (if available)

DDP shall

- Evaluate El. 296 for new opening and proposed additional loads.
- Evaluate Elevation 274 for proposed additional loads.

- Prepare memo report.

PANYNJ is **not** requesting DDP to perform an investigation of MEP encumbrances in these locations. The World Trade Center Redevelopment Department has performed an analysis and has determined that the MEP impacts were minimal.

Deliverables

1. An electronic copy of the narrative and sketch describing and showing changes to existing structure, if any, and new structural elements required for requested framed openings.
2. Revisions to Construction documents are **NOT** being requested at this time.

END SCOPE OF WORK



**GRAND SUMMARY
PROFESSIONAL SERVICES
REVISED - TASK ORDER #12-003
Structural Feasibility Study of Retail Requested Slab Openings at Level B1
Northeast Oculus Quadrant**

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTALS	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
Average Rate		\$413.36		\$86.95		\$66.08		\$46.69		\$31.91		\$28.27		\$23.17		
Average Overhead		1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322		
Average Rate with Overhead		\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03		
1. TASK 1 - Feasibility Study	-	\$0	60.0	\$12,168	40.0	\$6,164	-	\$0	-	\$0	25.3	\$1,668	-	\$0	125.3	\$20,000

Fee (On all Labor, excluding Principals):	\$2,000
Labor Subtotal (Incl. Overhead & Fee):	\$22,000
Other Direct Costs:	\$0
Total Task 1:	\$22,000

TOTAL TO#12-003	-	\$0	60.0	\$12,168	40.0	\$6,164	-	\$0	-	\$0	25.3	\$1,668	-	\$0	125.3	\$20,000
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Fee (On all Labor, excluding Principals):	\$2,000
Subtotal Labor (Incl. Overhead & Fee):	\$22,000
Subtotal Other Direct Costs :	\$0
Grand Total TO#12-003 :	\$22,000

Task 1
Breakdown by Staff Classification

I. Task 1

A. FEASIBILITY STUDY

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	3	=	0.0
Arch/Eng A	1	x	20.0	x	3	=	60.0
Arch/Eng B	1	x	13.3	x	3	=	40.0
Arch/Eng C	1	x	0.0	x	3	=	0.0
Arch/Eng D	1	x	0.0	x	3	=	0.0
CADD	2	x	4.2	x	3	=	25.3
Technical Assistant	1	x	0.0	x	3	=	0.0
							125.3

02-14-13A10:07 RCVD

THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

January 25, 2013

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE
President, AECOM, Inc.

**SUBJECT: TASK ORDER #TO-12-002, ADDED SCOPE AND SCOPE
MODIFICATIONS FOR THE REDESIGN & RECONSTRUCTION OF
MTA #1 SUBWAY LINE CORTLANDT STREET STATION**

RE: Performance of Expert Architectural and Engineering Services for the Permanent World Trade Center PATH Terminal on a Task Order Basis (Contract No. 4600004824, PA Agreement No. 407-03-013 and PO No. 4900000675), as amended – Supplemental Agreement #1

Dear Mr. Levy:

The Authority hereby accepts your proposal dated December 11, 2012, which is attached hereto and incorporated into the referenced agreement by reference, for performance of the services in the scope of additional services request, which formed the basis for submission of your proposal.

Total compensation for the performance of the above-mentioned services shall not exceed the amount of **\$626,000**. The Consultant shall employ, to every extent possible, the most cost effective methods of performing the Scope of Services as defined in the attached. This includes, but is not limited to, utilizing appropriate staff as needed (i.e. combining management and technical efforts) and tracking hours of technical staff. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to-exceed total amount noted above. The Consultant shall continue to render the additional services to the point when the Consultant's compensation reaches 100% of such amount, at which time either additional written authorization will be given to continue or the scope of work will be deemed complete.

The previously authorized total amount for the referenced agreement is increased from \$77,194,887 to \$77,820,887.

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

115 Broadway, 7th Floor
New York, NY 10006

THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

Any questions relating to the performance of the subject services may be directed to Mr. Damian McShane, Senior Program Manager, telephone (212) 435-3166.

Sincerely,



Frank Gallo
Assistant Director
WTC Construction Department

Accepted:
Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated



D. Servedio, Chairman, CEO

1/31/13

Date



I. Levy, President

1/31/13

Date



**DOWNTOWN
DESIGN PARTNERSHIP**

100 Broadway, 3rd Floor • New York, NY 10005
Phone: 917.522.2800 Fax: 212.566.5214

12-12-12 110:15 IN

December 11, 2012

Ref #: DDP-PA-0349-12

Port Authority of New York and New Jersey
115 Broadway – 19th Floor
New York, NY 10006

Attention: **Mario Socrates**

Subject: **P.A. Agreement No. 407-03-013
Performance of Expert Professional
Architectural and Engineering Services for the
World Trade Center Transportation Hub**

Reference: **Technical and Cost Proposal for Port Authority
Task Order # 12-002
Additional Scope of Work for the Redesign and Reconstruction of
MTA #1 Subway Line Cortlandt Street Station**

Dear Mr. Socrates,

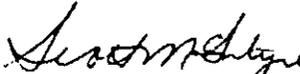
Per your RFP, dated November 29, 2012, attached please find Downtown Design Partnership's proposal for Port Authority Task Order # 12-002 for Additional Scope of Work for the Redesign and Reconstruction of MTA #1 Subway Line Cortlandt Street Station.

Please provide a letter authorizing budget for this work.

Should you have any questions regarding the attached, please do not hesitate to call.

Sincerely,

Downtown Design Partnership


Scott R. McIntyre, P.E.
Project Director

CC: J. Zafonte,
File

K. Doshi,

M. Rajan,

J. Son,

**PERFORMANCE OF EXPERT PROFESSIONAL ARCHITECTURAL AND
ENGINEERING SERVICES FOR THE PERMANENT WORLD TRADE CENTER
PATH TERMINAL ON A TASK ORDER BASIS**

**CONTRACT #4600004824
PA AGREEMENT #407-03-013
Supplemental Agreement #1
Purchase Order #4900000675
SCOPE OF WORK DESCRIPTION**

**Supplemental Task Order-12-002
Added Scope for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station**

This Scope of Work details additional work items related with the Redesign and Reconstruction of the Metropolitan Authority (MTA) Cortlandt Street - #1 Line Subway Station.

Task 1: CSS Revision Due to 2010 NYSBC

DDP shall assess and implement impacts from changing the current Cortlandt St. Station from:

- a. NFPA 130 (2007) to NFPA 130 (2010)
- b. New York State Building Code (2007) to New York State Building Code (2010).

Deliverables:

Provide a report on the impacts and differences between the two codes. Where required update drawings and specifications to reflect NFPA 130 (2010) and New York State Building Code (2010). **Work completed.**

Task 2: Cortlandt St. Station - Post Phase 1 Support Staff

DDP shall provide to support Cortlandt St. Station – Post Phase 1.

Deliverables:

Support staff advanced structural design to confirm with updated requirements. Participate in ongoing coordination meetings and provide material for coordination effort with adjacent stakeholders i.e. SPI, Hub, PAC and Street Program. **Work completed.**

Task 3: Cortlandt St. Station - WP 20 Revisions Due Cortland Street NFPA 130 Revisions

East Bath Tub scope transfer (Hub documents shall incorporate these changes based on coordination with Cortlandt St. design):

- a. Delete a total of (2) 168" x 120" smoke dampers as shown on drawings M1206, M0208 and M0305.

- b. Deletion of total of (2) 180" x 60" automatic louver spill dampers shown on drawings M1206, M0208 and M0305.
- c. Replace (2) 120" x 84" automatic louver dampers (ALD) with (2) 118" x 82" smoke dampers (SMKD) for AHU-1A, 1B as shown on drawings M1104, M0305 and M0509.
- d. Replace total of (2) 120" x 144" automatic louver dampers (ALD) with a total of (4) 118" x 68" smoke dampers (SMKD) for AHU-2A, 2B as shown on drawings M1104, M0305 and M0509.
- e. Replace total of (2) 120" x 144" automatic louver dampers (ALD) with a total of (4) 118" x 68" smoke dampers (SMKD) for AHU-4A, 4B as shown on drawings M1104, M0305 and M0509.
- f. Replace total of (2) 120" x 144" automatic louver dampers (ALD) with a total of (4) 118" x 68" smoke dampers (SMKD) for AHU-5A, 5B as shown on drawings M1104, M0305 and M0509.
- g. Revise control dampers sequence of operations in section 15950 paragraph 2.09 and drawings M0601 and M0602 to conform to the above changes.
- h. No other trades involved in above mechanical revisions.

West Bath Tub scope transfer (Hub documents shall incorporate these changes based on coordination with Cortlandt St. design):

- a. Delete 28" x 18" FSD/AD as shown on M1614 and blank-off ductwork.
- b. New ductwork connection with new FSD indicated on Cortland contract documents.
- c. Delete electrical fire alarm wiring from HUB FSD and rewiring (By HUB FA) to the new FSD provided under Cortland street project.

Deliverables:

Modify and update drawings as per above scope description. **Work completed.**

Task 4: Cortlandt St. Station - Steel Jackets

DDP shall:

- a. Revise WTC Hub documents to delete the installation of steel jackets of certain columns, within the Cortlandt street station North Mezzanine area.
- b. Revise Cortlandt St. Station contract documents to include the installation of steel jackets of certain columns originally included in WTC Hub contract documents, within the Cortlandt street station North Mezzanine area.

Deliverables:

Update drawings to reflect needed steel jackets. **Work completed.**

Task 5: Cortlandt St. Station - Removal of Columns

Revise Cortlandt St. contract documents to reflect the removal of columns and caissons supporting temporary station within the Hub area.

Deliverables:

Revise drawings. **Work completed.**

Task 6: Cortlandt St. Station - Egress Analysis at North End of Southbound Platform

This effort is an egress analysis at north end of southbound platform for early opening for full revenue service prior to removal of North Temporary Access.

DDP shall:

- a. Perform general code review.
- b. Prepare (2) concept schemes:
 - up to grade
 - west into Hub
- c. Prepare presentation drawings for discussion.
- d. Identify pros and cons for schemes.
- e. Attend a maximum of (5) meeting(s) with the PANYNJ and/or NYCT.

Assumptions:

- a. This is a review of egress requirements only.
- b. This does not include reconfiguration of fare control at north end.
- c. This does not include reconfiguration of fare control at south end to relieve passenger flow constraints.

This does not include changes to Cortlandt St. Station contract documents.

Deliverables:

Participate in meetings with PA and MTA. Provide a report on the egress analysis. **Work completed.**

Task 7: Cortlandt St. Station – North Temporary Access West Side Assessment

DDP shall incorporate the existence of the North Temporary Access (NTA) and its supports in the Cortlandt St Station contract such that the station construction would take place around the constraints of the North Temporary Access.

DDP shall perform feasibility assessments for the following items for the west side:

- a. Incorporation of NTA structure in relevant sections
- b. Development of additional sections showing NTA structure.

- c. Modification of framing as required for roof level, platform level and invert level to avoid conflict with existing NTA supports/structure.
- d. Development of additional sections and/or details.
- e. Development of drawings of plan, elevation and sections defining the limit of demolition of the Greenwich St slurry wall.

Deliverables:

Participate in meetings with PA. Coordinate with HUB and proposed PAC to grade program. Revise drawings to reflect new framing plan. **Work completed.**

Task 8: Cortlandt St. Station - Design Implementation NTA of East Side Expansion

DDP shall incorporate the existence of the North Temporary Access (NTA) and its supports in the Cortlandt St Station contract such that the station construction would take place around the constraints of the North Temporary Access.

The following are the scope of work items for the east side:

- a. Incorporate NTA structure in relevant sections.
- b. Modify framing as required for platform level to avoid conflict with existing NTA supports/structure as required.
- c. Develop additional sections and/or details as necessary.

Deliverables:

Participate in meetings with PA. Coordinate with HUB. Revise drawings to reflect new framing plan. **Work completed.**

Task 9: Cortlandt St. Station - Revisions to H&M Tubes

DDP shall revise Cortlandt St. design documents for the removal of invert beam overhang beyond WP 9X invert slab.

Deliverables:

Participate in meetings with PA. Coordinate with HUB. Revise drawings to reflect new framing plan. **Work completed.**

Task 10: Cortlandt St. Station - Field Survey/Platform Repair

DDP shall perform a field survey to determine existing conditions for the following:

- a. northbound and southbound platforms
- b. damaged ductbanks within platforms
- c. damaged manholes within platforms
- d. opening within west sidewall near bent 184
- e. bottom corners of bents near locations of horse-head brackets

- f. openings in sidewalls at locations of temporary underpinning and temporary lateral bracing
- g. restoration of beam/column encasement at locations of temporary lateral bracing

The above conditions will be represented on plan and elevation views in such a manner that the Contractor will be able to quantify the various types of repairs. Repair details will be developed for each condition and reflected in the contract documents.

DDP shall:

- a. Develop layout of platforms delineating between existing platform to remain, platforms requiring repair and missing sections of platform requiring reconstruction.
- b. Develop design and details for the repair and reconstruction of platforms.

Deliverables:

Provide report detailing existing conditions. **Work completed.**

Task 11: Cortlandt St. Station - I-Line Box Repair

DDP shall provide design as required for the following:

- a. Repair of an opening in the West side of the I Line box in the north, at Bent 184, which is approximately 15' x 5' x 18".
- b. Repair of the bottom corners of the I Line Box between each bent which were demolished during Package 9 steel installation for support of the box. This also applies to areas in the south end.
- c. Repair of station side wall knock outs from previously placed and removed transverse girders.
 - South End on East Side starts at Bent 71 and ends at Bent 95 and Repair area is approximately 200 Square feet (16 openings in a 1' thick side wall).
 - South End on West Side starts at Bent 66 and ends at Bent 95. Repair area is approximately 400 square feet (24 openings in a 1' thick wall)
 - North End on East side and West Side Sidewall Repair area totals approximately 500 square feet (Approximately 10 openings total for both sides in a 1' thick wall)
- d. Repair/Replacement of the MTA clay ductbank along the east bottom corner of the I Line Box in the north, from Bent 166 to Vesey Street Wall.

Deliverables:

Update drawings to reflect the above scope. **Work completed.**

Task 12: Cortlandt St. Station - Revisions Due to PAC Work

DDP shall revise contract drawings to relocate Cortlandt St. Station program space currently situated in the PAC area. This is at the north end of the southbound Platform at El.293 +/-.

- a. Relocate Water Meter Room to the North Mezzanine at El. 274 (current Elevator 03 EMR).
- b. Relocate SECR to south end of Platform.
- c. Relocate EPR to current location for the Public Telephone Room in existing built space.
- d. Relocate Public Telephone Room to the south end of Platform.
- e. Locate Area of Refuge to the west side at bent 152 of the station box with a stair to grade.
- f. Temporarily Locate Intake/Exhaust Shaft in shaft for Elevator 03.

The work noted above involves all disciplines with the exception of Civil. The above listed scope of work is based on the concept sketches which were reviewed with and approved by the PA in a meeting on 05.02.12.

Deliverables:

Attend meeting with PA to present concepts. Update drawings based on PA approvals.

Work completed.

**GRAND SUMMARY
PROFESSIONAL SERVICES
TASK ORDER #12-002**

**Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTALS	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
Average Rate		\$413.36		\$86.95		\$66.08		\$46.69		\$31.91		\$28.27		\$23.17	
Average Overhead		1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322	
Average Rate with Overhead		\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03	
														162.7	\$29,091

TASK 1 - CSS Revision Due to 2010 NYSBC

Fee (On all Labor, excluding Principals): **\$2,909**
 Labor Subtotal (Incl. Overhead & Fee/Profit): **\$32,000**
 Other Direct Costs: **\$0**
Total Task 1: \$32,000

TASK 2 - Cortlandt St. Station - Post Phase 1 Support Staff

\$0		400.0	\$81,118	600.0	\$92,461	493.1	\$53,693	\$0		\$0		\$0		1,493.1	\$227,273
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Fee (On all Labor, excluding Principals): **\$22,727**
 Labor Subtotal (Incl. Overhead & Fee/Profit): **\$250,000**
 Other Direct Costs: **\$0**
Total Task 2: \$250,000

TASK 3 - Cortlandt St. Station - WP 20 Revisions Due Cortland Street NFPA 130 Revisions

\$0		9.0	\$1,622	24.0	\$3,698	\$0		\$0		29.6	\$1,952	\$0		61.6	\$7,273
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Fee (On all Labor, excluding Principals): **\$727**
 Labor Subtotal (Incl. Overhead & Fee/Profit): **\$8,000**
 Other Direct Costs: **\$0**
Total Task 3: \$8,000

TASK 4 - Cortlandt St. Station - Steel Jackets

\$0		20.0	\$4,056	46.7	\$7,193	\$0		\$0		50.0	\$3,297	\$0		116.7	\$14,545
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Fee (On all Labor, excluding Principals): **\$1,455**
 Labor Subtotal (Incl. Overhead & Fee/Profit): **\$16,000**
 Other Direct Costs: **\$0**
Total Task 4: \$16,000



**GRAND SUMMARY
PROFESSIONAL SERVICES
TASK ORDER #12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station**

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTALS		
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	
Average Rate		\$413.36		\$86.95		\$66.08		\$46.69		\$31.91		\$28.27		\$23.17			
Average Overhead		1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322			
Average Rate with Overhead		\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03			
TASK 9 - Cortlandt St. Station - Revisions to H&M Tubes	-	\$0	24.0	\$4,867	30.0	\$4,623	38.9	\$4,236	-	\$0	40.0	\$2,637	-	\$0	132.9	\$16,364	

Fee (On all Labor, excluding Principals): **\$1,636**
 Labor Subtotal (Incl. Overhead & Fee/Profit): **\$18,000**
 Other Direct Costs: **\$0**
Total Task 9: \$18,000

TASK 10 - Cortlandt St. Station - Field Survey/Platform Repair	-	\$0	40.0	\$8,112	80.0	\$12,328	200.0	\$21,779	171.7	\$12,776	200.0	\$13,186	-	\$0	691.7	\$68,182
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Fee (On all Labor, excluding Principals): **\$8,818**
 Labor Subtotal (Incl. Overhead & Fee/Profit): **\$75,000**
 Other Direct Costs: **\$0**
Total Task 10: \$75,000

TASK 11 - Cortlandt St. Station - 1-Line Box Repair	-	\$0	20.0	\$4,056	30.9	\$4,760	-	\$0	-	\$0	80.0	\$5,275	-	\$0	130.9	\$14,091
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Fee (On all Labor, excluding Principals): **\$1,409**
 Labor Subtotal (Incl. Overhead & Fee/Profit): **\$15,500**
 Other Direct Costs: **\$0**
Total Task 11: \$15,500

TASK 12 - Cortlandt St. Station - Revisions Due to PAC Work	-	\$0	200.0	\$40,559	300.0	\$46,231	300.0	\$32,669	-	\$0	394.3	\$25,998	-	\$0	1,194.3	\$145,544
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Fee (On all Labor, excluding Principals): **\$14,545**
 Labor Subtotal (Incl. Overhead & Fee/Profit): **\$160,000**
 Other Direct Costs: **\$0**
Total Task 12: \$160,000



**GRAND SUMMARY
PROFESSIONAL SERVICES
TASK ORDER #12-002**

**Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTALS	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	\$413.36		\$86.95		\$66.08		\$46.69		\$31.91		\$28.27		\$23.17		
	1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322		
	\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03		
TOTAL PA TO #12-002														4,291.9	\$569,091

Fee (On all Labor, excluding Principals):

\$56,909

Subtotal Labor (Incl. Overhead & Fee/Profit):

\$626,000

Subtotal Other Direct Costs :

\$0

Grand Total PA TO #12-002

\$626,000

Notes:

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.35	\$88.95	\$66.02	\$46.64	\$31.91	\$30.00	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.35	\$202.80	\$154.10	\$108.90	\$74.42	\$69.07	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	62.7	\$16,763	60.0	\$12,328	-	\$0	-	\$0
-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
-	\$0	62.7	\$16,763	60.0	\$12,328	-	\$0	-	\$0

TASK 1

Task 1 - CSS Revision Due to 2010 NYSBC

Labor & Overhead:

Fee (Dn all Labor, excluding Principals):	\$2,909
Total Labor Cost:	\$32,000
Other Direct Costs:	\$0
Grand Total Task 1:	\$32,000

Task 1
Breakdown by Staff Classification

TASK 1

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	9	=	0
Arch/Eng A	1	x	9.2	x	9	=	83
Arch/Eng B	1	x	8.9	x	9	=	80
Arch/Eng C	1	x	0.0	x	9	=	0
Arch/Eng D	1	x	0.0	x	9	=	0
CADD	1	x	0.0	x	9	=	0
Technical Assistant	1	x	0.0	x	9	=	0
							163

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17			
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$106.90	\$74.42	\$65.93	\$54.03			
TASK 2	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
Task 2 - Cortlandt St. Station - Post Phase 1 Support Staff		\$0	400.0	\$81,118	600.0	\$92,461	495.1	\$53,693		\$0
									1,493.1	\$227,273
Labor & Overhead:		\$0	400.0	\$81,118	600.0	\$92,461	493.1	\$53,693		\$0
									1,493.1	\$227,273

Fee (On all Labor, excluding Principals): \$22,727

Total Labor Cost: \$250,000

Other Direct Costs: \$0

Grand Total Task 2: \$250,000

Task 2
Breakdown by Staff Classification

TASK 2

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	40	=	0
Arch/Eng A	1	x	10.0	x	40	=	400
Arch/Eng B	1	x	15.0	x	40	=	600
Arch/Eng C	1	x	12.3	x	40	=	493
Arch/Eng D	1	x	0.0	x	40	=	0
CADD	1	x	0.0	x	40	=	0
Technical Assistant	1	x	0.0	x	40	=	0
							1,493

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant									
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.01	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
TASK 3	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	TOTAL	\$
Task 3 - Cortlandt St. Station - WP 20 Rev. Due Cortland Street NFPA 130 Revisions		\$0	8.0	\$1,622	24.0	\$3,698	-	\$0	-	\$0	29.6	\$1,952	-	\$0	61.6	\$7,273
Labor & Overhead:		\$0	8.0	\$1,622	24.0	\$3,698	-	\$0	-	\$0	29.6	\$1,952	-	\$0	61.6	\$7,273

Fee (On all Labor, excluding Principals):	\$727
Total Labor Cost:	\$8,000
Other Direct Costs:	\$0
Grand Total Task 3:	\$8,000

Task 3
Breakdown by Staff Classification

Task 3

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	4	=	0
Arch/Eng A	1	x	2.0	x	4	=	8
Arch/Eng B	1	x	6.0	x	4	=	24
Arch/Eng C	1	x	0.0	x	4	=	0
Arch/Eng D	1	x	0.0	x	4	=	0
CADD	1	x	7.4	x	4	=	30
Technical Assistant	1	x	0.0	x	4	=	0
							62

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$26.27	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

TASK 4

Task Description	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	Hours	\$
TASK 4 - Cortlandt St. Station - Steel Jackets	-	20.00	46.68	-	-	50.0	-	116.7	\$14,545
Labor & Overhead:	-	20.0	46.7	-	-	50.0	-	116.7	\$14,545

Fee (On all Labor, excluding Principals):	\$1,455
Total Labor Cost:	\$16,000
Other Direct Costs:	\$0
Grand Total Task 4:	\$16,000

Task 4
Breakdown by Staff Classification

Task 4

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	14	=	0
Arch/Eng A	1	x	1.4	x	14	=	20
Arch/Eng B	1	x	3.3	x	14	=	47
Arch/Eng C	1	x	0.0	x	14	=	0
Arch/Eng D	1	x	0.0	x	14	=	0
CADD	1	x	3.6	x	14	=	50
Technical Assistant	1	x	0.0	x	14	=	0
							117

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$66.95	\$66.06	\$46.68	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	
Hours	\$	Hours	\$	Hours	\$	Hours	\$

TASK 5

Task Description	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
TASK 5 - Cortlandt St. Station - Removal of Columns	-	\$0	8.0	\$1,622	16.0	\$2,466	-	\$0	-	\$0	20.7	\$1,367	-	\$0

Labor & Overhead:

-	\$0	8.0	\$1,622	16.0	\$2,466	-	\$0	-	\$0	20.7	\$1,367	-	\$0	44.7	\$5,455
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Fee (On all Labor, excluding Principals): \$545

Total Labor Cost: \$6,000

Other Direct Costs: \$0

Grand Total Task 5: \$6,000

Task 5
Breakdown by Staff Classification

Task 5

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	4	=	0
Arch/Eng A	1	x	2.0	x	4	=	8
Arch/Eng B	1	x	4.0	x	4	=	16
Arch/Eng C	1	x	0.0	x	4	=	0
Arch/Eng D	1	x	0.0	x	4	=	0
CADD	1	x	5.2	x	4	=	21
Technical Assistant	1	x	0.0	x	4	=	0
							45

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
Average Rate	\$413.36	\$88.95	\$66.08	\$46.60	\$51.91	\$28.27	\$23.17	
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

TASK 6

	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	TOTAL	
TASK 6 - Cortlandt St. Station - Egress Analysis at North End of Southbound Platform	-	\$0	8.0	\$1,622	20.0	\$3,082	23.6	\$2,568	-	\$0	-	\$0	-	\$0	51.6	\$7,273

Labor & Overhead:	-	\$0	8.0	\$1,622	20.0	\$3,082	23.6	\$2,568	-	\$0	-	\$0	-	\$0	51.6	\$7,273
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Fee (On all Labor, excluding Principals): **\$727**

Total Labor Cost: **\$8,000**

Other Direct Costs: **\$0**

Grand Total Task 6: **\$8,000**

Task 6
Breakdown by Staff Classification

Task 6

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	22	=	0
Arch/Eng A	1	x	0.4	x	22	=	8
Arch/Eng B	1	x	0.9	x	22	=	20
Arch/Eng C	1	x	1.1	x	22	=	24
Arch/Eng D	1	x	0.0	x	22	=	0
CADD	1	x	0.0	x	22	=	0
Technical Assistant	1	x	0.0	x	22	=	0
							52

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL				
Average Rate	\$413.66	\$88.55	\$66.08	\$46.65	\$31.91	\$28.27	\$23.17					
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322					
Average Rate with Overhead	\$113.36	\$202.80	\$154.10	\$108.00	\$74.42	\$65.93	\$54.03					
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$		
TASK 7												
Task 7 - Cortlandt St. Station - NTA West Side Assessment		\$0	80.0	\$16,224	59.9	\$9,231		\$0		\$0	139.9	\$25,454
Labor & Overhead:		\$0	80.0	\$16,224	59.9	\$9,231		\$0		\$0	139.9	\$25,454

Fee (On all Labor, excluding Principals): \$2,545

Total Labor Cost: \$28,000

Other Direct Costs:

Grand Total Task 7: \$28,000

Task 7
Breakdown by Staff Classification

Task 7

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	6	=	0
Arch/Eng A	1	x	13.3	x	6	=	80
Arch/Eng B	1	x	10.0	x	6	=	60
Arch/Eng C	1	x	0.0	x	6	=	0
Arch/Eng D	1	x	0.0	x	6	=	0
CADD	1	x	0.0	x	6	=	0
Technical Assistant	1	x	0.0	x	6	=	0
							140

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL	
Average Rate	\$413.36	\$62.95	\$66.08	\$46.09	\$31.91	\$28.27	\$23.17		
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
Average Rate with Overhead	\$413.36	\$62.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	11.9	\$2,410	16.0	\$2,466	20.0	\$2,178	-	\$0
								24.0	\$1,582
									\$0
								71.9	\$8,636
Labor & Overhead:	\$0	11.9	\$2,410	16.0	\$2,466	20.0	\$2,178	-	\$0
								24.0	\$1,582
									\$0
								71.9	\$8,636

TASK 8

Task 8 - Cortlandt St. Station - Design
 Implementation NTA of East Side Expansion

Fee/Profit (On all Labor, excluding Principals): \$864

Total Labor Cost: \$9,500

Other Direct Costs:

Grand Total Task 8: \$9,500

Task 8
Breakdown by Staff Classification

Task 8

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	7	=	0
Arch/Eng A	1	x	1.7	x	7	=	12
Arch/Eng B	1	x	2.3	x	7	=	16
Arch/Eng C	1	x	2.9	x	7	=	20
Arch/Eng D	1	x	0.0	x	7	=	0
CADD	1	x	3.4	x	7	=	24
Technical Assistant	1	x	0.0	x	7	=	0
							72

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
Average Rate	\$413.96	\$96.95	\$66.08	\$46.60	\$51.91	\$28.27	\$23.17
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
Average Rate with Overhead	\$413.96	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03

TASK 9

Task 9 - Cortlandt St. Station - Revisions to H&M Tubes	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	TOTAL	\$
-	24.0	\$4,867	30.0	\$4,623	38.0	\$4,236	0	\$0	40.0	\$2,637	0	\$0	132.9	\$16,364		

Labor & Overhead:	24.0	\$4,867	30.0	\$4,623	38.0	\$4,236	0	\$0	40.0	\$2,637	0	\$0	132.9	\$16,364
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Fee (On all Labor, excluding Principals): \$1,636

Total Labor Cost: \$18,000

Other Direct Costs:

Grand Total Task 9: \$18,000

Task 9
Breakdown by Staff Classification

Task 9

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	2	=	0
Arch/Eng A	1	x	12.0	x	2	=	24
Arch/Eng B	1	x	15.0	x	2	=	30
Arch/Eng C	1	x	19.5	x	2	=	39
Arch/Eng D	1	x	0.0	x	2	=	0
CADD	1	x	20.0	x	2	=	40
Technical Assistant	1	x	0.0	x	2	=	0
							133

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL	
Average Rate	\$413.36	\$86.95	\$55.08	\$46.00	\$31.01	\$28.27	\$23.17		
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
TASK 10									
Task 10 - Cortlandt St Station - Field Survey/Platform Repair									
Labor & Overhead:									

Fee (On all Labor, excluding Principals): \$6,818
Total Labor Cost: \$75,000
Other Direct Costs:
Grand Total Task 10: \$75,000

Task 10
Breakdown by Staff Classification

Task 10

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	12	=	0
Arch/Eng A	1	x	3.3	x	12	=	40
Arch/Eng B	1	x	6.7	x	12	=	80
Arch/Eng C	4	x	4.2	x	12	=	200
Arch/Eng D	4	x	3.6	x	12	=	172
CADD	2	x	8.3	x	12	=	200
Technical Assistant	1	x	0.0	x	12	=	0
							692

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL						
Average Rate	\$413.36	\$86.95	\$66.06	\$46.69	\$31.91	\$28.27	\$23.17							
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322							
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03							
Task 11	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$		
Task 11 -Cortlandt St. Station - 1-Line Box Repair	-	\$0	20.0	\$4,056	30.9	\$4,760	-	\$0	80.0	\$5,275	-	\$0	130.9	\$14,091
Labor & Overhead:	-	\$0	20.0	\$4,056	30.9	\$4,760	-	\$0	80.0	\$5,275	-	\$0	130.9	\$14,091

Fee (On all Labor, excluding Principals): \$1,409

Total Labor Cost: \$15,500

Other Direct Costs:

Grand Total Task 11: \$15,500

Task 11
Breakdown by Staff Classification

Task 11

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	6	=	0
Arch/Eng A	1	x	3.3	x	6	=	20
Arch/Eng B	1	x	5.1	x	6	=	31
Arch/Eng C	1	x	0.0	x	6	=	0
Arch/Eng D	1	x	0.0	x	6	=	0
CADD	1	x	13.3	x	6	=	80
Technical Assistant	1	x	0.0	x	6	=	0
							131

TASK ORDER # 12-002
Added Scope and Scope Modifications for the Redesign & Reconstruction of
MTA #1 Subway Line Cortlandt Street Station

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL						
Average Rate	\$413.36	\$86.95	\$66.68	\$46.68	\$31.91	\$28.27	\$23.17							
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322							
Average Rate with Overhead	\$413.36	\$202.80	\$151.10	\$108.90	\$74.42	\$65.93	\$54.03							
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$				
TASK 12														
Task 12 - Cortlandt St. Station - Revisions Due to PAC Work		\$0	200.0	\$40,559	300.0	\$46,231	300.0	\$32,669	\$0	394.3	\$25,996	\$0	1,194.3	\$145,454
Labor & Overhead:		\$0	200.0	\$40,559	300.0	\$46,231	300.0	\$32,669	\$0	394.3	\$25,996	\$0	1,194.3	\$145,454

Fee (On all Labor, excluding Principals): \$14,545
 Total Labor Cost: \$160,000
 Other Direct Costs:
 Grand Total Task 12: \$160,000

Task 12
Breakdown by Staff Classification

Task 12

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	5	=	0
Arch/Eng A	2	x	20.0	x	5	=	200
Arch/Eng B	2	x	30.0	x	5	=	300
Arch/Eng C	2	x	30.0	x	5	=	300
Arch/Eng D	2	x	0.0	x	5	=	0
CADD	3	x	26.3	x	5	=	394
Technical Assistant	2	x	0.0	x	5	=	0
							1,194

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

November 26, 2012

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE
President, AECOM, Inc.

**SUBJECT: SUPPLEMENTAL SERVICES TASK ORDER #TO-12-001, HUB DESIGN
CHANGES RELATED TO APPROVED STAKE-HOLDER REQUESTS**

Reference 1: Performance of Expert Architectural and Engineering Services for the Permanent World Trade Center PATH Terminal on a Task Order Basis (Contract No. 4600004824, PA Agreement No. 407-03-013 and PO No. 4900000675), as amended – Supplemental Agreement #1

Reference 2: Addendum No. 1, Dated September 28, 2012

Dear Mr. Levy:

The Authority hereby accepts your proposal dated November 16, 2012, which is attached hereto and incorporated into the referenced agreement by reference, for performance of the services in the scope of additional services request, which formed the basis for submission of your proposal.

Total compensation for the performance of the above-mentioned services shall not exceed the amount of **\$265,000**. The Consultant shall employ, to every extent possible, the most cost effective methods of performing the Scope of Services as defined in the attached. This includes, but is not limited to, utilizing appropriate staff as needed (i.e. combining management and technical efforts) and tracking hours of technical staff. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to-exceed total amount noted above. The Consultant shall continue to render the additional services to the point when the Consultant's compensation reaches 100% of such amount, at which time either additional written authorization will be given to continue or the scope of work will be deemed complete. The time for completion for the additional services is sixty (60) business days from the NTP.

The previously authorized total amount for the referenced agreement is increased from \$75,364,887 to \$75,629,887.

THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

Any questions relating to the performance of the subject services may be directed to Mr. Keith Frerichs, telephone (212) 435-6451 or Mr. Shawn Lenahan, Senior Program Manager, telephone (212) 435-5655.

Sincerely,



Frank Gallo
Assistant Director
WTC Construction Department

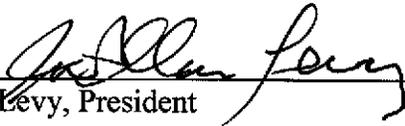
Accepted:
Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Incorporated



D. Servedio, Chairman, CEO

11/29/12

Date



L. Levy, President

11/27/12

Date



**DOWNTOWN
DESIGN PARTNERSHIP**

100 Broadway, 3rd Floor • New York, NY 10005
Phone: 917.522.2800 Fax: 212.566.5214

11-19-12 P02:08 RCVD

November 16, 2012

Ref #: DDP-PA-0329-12

Port Authority of New York and New Jersey
115 Broadway – 19th Floor
New York, NY 10006

Attention: **Kathy Murphy**

Subject: **P.A. Agreement No. 407-03-013
Performance of Expert Professional
Architectural and Engineering Services for the
World Trade Center Transportation Hub**

Reference: **Technical and Cost Proposal for Port Authority
Task Order # 12-001 – Addendum #2
Hub Design Changes Related to Approved Stakeholder Request
Retail Storefront, Retail Radio and Retail Security**

Dear Ms. Murphy,

Per your e-mail request dated, November 15, 2012, attached please find Downtown Design Partnership's revised proposal for Port Authority Task Order # 12-001 (Addendum #2) for Hub Design Changes Related to Approved Stakeholder Request Retail Storefront, Retail Radio and Retail Security. The attached supersedes our earlier proposal attached to DDP letter Ref. # DDP-PA-0305-12.

The proposed budget for this task is an allowance. Charges may be incurred up to the proposed budget for this Task Order, as directed by PA.

Please provide a letter authorizing budget for this work.

Should you have any questions regarding the attached, please do not hesitate to call.

Sincerely,

Downtown Design Partnership

Scott R. McIntyre, P.E
Project Director

CC: J. Zafonte,

K. Patel,

M. Littler,

J. Son,

File

**PERFORMANCE OF EXPERT PROFESSIONAL ARCHITECTURAL AND
ENGINEERING SERVICES FOR THE PERMANENT WORLD TRADE CENTER
PATH TERMINAL ON A TASK ORDER BASIS**

**CONTRACT #4600004824
PA AGREEMENT #407-03-013
Supplemental Agreement #1
Purchase Order #4900000675
SCOPE OF WORK DESCRIPTION**

**Supplemental Services Task Order #TO-12-001 – Addendum #2
Hub Design Changes Related to Approved Stakeholder Requests**

The following Scope is to provide additional architectural and engineering services as an additional work item. Unless stated otherwise, all scope of work and associated design costs do not include Stage IV - Services During Construction efforts. The scope of services for this proposal includes the following:

**A. IMPLEMENTATION OF REVISIONS TO RETAIL STOREFRONT – NORTH
CONCOURSE**

Scope of Work

Change the solid wall at the end of the North Concourse at El. 274 to storefront/glazed wall.
Attend (maximum of three) meetings to review design with PA Retail.

The proposed budget for this task is an allowance. Charges may be incurred up to the proposed budget for this task, as directed by PA.

Deliverables

1. Develop draft design.
2. Revise construction documents to change the solid wall at the end of the North Concourse at El. 274' to storefront/glazed wall.

B. IMPLEMENTATION OF RETAIL RADIO MODIFICATIONS (T2, T3, AND T4)

Scope of Work

Background: Back-of-house retail program changes caused by implementation of Plan A Prime in Tower 2 and Tower 3 and by the relocation of PDCs to 1 WTC have made the radio design developed under DCC 504 (Expansion of Hub Radio System to Retail Program) obsolete.

1. Review retail backgrounds and incorporate into Hub floor plans (coordinate with WTCR Retail team to attain latest Retail construction documents prior to commencing scope).
2. Revise electrical radio plans, risers, and schedules to accommodate changes to retail program space.

3. Revise Electrical communications plans, risers, schedules, and details to accommodate changes to the radio design. This is required to ensure that common pathways are coordinated.
4. Include Property Manager spaces in below-grade T2.
5. Attend maximum of 3 meetings with WTCR and WTCC.6.
6. Provide support for a page-turn with CM and contractor.
7. Radio coverage analysis to be based on node room locations and as established in the Merchandising Plan by Westfield, LLC, dated 6/19/2012 (see attached).
8. Design scope confirmation of AKF interpretation of EDR, Rev. 3, dated 2/13/2012, is as follows:

DDP scope to include the following:

- a. DDP will provide the design of the racks, UPS system, radio components, ladder racks and cable trays for the rooms (plus other items shown on the last set of design drawings).
- b. DDP will provide the circuiting from the UPS that is provided to the racks that DDP is providing.
- c. Specifications and cuts of the UPS will be provided by DDP and will include power requirements.
- d. DDP will provide access control requirements for node rooms.

Retail scope to include the following:

- a. Retail team shall design the room. Walls, doors, lights, switches, etc shall be provided by Retail team for each node room location. Rooms shall enclose the Radio equipment as defined by DDP as well as the FM-200 system as indicated below. HVAC fan coil shall be located outside the room and shall be ducted in and out.
- b. Retail team shall provide new recommended locations for the node rooms to minimize GLA impacts to the retail design. Assumption is DDP shall relocate the equipment as required.
- c. Retail team shall provide HVAC in the form of a two-speed chilled water fan coil unit. Cooling shall be provided under low speed operation under normal conditions. High speed ventilation only shall be provided under a loss of chilled water condition.
- d. Retail team shall provide F-200 Fire Protection for each node room. Intent is to place the FM-200 system within the node room space.
- e. Retail team shall provide Emergency Power for the fan coil units and FM-200 fire protection systems ONLY. At this time Retail can address approximately the following HP requirements per tower location, which should satisfy the Fan Coil requirements for the nodes as Retail understands them for Day 1 scope.

- a. T2 = 15 HP
- b. T3 = 70 HP
- c. T4 = 60 HP

If the HP exceed this limitation in the final design, Retail will need to be provided with additional emergency power from the main generator plant on the site.

- f. Retail team shall provide normal power in the form of a single feed to the input of the UPS system (provided by DDP). Assumption is that the UPS system will have an 8 hour battery requirement so emergency power will not be required.
- g. Retail team shall provide normal power for the lighting in the room.
- h. Retail team shall provide fire alarm devices, as required by, code.

The proposed budget for this task is an allowance. Charges may be incurred up to the proposed budget for this task, as directed by PA.

Deliverables

1. Confirm scope responsibility based on AKF interpretation of EDR, Rev. 3, as noted above.
2. Confirmation that existing node rooms are sufficient based on Merchandising Plan by Westfield, LLC, dated 6/19/2012.
3. Revised Hub floor plans to include electrical and radio plans, risers, and schedules.
4. Revised electrical communications plans, risers, schedules, and details.
5. Inclusion of Property Manager spaces in T2.
6. Attend meetings with WTCR and WTCC to facilitate task completion.
7. Meet with WTCR and WTCC for a page-turn with CM and contractor to explain changes.

C. IMPLEMENTATION OF RETAIL SECURITY MODIFICATIONS (T2, T3 AND T4)

Scope of Work

Background: Back-of-house retail program changes caused by implementation of Plan A Prime in Tower 2 and Tower 3 and by the relocation of PDCs to 1 WTC have made the security design developed under DCC-376 (Expansion of Hub Security Monitoring System to Retail spaces) obsolete.

1. Review retail backgrounds and incorporate into Hub floor plans. For T3 areas, backgrounds from Retail construction documents of ASI 22, dated 5/11/2012 shall be used. For T2, background shall be per pending revised Retail construction documents (ASI TBD).

2. Revise electrical security plans, risers, and schedules to accommodate changes to retail program space.
3. Revise Electrical communications plans, risers, schedules, and details to accommodate changes to the security design. This is required so that the CCTV camera to Ethernet switch ratio is maintained within the limits of the SPC.
4. Include Property Manager spaces in below-grade T2.
5. Attend maximum of 3 meetings with WTCR and WTCC.
6. Provide support for a page-turn with CM and contractor.

The proposed budget for this task is an allowance. Charges may be incurred up to the proposed budget for this task, as directed by PA.

Deliverables

1. Revised Hub floor plans to include electrical and security plans, risers, and schedules.
2. Revised electrical security plans, risers, schedules, and details.
3. Inclusion of Property Manager spaces in T2.
4. Attend up to a maximum of 3 meetings with WTCR and WTCC to facilitate task completion.
5. Attend 1 meeting with WTCR and WTCC for a page-turn with CM and contractor to explain changes.

END SCOPE OF WORK

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS



**GRAND SUMMARY
PROFESSIONAL SERVICES
TASK ORDER #12-001 (ADDENDUM #2)
HUB DESIGN CHANGES RELATED TO APPROVED STAKEHOLDER REQUESTS
RETAIL STOREFRONT, RETAIL RADIO AND RETAIL SECURITY**

Principal	Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
	65	\$13,182	90	\$13,889	80	\$8,534	-	\$0	160	\$10,549	-	\$0
1. TASK 1 - RETAIL STOREFRONT												
	175	\$35,489	200	\$30,820	-	\$0	-	\$0	220	\$14,505	-	\$0
3. TASK 3 - RADIO SECURITY												
	483	\$97,950	565	\$87,068	60	\$6,534	-	\$0	695	\$48,823	-	\$0
TOTAL TO#12-001												
	833	\$112,426	275	\$42,378	-	\$0	-	\$0	315	\$20,789	-	\$0
2. TASK 2 - RETAIL RADIO												
	595	\$80,815	-	\$0	-	\$0	-	\$0	-	-	-	-
3. TASK 3 - RADIO SECURITY												
	1,803	\$237,375	665	\$87,068	60	\$6,534	-	\$0	695	\$48,823	-	\$0
TOTAL TO#12-001												
	375	\$44,134	-	\$0	-	\$0	-	\$0	-	-	-	-
1. TASK 1 - RETAIL STOREFRONT												
	595	\$80,815	-	\$0	-	\$0	-	\$0	-	-	-	-
3. TASK 3 - RADIO SECURITY												
	1,803	\$237,375	665	\$87,068	60	\$6,534	-	\$0	695	\$48,823	-	\$0
TOTAL TO#12-001												

Fee (On all Labor, excluding Principals): \$4,413
 Labor Subtotal (incl. Overhead & Fee): \$48,547
 Other Direct Costs: \$1,453
Total Task 1 Allowance: \$50,000

Fee (On all Labor, excluding Principals): \$11,243
 Labor Subtotal (incl. Overhead & Fee): \$123,669
 Other Direct Costs: \$1,331
Total Task 2 Allowance: \$125,000

Fee (On all Labor, excluding Principals): \$8,081
 Labor Subtotal (incl. Overhead & Fee): \$88,896
 Other Direct Costs: \$1,104
Total Task 3 Allowance: \$90,000

Fee (On all Labor, excluding Principals): \$23,737
 Subtotal Labor (incl. Overhead & Fee): \$281,112
 Subtotal Other Direct Costs: \$3,886
Grand Total TO#12-001 Allowance: \$265,000

Notes:
 1. Proposed budgets above are Allowances.

Task 1
Breakdown by Staff Classification

I. Task 1

A. RETAIL STOREFRONT

	No. of Staff	Hours / Week	No. of Weeks	Staff Hours
Principal	1	x 0.0	x 13	= 0
Arch/Eng A	1	x 5.0	x 13	= 65
Arch/Eng B	1	x 6.9	x 13	= 90
Arch/Eng C	1	x 4.6	x 13	= 60
Arch/Eng D	1	x 0.0	x 13	= 0
CADD	2	x 6.2	x 13	= 160
Technical Assistant	1	x 0.0	x 13	= 0
				375

Task 2
Breakdown by Staff Classification

I. Task 2

A. RETAIL RADIO

	No. of Staff	Hours / Week	No. of Weeks	Staff Hours
Principal	1	0.0	13	0
Arch/Eng A	1	18.7	13	243
Arch/Eng B	2	10.6	13	275
Arch/Eng C	1	0.0	13	0
Arch/Eng D	1	0.0	13	0
CADD	2	12.1	13	315
Technical Assistant	1	0.0	13	0
				833

**TO#12-001
TASK 3 - RETAIL SECURITY**

Principal	Eng/Arch A	Eng/Mech B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
\$413.36	\$66.86	\$66.08	\$46.89	\$31.81	\$26.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.80	\$154.10	\$108.00	\$74.42	\$66.93	\$54.03
Hours	Hours	Hours	Hours	Hours	Hours	Hours
\$	\$	\$	\$	\$	\$	\$
-	175	200	-	-	220	-
\$0	\$35,489	\$30,820	\$0	\$0	\$14,505	\$0
-	175	200	-	-	220	-
\$0	\$35,488	\$30,820	\$0	\$0	\$14,505	\$0
Hours	Hours	Hours	Hours	Hours	Hours	Hours
\$	\$	\$	\$	\$	\$	\$
-	595	-	-	-	595	-
TOTAL						

Average Rate
Average Overhead
Average Rate with Overhead

I. TASK 3

A. RETAIL SECURITY

Labor & Overhead:

Fee (On all Labor, excluding Principals):

\$8,081

Total Labor Cost:

\$88,696

Other Direct Costs:

\$1,104

Grand Total Task 3:

\$90,000

Task 3
Breakdown by Staff Classification

I. Task 3

A. RETAIL SECURITY

	No. of Staff	Hours / Week	No. of Weeks	Staff Hours
Principal	0	x	0	0
Arch/Eng A	1	x	13	175
Arch/Eng B	2	x	13	200
Arch/Eng C	1	x	13	0
Arch/Eng D	1	x	13	0
CADD	2	x	13	220
Technical Assistant	1	x	13	0
				595



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

August 2, 2010

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Inc
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE, President, AECOM, Inc

**SUBJECT: AMENDMENT LETTER – PROFESSIONAL SERVICES CHANGE
ORDER #CO-10-002 – FINAL DESIGN WRAP-UP**

**REF.: PERFORMANCE OF EXPERT ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL ON A TASK ORDER BASIS P.A. Agreement No.407-03-013**

Dear Mr. Levy:

The Authority hereby accepts your proposal dated July 22, 2010, which is attached hereto and incorporated into the referenced agreement by reference, for performance of the services in the scope of additional services request, which formed the basis for submission of your proposal. Total compensation for the performance of the abovementioned services shall not exceed the amount of **\$6,097,417**.

The Consultant shall employ, to every extent possible, the most cost-effective methods of performing the scope of services noted above. This includes, but is not limited to, utilizing appropriate staff as needed (i.e. combining management and technical efforts).. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to-exceed amount noted above. The Consultant shall continue to render the additional services to completion after the point when the Consultant's compensation reaches 100% of such amount.

The previously authorized total amount for the referenced agreement is increased from \$ 222,791,137 to \$228,888,554.

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

All work authorized under Change Order #CO-10-002 shall be invoiced and paid in accordance with the attached Milestone schedule.

115 Broadway, 7th Floor
New York, NY 10006



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

All work authorized under Change Order #CO-10-002 shall be invoiced and paid in accordance with the attached Milestone schedule.

Please return two original signed copies of this letter to the attention of **Richard Perez, Contract Specialist, Procurement Department, 115 Broadway, 19th floor**, New York, N. Y. 10006. Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

If you have any questions relating to the performance of the subject services, please do not hesitate to contact me at 212-435-5655

Sincerely,

Shawn T. Lenahan, A.I.A.
Senior Program Manager
WTC Construction Department

Att.

Accepted:

Firm Name: Downtown Design Partnership

Name, Title PRESIDENT Date 8/2/10
DEPT OF TRANSPORTATION

Name, Title Dominick Servadio Date 8/2/10
Chairman/CEO
STV Incorporated

CC: K. Chan, F. Gallo, S. Lenahan, M. Pagliettini, R. Perez, N. Ranalli,
WTCC Document Control

**FOR EXPERT PROFESSIONAL ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL WITH DOWNTOWN DESIGN PARTNERSHIP (DDP),
A JOINT VENTURE OF DMJM+HARRIS, INC. AND STV, INCORPORATED**

**CHANGE TASK ORDER #CO-10-002
PA AGREEMENT #407-03-013
PURCHASE ORDER #4900000675
SCOPE OF WORK DESCRIPTION**

**Downtown Design Partnership
Final Design Wrap-Up**

The following is a proposal to provide architectural and engineering services. Unless stated otherwise, all scope of work and associated design costs do not include Services During Construction efforts.

SCOPE OF WORK DESCRIPTION

DDP shall provide remaining Final Design services limited to the items below.

TASK 1

An increased level of effort is required to complete the following items:

Final Design Base

Scope of services is as follows:

1. Oculus Redesign
 - Complete above grade Oculus design including implementing PA comments and DDP responses.
 - Revise below grade design to accommodate Oculus Redesign. This is predominantly in the abutment areas.
2. Plumbing/Fire Protection
 - Oculus and North and South Memorial Plaza Drainage
3. HVAC
 - Complete calculations
 - Design completion of Oculus and entrances ventilation and exhaust systems including coordination of diffusers with Architects.
 - Refinement and completion of ventilation and smoke control system controls, including minor specification adjustments.
4. Electrical
 - Oculus skylight power and control installation drawings including motor control schedules, electric room plans, schematic control diagrams, and miscellaneous details.
 - Conduit plan and schedule completion for Oculus exhaust fans.
 - Re-circuiting of emergency lighting for PATH platforms to reduce illumination to code required level.
 - Fire Alarm purge panel points list/schematic arrangement.

- Fire Alarm final back check.

INOC 265 - PA Specialty Support Services – Review of Security Deliverables

PA Specialty Support Services - All scope of work is to be managed by and coordinated through Port Authority. Henry Ayvazyan shall serve as the Port Authority consultant in reviewing DDP security design deliverables.

INOC 178 - Platform Level HVAC, Plumbing, and Fire Protection

Scope of services is as follows:

- Revisions to MEP drawings at platform level.
- Edit Division 16 specifications.
- Revisions to specification for Mist System.
- Coordination and detailing of dampers and refinement of control description.

INOC 299 - PA Specialty - Russell Corrosion

PA Specialty Support Services - All scope of work is to be managed by and coordinated through Port Authority.

PA has requested Russell Corrosion to perform the services as identified on Russell Corrosion proposal dated, July 16, 2007.

See INOC 372 - Lateral Loads - West Side

The DDP PATH Hall design for the west bathtub lateral and thermal loads was predicated on a stand alone analysis, independently resisting the imposed loads within the footprint of the Hub Structure.

Given the interconnected relationship between the PATH Hall and the adjacent structures, a global analysis of the west bathtub, similar to one conducted on the east bathtub is deemed necessary for the completion of the analysis. This global analysis, to be performed by others will include an overall assessment of the lateral and thermal loads acting on the PATH Hall, the Memorial including the Memorial Pavilion, Tower One, the PAC building and the Vehicle Security Center. Given the geometric constraints of the PATH Hall structure (i.e. limited opportunity for shear walls in the east-west direction due to track configuration as well as a "pinch point" created within the structure by the location of the south Memorial Pool), it is anticipated the global analysis may yield a somewhat different distribution of lateral and thermal forces than the stand alone analysis has to date.

Following completion of this global west bathtub analysis, it will be necessary to review and evaluate the "redistribution of lateral and thermal forces and assess their impacts on diaphragm slabs and shear walls to ensure the structural elements are adequately reinforced to resist this "global behavior".

DCC 413 - WP 1i - Fan Plant Equipment Purchase

PA Specialty Support Services - All scope of work is to be managed by and coordinated through Port Authority.

Services for fabrication phase of electrical equipment, control and monitoring systems. PB Americas, Inc. shall provide engineering support during procurement technical support during fabrication, review shop drawings and respond to RFI's. (See PB Americas proposal, dated July 9, 2009.)

DCC 455 - Package 18.b Alternative 78" Sewer Protection Measures

The scope of services is as follows:

Task 1 - PA requested the investigation and implementation of changes to the 78 in. sewer blast design north of the North Projection to potentially reduce construction schedule. DDP shall provide design services for the analysis, design and preparation of contract addendum necessary to implement alternative 78 in. sewer protection measures north of the north projection in Package 18B. Coordinate with NYCDEP and NYCDOT as necessary to communicate revisions and obtain any necessary approvals. Assume a maximum of 4 meetings for this task.

Task 2 - PATH has requested that the slab in this area of the signal room not be replaced. DDP shall provide design services for the analysis, design and preparation of contract addendum necessary to implement an alternative slab construction method over the PATH signal room in the north projection under Package 18B. Coordinate with PATH as necessary. Assume a maximum of 2 meetings for this task.

Task 3 - The pump discharge line was disconnected from the intended storm line on Route 9A during construction activities on the West Haul Road. DDP shall provide design services for the analysis, design and preparation of contract addendum necessary to restore PATH's existing emergency Pump Discharge Line serving Tunnel E. Assume a maximum of 1 meeting for this task.

Deliverables

Signed and sealed drawings, calculation, specifications and cost estimate.

See DCC 497 - PB Review of Hughes' Report on PATH PA-5 Train Heat Release

PA Specialty Support Services - All scope of work is to be managed by and coordinated through Port Authority.

PA EAD requires additional PB Americas effort to complete review of Hughes' Associates' Reports. (See PB Americas proposal, dated April 2, 2009)

See DCC 507 - CFD Modeling of Permanent PATH Station and Related Area

DDP shall perform CFD modeling for final station and related areas geometry, including presentations to PANYNJ of results of CFD modeling and preliminary and final writing.

Deliverables

- Final CFD Report

DCC 467 - North Fan Plant & Relocation of South Fan Plant

The scope of services is as follows:

- Coordinate with VOEC team to provide information for their redesign of VOEC tower.
- Reroute WTC Hub ducts from reconfigured North fan plant to Temporary North Access and develop concept design for permanent configuration coordinated with PAC/Helix.
- Minor revisions/completion of all trades designs for both North and South fan plants.

Deliverables: (Addendum to P20 Signed and Sealed, Revisions to WP9X ALT)

- WP20 and WP9X ALT MEP drawings and specifications.

TASK 2

DCC - TBD - Revised North Liner Wall design

DDP shall include design and coordination of the Greenwich Street liner wall from Vesey Street slurry wall (designed by PA EAD) to approximately panel G9. It is assumed that design loads for the wall will be provided by Cantor Seinuk as part of the West Bathtub lateral load analysis. The scope of services is as follows:

- Coordination and updating the current HUB drawings/design to reflect PA EAD's design of the Vesey Street slurry wall/liner wall.
- Incorporation of the Vesey Street liner wall into the HUB design shall include modification to the north end steel and north end sump room.
- Electrical penetration shall be coordinated along Vesey Street liner wall.

Deliverables:

- It is assumed that lateral loads will be provided by Cantor Seinuk for the Greenwich Street Liner Wall.

DCC - TBD - Oculus Late Comments / Holistic Responses

Response to a resolution of Oculus comments by PA and PB, as received on 9/14/09 and as updated on 9/25/09. (See Attachment - A)

DCC TBD - Section 106 - Out of Sequence

The scope of services is as follows:

- Incorporation of design concepts approved by the Section 106 Consulting Parties.
- Revise structural design based on approved design.
- Revise architectural design based on approved design.
- Prepare final design proposal for PANYNJ sign-off.

Deliverables: (90% and Signed and Sealed)

- Structural design documents, calculations, and specifications.
- Architectural design documents and specifications.

DCC TBD – Comments from EAD/PMOC (As of 11/1/09)

Comments received as a result of other Global Settlement DCCs will be addressed under those DCCs, including those for the Radio expansion into retail space. As has been our process throughout the Global Settlement, the DDP 100% submission releases 90% payment; incorporation of comments into the final product will release the remaining 10% payment. Final Design comments received as of 5/1/10 will also be closed out as part of the Global Settlement.

(See Attachment – B for a list of comments received as of 5/1/10.)

Comments received after 5/1/2010 will be addressed in accordance with the terms and conditions of the original agreement.

DCC TBD – Signage Diagrams

Scope of services is as follows:

- Create a comprehensive set of diagrams showing location of all signage text in Hub public space, including retail directories.
- Update diagrams to include coordination with Retail from Retail Graphic Signage effort

Deliverables: (Draft and Final)

- Set of diagram by level showing all signage in Hub public space as well as message and sign type.

DCC TBD – Revised Transit Hall Plaza

Preliminary Engineering:

1. Review of all updates to the DDP base documents that has occurred since August.
2. Continuing PE documents that were suspended in August and sent to the Port Authority in a progress printing on November 12, 2009.
3. Within the PE documents, the following scope of work needs to be started and was not included in the above referenced progress printing:
 - Definition and detailing of all infrastructure on the Plaza surface to connect with all sub-surface elements for utilities such as drainage, water, lighting, electrical, and communication.
 - Finish grade and the resolution of topography and all edge conditions, particularly at the planters, oculus ring/seal, flagpole, and joint with perimeter sidewalk band. This will also include the layout of the pavement pattern, grading & drainage plans and planting selections.
 - Built up elements including planters, steps, and wall and pedestrian lights. This component will require a high level of coordination with the adjoining Tower 3.
 - Complete design of the flexible furnishings: movable seating and planters. Currently at a concept level, there are competing functional requirements that must be balanced including weight restrictions, aesthetic and flexibility goals, and maintenance concerns. Optional planting plans to accommodate seasonal and other requirements must be identified.
4. Coordinate Hub Plaza design with WTC Transportation Hub and receive milestone and final approvals from the Port Authority and City Planning.

Final Design:

Final Design shall include detailing of all elements of the Plaza which is anticipated to result in approximately 38 sheets of signed and sealed documents with specifications.

DCC TBD – Impacts from Lateral Loads Analysis – West Side

The current HUB design is based on a "stand alone" lateral analysis per PA direction and assumes others will not impose additional loads onto the HUB lateral system.

DDP shall implement impacts resulting from WSP Cantor Seinuk's (CS) global analysis of the West Bathtub lateral load analysis. DDP shall evaluate loads imposed on the HUB structure and update current HUB design to reflect CS's final analysis.

DCC TBD – Impacts from Lateral Loads Analysis – Eastside

The DDP PATH Hall design for the east bathtub lateral and thermal loads was predicated on a stand alone analysis, independently resisting the imposed loads within the footprint of the Hub Structure.

Given the interconnected relationship between the PATH Hall and the adjacent structures, a global analysis of the east bathtub has been performed, but may be updated by others. This updated global analysis, to be performed by others will include an overall assessment of the lateral and thermal loads, it is anticipated the global analysis may yield a different distribution of lateral and thermal forces than the stand alone analysis has to date.

Following completion of this global east bathtub analysis, it will be necessary to review and evaluate the "redistribution of lateral and thermal forces and assess their impacts on diaphragm slabs and shear walls to ensure the structural elements are adequately reinforced to resist this "global behavior".

**GRAND SUMMARY
PROFESSIONAL SERVICES
CHANGE ORDER #10-002
FINAL DESIGN WRAP-UP**

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTALS	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
Average Rate	\$413.36		\$86.95		\$66.08		\$46.66		\$31.91		\$26.27		\$23.17			
Average Overhead	1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322			
Average Rate with Overhead	\$413.36		\$202.60		\$154.10		\$108.90		\$74.42		\$65.03		\$54.03			
TASK 1 - CO#10-002		\$0	5,849	\$1,186,152	6,700	\$1,032,485	7,550	\$822,163	3,300	\$245,570	5,660	\$373,177	1,363	\$74,752	30,442	\$3,734,308

Fee/Profit (On all Labor, excluding Principals): \$0
 Labor Subtotal (Incl. Overhead): \$3,734,308
 Other Direct Costs: \$0
Total Task 1: \$3,734,308

TASK 2 - CO#10-002		\$0	2,810	\$590,856	4,030	\$621,032	4,820	\$524,877	2,010	\$149,580	3,620	\$236,675	619	\$44,261	15,109	\$2,148,281
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Fee/Profit (On all Labor, excluding Principals): \$214,828
 Labor Subtotal (Incl. Overhead & Fee/Profit): \$2,363,109
 Other Direct Costs: \$0
Total Task 2: \$2,363,109

TOTAL CO #10-002		\$0	8,659	\$1,776,008	10,730	\$1,653,517	12,370	\$1,347,040	5,310	\$395,150	9,280	\$611,852	2,203	\$119,013	48,552	\$5,882,589
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Fee/Profit (On all Labor, excluding Principals): \$214,828
 Subtotal Labor (Incl. Overhead & Fee/Profit): \$5,097,417
 Subtotal Other Direct Costs: \$0
Grand Total CO #10-002: \$5,097,417

Task 1
Breakdown by Staff Classification
CO#10-002

Task 1- CO#10-002

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	18	=	0
Arch/Eng A	5	x	65.0	x	18	=	5,849
Arch/Eng B	10	x	37.2	x	18	=	6,700
Arch/Eng C	10	x	41.9	x	18	=	7,550
Arch/Eng D	4	x	45.8	x	18	=	3,300
CADD	6	x	52.4	x	18	=	5,660
Technical Assistant	2	x	38.4	x	18	=	1,383
							30,442

**CHANGE ORDER # 10-002
FINAL DESIGN WRAP-UP
TASK 2**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03

TOTAL	
Hours	\$

TASK 2 - CO#10-002

Hours	\$														
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Change Order #10-002

-	\$0	2,810	\$569,856	4,030	\$621,032	4,820	\$524,877	2,010	\$149,580	3,620	\$238,675	819	\$44,261
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18,109	\$2,148,281
-	\$0

Labor & Overhead:

-	\$0	2,810	\$569,856	4,030	\$621,032	4,820	\$524,877	2,010	\$149,580	3,620	\$238,675	819	\$44,261
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18,109	\$2,148,281
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Fee/Profit (On all Labor, excluding Principals):

\$214,828

Total Labor Cost:

\$2,363,109

Other Direct Costs:

Grand Total Task 2:

\$2,363,109

**Task 2 - CO#10-002
Breakdown by Staff Classification**

Task 2 - CO#10-002

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	31	=	0
Arch/Eng A	3	x	30.2	x	31	=	2,810
Arch/Eng B	4	x	32.5	x	31	=	4,030
Arch/Eng C	4	x	38.9	x	31	=	4,820
Arch/Eng D	2	x	32.4	x	31	=	2,010
CADD	4	x	29.2	x	31	=	3,620
Technical Assistant	1	x	26.4	x	31	=	819
							<u>18,109</u>

ATTACHMENT - A

WTC Transportation Hub
Review Comments Log

RC 0495	9/14/09	E-mail	20 Oculus	Final Submittal	7/31/09	20 OCU(0486-0555)	70	PA/PB										11/16/2009	Issued DDP responses 10/29/09, 11/5/09 and 11/16/09	CLOSED	
RC 0492	9/14/09	E-mail	20 Oculus	Final Submittal	7/31/09	20 OCU(0556-0597)	42	PA											11/16/2009	Issued DDP responses 10/29/09, 11/5/09 and 11/16/09	CLOSED
RC 0496	9/25/09	E-mail	20 Oculus	Final Submittal	7/31/09			PA	Kriegel		PA-architectural updated comments								11/16/2009	Issued DDP responses 10/29/09, 11/5/09 and 11/16/09	CLOSED

- NEW COMMENTS DISTRIBUTED
- COMMENTS NOT YET RESPONDED
- RESPONSES COMPLETED
- RESPONSES SUBMITTED TO PA
- DO NOT USE

Oculus Comments

Master No	Package No	Submission Stage	Submission Date	Reviewer Name	Reviewed Entity	Discipline	Comment #	Document Reference	Review Comment	Date Received	Response Due From	Response	Response Date	I = Implemented NAR = No Action Req TBD = To be determined	Remarks	
20 OCU-0486	Oculus	Final Submittal	7/31/2009		PAPB	Structural	1	The October 2007 Boundary Layer Wind Loads Study	The October 2007 Boundary Layer Wind Loads Study looked at the wind environment and wind loads on the structure using a 1,200 scale model for 3 configurations (a, b, with and without full rafter). The report indicated 50 year design pressures but appeared to be based on testing of a single scale model (not an aero-elastic model that would properly account for the individual stiffness of the individual elements) and hence it was noted in the report that dynamic effects have "been ignored" (emphasis added). There did not appear to be any study associated with the local wind effects at the plaza level as would be expected. The report stated that due to ice the aerodynamics were not expected to be altered (but as the dynamic effects were ignored the added mass of the ice may be significant). The report cautioned that based on model frequencies provided by Santiago Castrejon, the occurrence of aerodynamic instabilities could not be discounted and that there is a potential for galloping instability with the tips of the rafters moving laterally and that the response should be explored.	9/14/09	A/E/DB					
20 OCU-0487	Oculus	Final Submittal	7/31/2009		PAPB	Structural	2	The June 2008 Boundary Layer Aeroelastic Study	The June 2008 Boundary Layer Aeroelastic Study (page vi) reported "relatively large amplitude motions" (emphasis added) when observing the response of 1/88 scale model rafters in response to turbulent buffeting loads for winds in excess of 100 mph and concluded "inside motion of the rafters at lower wind speeds can be expected" (emphasis added). This suggests concern with fatigue as well as with ice loading. The report recommended "1.85 psi design pressures. The report indicated only ten of the rafters were aeroelastically modeled, so the aeroelastic results were limited in scope. And only eight of the rafters were strain gauged and the report did not include the strain gauge results. The effects of the added mass ice on the rafter's response were not considered. The Design Procedure indicated that as allowed by the AISI code 1st edition, the rafters have been designed using the effective width of the members and that, as required by the AISI code, the member stiffness has been reduced." In the case of the rafters, the reduced stiffness may not have been captured in the model, so that the dynamic response of	9/14/09	A/E/DB					
20 OCU-0488	Oculus	Final Submittal	7/31/2009		PAPB	Structural	3	The January 2009 Boundary Layer Study on Wind-Induced Loads	The January 2009 Boundary Layer Study on Wind-Induced Loads provided loads for a 50 year return period and stated that the loads should be increased 12% for a 100 year return period. A 100 year return period for a significant building that has a 100 year design life may be too short. The report had a number of exclusions and in particular "... there is no allowance for resonant vibration of the structure" (emphasis added). The failure to consider resonant vibration is a particular concern.	9/14/09	A/E/DB					
20 OCU-0489	Oculus	Final Submittal	7/31/2009		PAPB	Structural	4	Boundary Layer Studies	Boundary Layer Studies in all three studies the configuration of the purlins and what is detailed on the plans, as all of the models tested had multiple purlins between the rafters whereas the plans indicate only one purlin at the 2/7th point. Thus the results are likely not applicable to the final design and a new model that is representative of the final design should be tested. As this is a particularly critical aspect of the project, the planned program as well as the final results should be independently reviewed by a wind specialist firm who has retained experience in large flexible structures and to ensure its independence the firm should be employed by the Port Authority.	9/14/09	A/E/DB					
20 OCU-0490	Oculus	Final Submittal	7/31/2009		PAPB	Structural	5	Calculations	Oculus Construction Design Calculations Final Submittal, August 7, 2009, DESIGN CRITERIA. The design life of the structure is missing.	9/14/09	A/E/DB					
20 OCU-0491	Oculus	Final Submittal	8/7/2009		PAPB	Structural	6	Calculations	Oculus Construction Design Calculations Final Submittal, August 7, 2009, DESIGN CRITERIA. 5 Live Loads states no live loads have been considered on the Oculus as they would be less than the snow loads. While this may be correct, such a consideration overlooks the potential for a pattern loading that may have unintended consequences, as we found was the case for the collapse of the Kemper Arena. So the analysis for other loads such as wind and ice should include consideration of unsymmetrical pattern loads.	9/14/09	A/E/DB					

Oculus Comments

Master No	Package No	Submission Stage	Submitted Date	Reviewer Name	Reviewer Entry	Discipline	Comment #	Document Reference	Review Comment	Date Received	Response Due From	Response	Response Date	Is Implemented N/A = No Action Req I/D = To be determined	Remarks
20 OCU-0492	Oculus	Final Submittal	8/7/2009		PAPB	Structural	7	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009. DESIGN CRITERIA 9 Snow Loads indicates a 35 psf snow load is applied to the top of the arch and skylights with 3 psf for drifts. This appears to conflict with the Skylight Design Calculations, Page 45/112 that do not appear have considered a snow load. The design calculations also appear to be in conflict with the Specifications, Article 5-4-0.8 that indicate that the glazing is to withstand a 30 psf snow load that is to be increased "due to drifting and or sliding snow" per ASCE 7-02. None of the appears to be consistent.	9/14/09	Altaba				
20 OCU-0493	Oculus	Final Submittal	8/7/2009		PAPB	Structural	8	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009. DESIGN CRITERIA 10 Ice Loads indicates that ice loads have been calculated for the rafters and purlins. A review of the calculations appears to confirm that a 1" thickness has been used as recommended by the Boundary Layer report, but this needs to be confirmed. (The 1" ice thickness is consistent with TIA 222 Structural Standard for Antenna Supporting Structures and Antennas, recommendations for steel antenna towers in NYC, which recommend 3/4" ice with a 50 mph design wind). The ice loads on the rafters is significant and varies from 368.5 pounds per foot at the arch to 47.8 pounds per foot at the top of the rafters (see sheet 20/151 of the Oculus Design Calculations). For Axis 14 North Rafter, which is over 200 feet long, this represents over 20 tons of ice on one rafter. There is the danger this weight of ice poses to both the glazing below the arch and to pedestrians in the plaza below. One needs to recognize that the top of the rafters are in some cases 200 feet above the plaza level and that ice falls.	9/14/09	Altaba				
20 OCU-0494	Oculus	Final Submittal	8/7/2009		PAPB	Structural	9	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009. DESIGN CRITERIA 13 LOAD COMBINATIONS indicates that the ice and wind load combinations are based on "BLWT recommendations". Where are these recommendations documented?	9/14/09	Altaba				
20 OCU-0495	Oculus	Final Submittal	8/7/2009		PAPB	Structural	10	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009. DESIGN PROCEDURE - Web-tapered members: the rafters appear to confirm to the General Requirements of Article 1 of AISC, Article F and thus the provisions of Article F should have been followed.	9/14/09	Altaba				
20 OCU-0496	Oculus	Final Submittal	8/7/2009		PAPB	Structural	11	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009. DESIGN PROCEDURE - 3-14-1-b Allowable Compression Capacity. The design procedure apparently determined the buckling capacity based on a SAP computer analysis. The buckling capacity of columns as reflected in the code is less than the theoretical capacity based on testing of the fabricated conditions of the column. Testing utilized to develop the code allowable stresses has demonstrated that the buckling capacity is affected by factors such as residual stress and alignment. A theoretical buckling analysis that relies on a computer code will not capture these effects and produce unconservative results. A more appropriate technique may be to determine the effective L _r and then reference the code allowable. For tapered members the allowable compression capacity for a tapered member is specified in Article 3 Allowable Compressive Stress in AISC Appendix F and should be used in the design.	9/14/09	Altaba				
20 OCU-0497	Oculus	Final Submittal	8/7/2009		PAPB	Structural	12	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009. DESIGN PROCEDURE - 3-14-1-c Determination of Buckling Capacity. A SAP model was used to determine the buckling capacity of the portal legs. As above the buckling capacity of columns as reflected in the code is calculated based on the fabricated conditions of the column, and is affected by factors such as residual stress and alignment. A more appropriate technique may be to determine the effective L _r and then reference the code allowable.	9/14/09	Altaba				

Oculus Comments

Master No.	Package No.	Submission Stage	Submission Date	Reviewer Name	Reviewer Entity	Discipline	Comments #	Document Reference	Reviewer Comment	Date Received	Response Due From	Response	Response Date	I = Impairment NAR = No Action Req TBD = To be determined	Remarks
20 OCU-0498	Oculus	Final Submittal	8/7/2009		PA/PB	Structural	13	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009, DESIGN PROCEDURE - 3.14.1-c Determination of Buckling Capacity, when it requires to use a SAP model to determine buckling capacity, the analytic model indicated on sheet 11/17 appears to assume that the single leg is restrained at its top and bottom, when the only restraint on the bottom is the end of the dog leg that attaches to the plaza structure. The single leg should be evaluated as a beam-column. Further since there are slender members that comprise the leg, the effective width, and flexure capacity of these members varies with the applied load so that a classical buckling analysis, which assumes that the cross section is constant, can not be applied to a Pin-ended section.	9/14/09	Attaba				
20 OCU-0499	Oculus	Final Submittal	8/7/2009		PA/PB	Structural	14	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009, DESIGN PROCEDURE - 3.14.1-e Allowable Major and Minor Bending Capacity states that "the critical section for lateral torsional buckling will not control the design". As evidenced in the AISC code, Chapter E, Article E3.1, or built-up column with very thin walls, they require consideration of flexural torsional buckling. Provisions of the rafters can be found on sheets 12 and 13/151, and specify that many of the rafter web plates are as thin as 7/16" if they are "open web". The possibility of flexural torsional buckling should be evaluated. It is noted that the stiffness provided at the terminus of the rafter at the arch should be part of the evaluation.	9/14/09	Attaba				
20 OCU-0500	Oculus	Final Submittal	8/7/2009		PA/PB	Structural	15	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009, DESIGN PROCEDURE - 3.14.1-g Combined Action of Axial and Bending Capacity restriction equations do not account for tapered members and unbraced sections as specified in Article 6 Combined Flexure and Axial Force in AISC Appendix F.	9/14/09	Attaba				
20 OCU-0501	Oculus	Final Submittal	8/7/2009		PA/PB	Structural	16	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009, DESIGN PROCEDURE - 3.14.1-g Combined Action of Axial and Bending Capacity 3.14.2 Steel Design of Abutments, Transition Zone and Main Arch per VM stress with SAP Model. Indicates that where steel elements are used AISC 89 Typical Frame Design" presents a procedure based on checking the Von-Mises stress. But the procedure appears to look at the steel element in isolation and does not consider if the adjacent components have adequate capacity to restrain tension field if yielding occurs, nor does it address the overall reduction in capacity for the entire member if yielding occurs and the load is shed to adjacent elements. Just considering a single element's solution does not provide a comprehensive evaluation of a member's capacity.	9/14/09	Attaba				
20 OCU-0502	Oculus	Final Submittal	8/7/2009		PA/PB	Structural	17	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009, DESIGN PROCEDURE - Fatigue. The design procedure does not include any provisions for fatigue. Per AISC members shall be proportioned for fatigue in accordance with Chapter K, Article K4 and Appendix K. As an example Detail 3 on Drawing S5277 at the Rafter / Portal Frame Transition has a number of different types of welds and the allowable stress ranges of these welds will depend upon the specifics of the type of weld. From the combined stress (see pages 73-83/151), the dominant loading is wind and it appears that the fatigue considerations of wind loads have not been considered. A wind specialist should be able to define the number of cycles to be used. (We've the consultant later responded to a Port Authority comment on the wind fatigue issue for one element, the analysis was not correct as discussed below).	9/14/09	Attaba				
20 OCU-0503	Oculus	Final Submittal	8/7/2008		PA/PB	Structural	18	Calculations	Oculus Construction Design Calculations, Final Submittal, August 7, 2009, Design Loads and Load Combinations assume all loads are uniformly applied, but the environmental loads may not be uniform, for example the snow and ice loads will vary and non-uniform loads should be evaluated as required in AISC 99 A.4.3 Dead Load and Live Load. As an example on Sheet 56/155 a uniform live load is applied where a pattern load should also be considered. (It is noted that a pattern load was used for the snow loads.)	9/14/09	Attaba				

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20	OCU-0504	Oculus Final Submittal	7/31/2009		PA/PB	Structural	19	S5002	Drawing S5002 General Notes 2.5 indicate that the contractor is responsible for the stability of the structure during erection but the notes are not clear as to how the contractor is to fulfill this requirement what criteria is to be applied what wind loads are to be used, if a PPI is to be prepared the analyses and what submittals are required if any. It is suggested that Note 2.5 be revised to refer to the Oculus Erection Notes on CS3500 which provide a discussion on the required analyses during erection. (The erection notes still need to address what wind loads are to be used.)	9/14/09	Atabba				
20	OCU-0505	Oculus Final Submittal	7/31/2009		PA/PB	Structural	20	S5002	Drawing S5002 General Notes 3 are not clear as to what tolerances are to be applied to the structural steel other than reference to the City Building Code. The note does not agree with the Steel Specifications, page S120.2 that states the tolerances shall conform to the AISC Code of Standard Practice for Steel Buildings and Bridges. But neither reference is appropriate as the members being fabricated are not related to any code and it is recommended that a plan sheet be added to indicate the tolerances to be applied to each member in the shop and as erected. These tolerances should be developed in concert with steel erectors, fabricators and the glazing suppliers. A similar consideration is suggested for weld inspection.	9/14/09	Atabba				
20	OCU-0506	Oculus Final Submittal	7/31/2009		PA/PB	Structural	21	S5002	Drawing S5002 General Notes 5.14 indicate that the steel is to be erected to the tolerances called for in the AISC Code of Standard Practice for Steel Buildings and Bridges and as specified. The Specifications do not appear to include any specific tolerances. As the members being fabricated are not related to any code, it is suggested that a plan sheet be added to indicate the tolerances to be applied to the erection tolerances. It is anticipated that the tolerances will be particularly critical for those elements to which the glazing and stay-in-place are attached.	9/14/09	Atabba				
20	OCU-0507	Oculus Final Submittal	7/31/2009		PA/PB	Structural	22	S5002	Drawing S5002 General Notes 5.29 discuss additional notes for Steel Plate Girders and appears to be unrelated to this contract.	9/14/09	Atabba				
20	OCU-0508	Oculus Final Submittal	7/31/2009		PA/PB	Structural	23	S5003 and S5004	Drawing S5003/4 Oculus Geometry it is suggested that these sheets include a reference to the Oculus Presets on Drawing CS5522.	9/14/09	Atabba				
20	OCU-0509	Oculus Final Submittal	7/31/2009		PA/PB	Structural	24	S5301	Drawing S5301 - S5358 Oculus Portal Frames Transition it appears that wind blown debris (such as plastic bars and leaves), pebbles, droppings, pigeon nesting materials, rain ice and snow may tend to clog the drains and water will spill down the ends of the Oculus.	9/14/09	Atabba				
20	OCU-0510	Oculus Final Submittal	7/31/2009		PA/PB	Structural	25	S5583	Drawing S5583 - 84 Oculus Pultrus Connectors North South, as noted in the June 2008 Boundary Layer Aerostatic Study page 10, "visible motion of the rafter at lower wind speeds can be expected" causing variable fatigue stress ranges. Based on Table A K4.2 the rafters and purlin connections would be in Category E or E detail and potentially have a very low allowable stress range. Thus the concern is that based on the anticipated stress range at the purlin/rafter intersection will be prone to fatigue cracking. The design has failed to address fatigue.	9/14/09	Atabba				
20	OCU-0511	Oculus Final Submittal	7/31/2009		PA/PB	Structural	26	S5702 and S5703	Drawing S5702 - 3 Oculus West Abutment the plans indicate the use of White Brand Tufnol Structural Thermal Insulation of Approved Equal. White Brand Tufnol is a phenolic resin laminated with paper, cotton or glass. It is not a structural material and is not recognized in AISC 88 - The 1989 Specifications, which prohibit the use of interposed material in high strength bolted connections. It is also noted that the AISC Specification for Structural Joints Using ASTM A 325 or A 490 bolts, 2004, has a similar prohibition against interposed material in Section 3.1 Connected Flats.	9/14/09	Atabba				
20	OCU-0512	Oculus Final Submittal	7/31/2009		PA/PB	Structural	27	S5707 and S5765	Drawing S5707 - 5765 West Abutment, Note 2 states "All plates listed as "non-structural" are not necessarily to guarantee the stability of the Oculus structure". What is the basis of this statement? There is no discussion in the Design Procedure that compares models with and without "non-structural" plates. How does one "guarantee" stability? These same comments apply to the East Abutment.	9/14/09	Atabba				

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20 OCJ-0513	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	28	S5712	Drawing S5712 Oculus West Abutment Section C there is a note pointing to an open space that states "White Brand Tuffal Structural Thermal Insulation or Approved Equal" and there is a note that material shown in cross hatch that does not have a description. Does the note refer to the cross hatched material? This same cross hatched material appears in other West Abutment sections on other drawings, what is it? Those same comments apply to the East Abutment.	9/14/09	Atagiba				
20 OCJ-0514	Oculus	Final Submittal	7/31/2009		PA/PB	Structure	29	S5902	Drawing S5902 Oculus Portal Frame Section SM, the distance between the seat plates scales at approximately 10", yet the section requires a welder to reach into this space approximately 2' to make a full penetration weld. Even if this weld can be made how is it to be inspected?	9/14/09	Atagiba				
20 OCJ-0515	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	30	S5903	Drawing S5903 Oculus Steel Drawings - Portal Base Frame Details, indicate the 3/16" threaded anchor bolt is to be anchored by looping threads into a 2 1/2" thick base plate. Wouldn't this need to be installed inside a duct that is subsequently grouted? Is the anchor bolt to be torqued? Does the 2 1/2" length of thread develop the anchor bolt? Similar details are shown on S5878 and S5979.	9/14/09	Atagiba				
20 OCJ-0516	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	31	S5927	Drawing S5927 Oculus Steel Drawings Section SM indicates a stainless steel plate is to be applied into the rib. The AISC Manual, page F-6, gives the coefficient of expansion for various materials. For mild steel the coefficient is 0.00065 / 100 degrees F and for mild steel (18-8) the coefficient is 0.00098 / 100 degrees F. Thus the coefficient of expansion of stainless steel is 50% greater than that of mild steel and over a distance of 100 feet the stainless steel will expand 0.40 inches more than the mild steel. Since the portal frame makes use of stainless welded to mild steel similar to a bimetallic strip, this differential expansion (or contraction) due to temperature increases (or decreases) will likely cause strains and displacements that have not been addressed.	9/14/09	Atagiba				
20 OCJ-0517	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	32	S5927	Drawing S5927 Oculus Steel Drawings the specifications Division 11.012 Fall Arrest System indicates Fall Arrest and Restraint Systems are to be installed on the eave and other areas as shown on the Contract Drawings. Where are these systems shown?	9/14/09	Atagiba				
20 OCJ-0518	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	33	S5942	Drawing S5942 Oculus Rafter Section 5 Zone G, how does the welder reach inside the rafter web plates to make the stiffener fillet welds? It appears that these ribs can not be fabricated or inspected as detailed.	9/14/09	Atagiba				
20 OCJ-0519	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	34	S5942	Drawing S5942 Oculus Rafter Section 5 Section 3.1, see comment above re S5983 - 84 Oculus Purline Connections North and South and fatigue resistance of the indicated welds.	9/14/09	Atagiba				
20 OCJ-0520	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	35	S5942	Drawing S5942 Oculus Rafter Detail 4 Zone C indicates that the ribs are to butt weld splice. Since only one side of the butt weld is ground smooth, this is Category C fatigue weld per AISC B9. See comment above re S5983 - 84 Oculus Purline Connections North, South and fatigue resistance due to wind loads. This comment is typical for all rib splice welds.	9/14/09	Atagiba				
20 OCJ-0521	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	36	S5943	Drawing S5943 Oculus Rafter Section 6 Zone F, how does the welder reach inside the rafter web plates to make the stiffener fillet welds?	9/14/09	Atagiba				
20 OCJ-0522	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	37	S5951	Drawing S5951 Oculus Rafter Detail Section Plaza Lighting, see comment above re S5983 - 84 Oculus Purline Connections North, South and fatigue resistance of the indicated welds.	9/14/09	Atagiba				
20 OCJ-0523	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	38	S5976	Drawing S5976 Oculus Abutment Details the plans indicate the use of White Brand Tuffal Structural Thermal Insulation or Approved Equal. In above comments it was pointed out that this material can not be used in structural connections.	9/14/09	Atagiba				
20 OCJ-0524	Oculus	Final Submittal	7/31/2009		PA/PB	Structural	39	S5978	Drawing S5978 Oculus Abutment Details Detail 12 seems to indicate there are two free standing sections with insulation between the sections. Isn't some connection required between the sections?	9/14/09	Atagiba				
20 OCJ-0525	Oculus	Final Submittal	7/31/2009		PA/PB	Structure	40	CSS500	Drawing CSS500 Oculus Erection Notes it is recommended that the design code and wind loads to be used by the contractor for both the Oculus and plaza be explicitly stated. These loads could be established by modifying the wind tunnel model. Is a temporary overstress allowed?	9/14/09	Atagiba				

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20	OCU-0526	Oculus Final Submittal	7/31/2009		PAPB	Structural	41	CSS522	Drawing CSS522 Oculus Present Legend refers to shop setup fabrication. The Structural Steel Specifications page S12C-7, only require one stock up. It is recommended that shop assemblies be required for each complete portal frame to confirm conformance to the job to be specified tolerances. As noted above it is also recommended that the required tolerances be spelled out on the plans (this can be accomplished with a simple diagram) as the normal AISC building tolerances are not relevant.	9/14/09	Attaba				
20	OCU-0527	Oculus Final Submittal	7/31/2009		PAPB	Architectural	42	A3101	Drawing A3101 Partial Sections Transit Hall it appears that ice can slide down the trim and collect anyone passing through the abutment doors at the plaza level!	9/14/09	Lem				
20	OCU-0528	Oculus Final Submittal	7/31/2009		PAPB	Architectural	43	A3102	Drawing A3102 Partial Sections Transit Hall it appears that it may be necessary to close the plaza and Fulton Street in the winter if there is a possibility of falling ice.	9/14/09	Lem				
20	OCU-0529	Oculus Final Submittal	7/31/2009		PAPB	Architectural	44	A8012	Drawing A8012 Exterior Envelope Detail D81 appears to show a non metallic material between the inner and outer portions of the structure. This is not allowed for structural connections.	9/14/09	Lem				
20	OCU-0530	Oculus Final Submittal	7/31/2009		PAPB	Architectural	45	A8012	Drawing A8012 - 18 Glazing Details, how are these details related to the allowable fabrication tolerances for the structural steel? How are these details related to the anticipated structure movements due to environmental loads? As suggested above, the plans should include the fabrication and erection tolerances. Will it be necessary to field measure the erected structure before developing the shop drawings and fabricating the glazing? Section 08440 Roof Glazing and Cladding Systems appears to have been copied from a specification that was written for normal building project. For example there is reference to members "spanning floor to floor". This Specification needs to be critically reviewed particularly with regard to coordination with the frame fabrication and erection tolerances.	9/14/09	Lem				
20	OCU-0531	Oculus Final Submittal	7/31/2009		PAPB	Architectural	46	A8101	Drawing A8101 Operable Skylight, how are these details related to the allowable fabrication tolerances for the structural steel? How are these details related to the anticipated structure movements due to environmental loads? As suggested above, the plans should include the fabrication and erection tolerances. It may be necessary to field measure the erected structure before developing the shop drawings and fabricating the skylight? As was stated above Section 08440 Roof Glazing and Cladding Systems needs to be critically reviewed.	9/14/09	Lem				
20	OCU-0532	Oculus Final Submittal	7/31/2009		PAPB	Architectural	47	A8102	Drawing A8102 Specifications for Mechanical Components, why are both AASHTO and AREMA Movable Bridge Specifications listed when they are similar?	9/14/09	Lem				
20	OCU-0533	Oculus Final Submittal	7/31/2009		PAPB	Architectural	48	A8102	Drawing A8102 Specifications for Mechanical Components, Note #11 type 316 stainless steel is typically used for this type of service.	9/14/09	Lem				
20	OCU-0534	Oculus Final Submittal	7/31/2009		PAPB	Architectural	49	A8102	Drawing A8102 Specifications for Mechanical Components, Note #6 Fabrication and Erection tolerances are indicated for the "structural roof components", which are understood to only apply to the Transit Hall operable skylight and not to the overall Oculus structure. These tolerances may be reasonable for the operable skylight itself, but do not appear to be related to any overall fabrication and erection tolerances of the Oculus nor are they related to the in-service movements of the structure. As noted in the Design Calculations - Description of the Structure "The roof structure can be considered divided into two parts - north and south, separated by the operable skylight", thus the skylight will need to tolerate the almost independent movements of the north and south halves. It seems incongruous that very strict tolerances are being applied to the skylight mechanism when the mechanism is supported on a relatively flexible structure whose movements are likely to exceed those being used to fabricate the skylight. As a minimum as part of the final assembly (see Note 6.1.15), it would	9/14/09	Lem				
20	OCU-0535	Oculus Final Submittal	7/31/2009		PAPB	Architectural	50	A8103	Drawing A8103 Independent Modules Distribution, the stroke for the various modules are indicated to the 1/16th of an inch. For example RW #8 stroke is 5" - 10 1/16" and RW #9 stroke is 5" - 1 1/16". This level of accuracy is inconsistent with the typical applications of the AASHTO or AREMA Movable Bridge Specifications.	9/14/09	Lem				

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20	OCU-0536	Oculus Final Submittal	7/31/2009		PAPB	Architectural	51	A8113	Drawing A8113 North Module #0 Components: the proposed operating system uses a pair of drive motors and right angle reducers connected through universal joints and shafts to the actuators (there is a drafting error on the plan as the arrow that is supposed to point to the actuator points to the guide roller carriage and rail), which appears to have been derived from a movable bridge operating system. There will be a relatively large amount of load both in the drive system so it is doubted if the 1/16" stroke requirement can be met, and if it possible that the system will not maintain the desired alignment and tend to shake and possible lock up. This comment applies to all the modules.	9/14/09	Len				
20	OCU-0537	Oculus Final Submittal	7/31/2009		PAPB	Architectural	52	A8132	Drawing A8132 Steelwork Geometry: the plans appear to indicate the use of an interposed non-structural material in Detail E2 between. This use is not recognized in the AISC Specifications 1989. It also appears that the connection will require a second bolt in the upper half.	9/14/09	Len				
20	OCU-0538	Oculus Final Submittal	7/31/2009		PAPB	Architectural	53	A8144	Drawing A8144 Details of Carriage System 1/4 Note 6 indicates a wind load of 42 psf pressure or suction thus the screen should be shop tested for all condition or at least a suction of 42 psf plus rain plus maximum anticipated structural frame offset. This is in contrast to the Section 08900 Specialty Glazing and Entrance Systems which only require a water infiltration test for 10 psf. It is also noted that the same specifications on page R000-15 require provisions for Structural Movement but these movements are not shown, and on page 16 references "Appendix A Fabrication and Erection Tolerances-Terminal Hall" dated June 10, 2009. Where is Appendix A?	9/14/09	Len				
20	OCU-0539	Oculus Final Submittal	7/31/2009		PAPB	Architectural	54	A8145	Drawing A8145 Details of Carriage System 2/4 the carriage system appears to have been designed for a horizontally mounted skylight. But as can be seen in Drawing A8123 Independent Modules Distribution, the modules are mounted on a sloping surface. Thus the carriage system will be loaded horizontally. If the skylight modules are to maintain their lateral alignment, then the lateral guides will likely need require rollers similar to those used to support vertical loads and will need to be adjustable.	9/14/09	Len				
20	OCU-0540	Oculus Final Submittal	7/31/2009		PAPB	Architectural	55	A8146	Drawing A8145 Details of Carriage System 3 / 4 indicates that the rollers ride on an upper rail flange, but do not indicate the required alignment of this flange and if it needs to be machined. (although the specifications seem to require that they be machined) nor how will the surface be maintained and not rust and become a maintenance issue. It is also noted that the rollers require spherical roller bearings which are precise machined elements that given their expected location are unlikely to remain in service without becoming a maintenance problem.	9/14/09	Len				
20	OCU-0541	Oculus Final Submittal	7/31/2009		PAPB	Architectural	56	A8189	Drawing A8189 Glazing Details: the Torsion tube Typical Section indicates the use of an interposed non-structural material. This use is not recognized in the AISC Specifications 1989.	9/14/09	Len				
20	OCU-0542	Oculus Final Submittal	7/31/2009		PAPB	Specifications	57	Section 05120	Structural Steel Specifications page 05120 describe the requirements for fracture critical members. Where are these designated on the plans?	9/14/09	Altabbe				
20	OCU-0543	Oculus Final Submittal	7/31/2009		PAPB	Structural	58 a	Stress Concentration	DDC August 25 2009 Letter and attached Structural Design Clarification: WTC - PATH Terminal, Terminal Hall Roof - Transition Zone - Rev 01 - August 2008 a) Stress Concentration - It is not permitted by ASD (Allowable Stress Design) to use yield as an allowable stress level as is being advocated in the response. Further such high stress levels would be the source of fatigue cracking as can be seen on page 51 of the response. By returning the structure to eliminate the reentrant corner, as is normal structural engineering practice the issue can be resolved.	9/14/09	Altabbe				

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20	OCU-0544	Oculus Final Submittal	7/31/2008		PAPB	Structural	5b	Fatigue Analysis	b) Fatigue Analysis - The response mischaracterizes the wind tunnel test reports when it indicates that "CT" the structure does not appear to be susceptible to dynamic wind loading fatigue as the wind tunnel tests revealed no aeroelastic instabilities". The 2009 report contrary to the response's statement, indicates that the rafters will have "vibrable motion" at lower wind speeds i.e. they will vibrate. The 2009 report states "there is no allowance for resonant vibration of the structure" i.e. the dynamic response has not been considered. Also since all three of the tests conducted to date have tested models that are significantly different from the planned structure, their findings cannot be cited as indicative of the structure's behavior.	9/14/09	Altabbe				
20	OCU-0545	Oculus Final Submittal	7/31/2008		PAPB	Structural	5b	Fatigue Analysis	The analysis follows a methodology found in AWS D1.1/D1.1M 2008 "Structural Welding Code - Steel" Article 2.4 Alternative Stress and Stress Flange that is to be used to evaluate "the repeated applications and removal of live load", which is a well defined unique load. This approach does not properly address fatigue due to wind cycles. As pointed out on page 4 of the 2007 (Boundary Layer Tunnel) report there is extreme wind turbulence generated by the surrounding buildings and the turbulence means that the wind loads will be highly variable. The wind climate and structure's response to the wind, particularly where there is interaction with the wind, as has already been reported in one of the wind tunnel tests, needs to be evaluated on a different basis. The 2008 report which includes an aero-elastic model of only a few of the rafters, found that the rafters can be expected to have visible motions at lower wind speeds. Thus the evaluation of wind fatigue needs to be treated as a complex array of variable amplitude cyclic loads. Typically this is done by evaluating the cumulative life of the structure using Miner's Rule and a discussion of this approach can be found in Article 10.8 Variable Amplitude Cyclic Loads, Fracture and Fatigue Control, Applications of Fracture Mechanics, by Barsom and Rolfe, Third Edition ASTM 900, 41, 1999.	9/14/09	Altabbe				
20	OCU-0546	Oculus Final Submittal	7/31/2008		PAPB	Structural	5c	Stainless Steel	c) Use of Stainless Steel - It appears from the response that the issue was not understood. See comments above regarding S5927.	9/14/09	Altabbe				
20	OCU-0547	Oculus Final Submittal	7/31/2008		PAPB	Structural	1a	Wind Loads Recommendations	a) All wind load analyses should be redone using a full aero-elastic model that reflects the stiffness of the entire structure as shown on the final design plans. The purlins and skylight outlines, in particular need to be accurately modeled.	9/14/09	Altabbe				
20	OCU-0548	Oculus Final Submittal	7/31/2008		PAPB	Structural	1b	Wind Loads Recommendations	b) Dynamic wind analysis for the rafters should be performed at low as well as high wind speeds that include the site turbulence. The possibility of resonant needs to be investigated during construction staging and for the completed structure.	9/14/09	Altabbe				
20	OCU-0549	Oculus Final Submittal	7/31/2008		PAPB	Structural	1c	Wind Loads Recommendations	c) Fatigue under dynamically induced wind loads needs to be carefully evaluated.	9/14/09	Altabbe				
20	OCU-0550	Oculus Final Submittal	7/31/2008		PAPB	Structural	1d	Wind Loads Recommendations	d) The wind tunnel testing program should be subjected to an independent review by a consultant firm that is highly experienced in this type of testing and the consultant firm should be employed by the Port Authority.	9/14/09	Altabbe				
20	OCU-0551	Oculus Final Submittal	7/31/2008		PAPB	Structural	2a	Stress Analysis Recommendations	a) Stress concentration relief by refining the structure to eliminate the skylight restraint corner should be investigated.	9/14/09	Altabbe				
20	OCU-0552	Oculus Final Submittal	7/31/2008		PAPB	Structural	2b	Stress Analysis Recommendations	b) Fatigue prone details such as the purlin connections should be investigated and revised as needed to prevent fatigue damage during the 100 year plus life of the structure.	9/14/09	Altabbe				
20	OCU-0553	Oculus Final Submittal	7/31/2008		PAPB	Structural	3a	Design Criteria Recommendations	a) The wind return period of 100 years appears to be too short for a significant structure and the wind design criteria should be revisited.	9/14/09	Altabbe				
20	OCU-0554	Oculus Final Submittal	7/31/2008		PAPB	Architectural	4a	Skylights Recommendations	a) The design and specifications should be revisited, with particular concern in regard to long term durability and maintenance.	9/14/08	Keyl				

Oculus Comments

Message No	Package No	Submission Stage	Submission Date	Reviewer Name	Review Entity	Discipline	Comment #	Document Reference	Reviewer Comment	Date Received	Response Due From	Response	Response Date	Is Implemented NAR ? No Action Req TBD - To be determined	Remarks
20 OCU-0555	Oculus	Final Submittal	1/31/2009		PA/PB	Structural	5a	Constructability	a) The tolerances for the structure fabrication and erection should be specified specifically for the structure and they should be coordinated with the tolerances for the glazing and skylight system.	9/14/09	Altaba				
20 OCU-0556	Oculus	Final Submittal	7/31/2009		PA	Architectural	A1e	AB190 Weatherability	a. Sealings: The entire seal arrangement at the peak is questionable in terms of long-term viability and weather integrity of the butting gaskets as well as operation and weather integrity of the "protected" cap. Risk: High	9/14/09	Lem				
20 OCU-0557	Oculus	Final Submittal	7/31/2009		PA	Architectural	A1b	AB190 Weatherability	b. W. Gasket: In particular, does the gasket separating modules in the plane of motion work as intended? It will be stretched due to the differential movement between adjacent modules (an allowance of 1/2" of shear is indicated on the drawing). Must provide documentation from seal manufacturer: How will this action affect the life expectancy of the gasket material? Risk: High	9/14/09	Lem				
20 OCU-0558	Oculus	Final Submittal	7/31/2009		PA	Architectural	A1c	AB190 Weatherability	c. Contamination: Under the parameters set forth in the specifications there is the potential for the formation of condensation on the interior/underside surface of the glazing. Will it "rain" down on persons below? Risk: Medium	9/14/09	Lem				
20 OCU-0559	Oculus	Final Submittal	7/31/2009		PA	Architectural	A1d	AB190 Weatherability	d. Structural Movement: How will expansion/contraction (reference item S3) be accommodated in the ridge gasket and gaskets between adjacent modules as well as vertical glazing? Are the parameters set forth in the Specifications sufficient to guarantee the structural integrity and weather seal of the envelope construction? Risk: High	9/14/09	Lem				
20 OCU-0560	Oculus	Final Submittal	7/31/2009		PP	Architectural	A2a	AB190 Erectability	a. Measurements: There is a question as to the ability to properly field measure the structural steel due to its potential for movement as a result of changes in temperature as well as movement during the installation (glass loading) process. The extent of these movements is not provided in the documents and it is unclear if the Envelope Contractor can determine same and locate this information when preparing final fabrication documents. See item S1. Risk: High	9/14/09	Lem				
20 OCU-0561	Oculus	Final Submittal	7/31/2009		PA	Architectural	A2b	AB190 Erectability	b. Tolerances: The current documents call for the Envelope Contractor to field measure the completed structural steel and accommodate same. It is, however, unclear as to the intention in the event that the structural steel is not within the tolerances set forth in the Structural Steel Contract. Regardless of cost, there is the potential for delay and disruption. Risk: High	9/14/09	Lem				
20 OCU-0562	Oculus	Final Submittal	7/31/2009		PA	Architectural	A3	Overall Cost	A3. OVERALL COST: The DDP has stated that, in their opinion there are only two (2) companies capable of performing the work, Gartner and Seale. They have, reluctantly added to the specified producers but expressed reservations as to their ability to perform. The cost associated with a design that could only be produced by a limited number of Contractors can only tend to increase cost beyond value. Risk: High	9/14/09	Lem				
20 OCU-0563	Oculus	Final Submittal	7/31/2009		PA	Architectural	A4a	AB410 and AB450 Large Glass Sizes	a. Large Units: The 4' x 20' Tempered Glass IG units as submitted are specified as tempered glass. The specification further requires that all roll distortion run horizontally, but this is not possible with units 20' wide. Ref AB410/50. Risk: High	9/14/09	Lem				
20 OCU-0564	Oculus	Final Submittal	7/31/2009		PA	Architectural	A4b	AB410 and AB450 Large Glass Sizes	b. Large Units: What is the estimated cost of the 4' x 20' Tempered IG units at the south/west? Risk: High	9/14/09	Lem				

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20 OCU-0565	Oculus	Final Submittal	7/31/2009		PA	Architectural	A4c	A810 and A810 Large Glass Suits	d. Large Units: You say that two (2) lines of attic stock will be required under the Contract. The question is storage location (unwarrantably, and whether the 4' x 26' Tempered Glass IG units at abutments will survive storage and be available if and when required. As a practical matter if there is breakage and no attic stock available the likely method of replacement will be in segments. An option to work with segmented glass should save both the cost of initial procurement overseas as well as the cost of attic stock and storage. Risk: High	9/14/09	Len				
20 OCU-0566	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5a	A8005 and A8184 Maintenance	a. Irregular Glass Sizes: Confirm lead time for replacement glass. What is the maximum number glass sizes due to steel tolerance issues (measuring each opening)? Ref: A8005/A8184 Risk: Medium	9/14/09	Len				
20 OCU-0567	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5b	A8005 and A8184 Maintenance	b. Snowfall: The snow report only considers downing loads for sliding snow on skylights. There is potential for glass breakage/other damage from sliding/blowing snow/ice on the glazed portions, especially from the rafters onto level glass. Please discuss how this may be required. Please address. Risk: High	9/14/09	Len				
20 OCU-0568	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5c	A8005 and A8184 Maintenance	c. Cycle: The required maintenance cycle is unclear as well as the associated costs of maintenance, replacement, and replacement methodology. There is no access to the skylight other than a portable man-lift which may take hours to set up. This requires an on-site set up operation to check the smallest thing. Due to the loss of the hinged access panels it's not clear that they can be opened by a technician in the custom man-lift without the door raising the basket the technician is standing in. Risk: Medium	9/14/09	Len				
20 OCU-0569	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5d	A8005 and A8184 Maintenance	d. Scaffolding: Will scaffolding be required inside the Oculus to access anything that needs to be replaced? Risk: Low	9/14/09	Len				
20 OCU-0570	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5e	A8005 and A8184 Maintenance	e. Bird Damage: Bird deterrence details not yet submitted. There is a serious concern for the quality of service we expect to provide in the Oculus and for the movable components of the skylight. Nesting will occur inside the skylight storage area. This nesting will increase the potential for steel erosion at the base of the track support pedestals, for example, and potentially interfere with the smooth operation of the skylight rollers. The inaccessibility of the skylight precludes a convenient visual inspection of the moving parts prior to operation. Risk: Medium	9/14/09	Len				
20 OCU-0571	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5f	A8005 and A8184 Maintenance	f. Exercise: Is there a way to exercise the motors and actuator arms without moving the skylights? If not the entire skylight and associated machinery will not be exercised at all during the snow season. There is no way to observe snow and ice conditions on top of the skylight. Risk: Medium	9/14/09	Len				
20 OCU-0572	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5g	A8005 and A8184 Maintenance	g. Oil Drainage: The skylight storage area should drain into an oil/water separator since grease from the actuator arms could possibly drip into the drainage system. Risk: Medium	9/14/09	Len				
20 OCU-0573	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5h	A8005 and A8184 Maintenance	h. Maintenance Contract: The documents do not presently call for due consideration should be given to requiring the contracting Contractor to provide an optional cost for a five (5) year labor and material Maintenance Contract. Risk: Medium	9/14/09	Len				
20 OCU-0574	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5i	A8004 A8016 and others Maintenance	i. Intuitive Care Coating: May be highly irregular, especially on closure phases. If damaged can it be patched and maintain its rating? Risk: Medium	9/14/09	Len				
20 OCU-0575	Oculus	Final Submittal	7/31/2009		PA	Architectural	A5j	A8004 A8016 and others Maintenance	j. Dirt: The proposed method of cleaning and maintaining both exterior and interior glass surfaces is unclear. It will be costly to keep the glass free of airborne soil and bird droppings. Backup is especially likely due to emplacement of large IG units at abutments. Risk: Low	9/14/09	Len				

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20 OCU-0576	Oculus	Final Submittal	7/31/2009		PA	Specifications	A6	Sections 08440 and 08900	A6. SPECIFICATIONS: Contract should not be released until all previous comments by the design team and their consultants are addressed concerning the completeness of the DDP Specification Sections Draft C dated July 31, 2009, Sections 08440 and 08900. These comments should be added to the Final Specifications in order to "reduce" contracting and performance risk. Risk: High	9/14/09	Kasekyan				
20 OCU-0577	Oculus	Final Submittal	7/31/2009		PA	Structural	C1	Contracting Strategy	C1. PROCUREMENT APPROACH: Split responsibility between the Contractor performing the envelope enclosure and structural steel, ability of the structural steel contractor to build within the specified tolerances, an associated cost in delay and disruption if the structural steel is out of the tolerances specified by the Envelope Contractor is a concern. The situation is further exacerbated if the Contractor Manager rather than the General Contractor approach is used. Under the Construction Manager approach, all costs associated with miscoordination end up at the door of the Owner. Under the General Contractor approach, such costs fall to the General Contractor. Risk: High	9/14/09	Altabe				
20 OCU-0578	Oculus	Final Submittal	7/31/2009		PA	Mechanical	C2	Contracting Strategy	C2. CONTRACT COORDINATION: Will contracting strategy allow single point of responsibility for systems that overlap sub-grade and Oculus? The fit-out of mechanical systems will be under the fit-out STG package. The current Oculus package does not provide the STG package as a reference to the contractor nor does it provide any heritage requiring coordination of the two packages. This issue has the risk of construction delays as well as cost being incurred by the PA, depending on the contracting technique. Risk: High	9/14/09	Brookly				
20 OCU-0579	Oculus	Final Submittal	7/31/2009		PA	Structural	S1	Tolerances	S1. TOLERANCES: Fabrication and erection tolerances of the structural steel may not comply with the permissible tolerances of the glazing. This will likely result in added costs related to the glazing installation, and perhaps changes to the glazing details. In addition, depending on the contracting scheme (GC or CM), the cost may be added risk to the PA, rather than the contractor. Risk: High	9/14/09	Altabe				
20 OCU-0580	Oculus	Final Submittal	7/31/2009		PA	Structural	S2	Disimilar Metals	S2. DISSIMILAR METALS: The use of stainless steel and conventional structural steel will add difficulty to steel fabrication, and over time may result in localized stress cracks at the welding interface, due to different thermal properties in terms of expansion and contraction. Risk: Medium	9/14/09	Altabe				
20 OCU-0581	Oculus	Final Submittal	7/31/2009		PA	Structural	S3	Movement	S3. MOVEMENT: Movement of the structure, associated with variable temperature on different areas of the structure, could result in difficult operation of the movable skylight feature, and potentially result in glass damage to the stationary glazing. Adjacent ribs are connected at base top by the roof of the skylight storage area. Will these connections act like an arch in the summer months and expand radially? We have not seen this addressed. Risk: Medium	9/14/09	Altabe				
20 OCU-0582	Oculus	Final Submittal	7/31/2009		PA	Structural	S4	Fatigue	S4. FATIGUE: The notch feature at the transition of the wing to the portal leg that accommodates the movable skylight will result in high stress concentrations and deflection of the structure. Under normal structural conditions, adding to the potential of developing fatigue cracking. Risk: High	9/14/09	Altabe				
20 OCU-0583	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M1a	A6250 and others Smoke Purge System	a Code: As currently designed the Oculus smoke purge system does not comply with the prescriptive requirements of the NYCBC (Section 27.52.1.5 a). This section requires that the smoke purge system be sized to have a capacity to provide 6 air changes per hour or 1 cfm/ft ² , whichever is greater. This would require the smoke purge system capacity to be approximately 500cfm. The current design consists of sixty (60) 5,000 cfm fans providing approximately 300cfm, 200cfm deficient of the code required capacity. Risk: High	9/14/09	Brookly				

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20 OCU-0584	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M1b	A8250 and others Smoke Purge System	b. Code: NYCBC section 27-50.15 requires that "all malls have a gravity-ventilation system equipped with remote manual controls to remove smoke if the mechanical exhaust fails." It is unclear if the operable skylight will serve the function. The Oculus nor the fit-out structures to grade (STG) packages address any detailed sequence of operation describing the function of the smoke purge fans nor the operable skylight. Risk: High	9/14/09	Brooklyn				
20 OCU-0585	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M1c	A8250 and others Smoke Purge System	c. Code: DOP has proposed to provide a smoke control system to operate during a fire incident based on an engineered solution validated via CFD modeling. The NYCBC does not provide any language indicating this is permissible. Nonetheless it does not relieve the NYCBC prescriptive requirements for smoke purge. Furthermore, the draft Oculus CFD modeling report (dated 6-17-09) prepared by ARUP for DOP clearly states that several CFD modeled scenarios for the proposed smoke control system fail to maintain tenable conditions in the egress path. Risk: High	9/14/09	Brooklyn				
20 OCU-0586	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M1d	A8250 and others Smoke Purge System	d. Constructability: Need more detailed reworking details for smoke purge fans. Risk: Medium	9/14/09	Brooklyn				
20 OCU-0587	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M2a	A8250 and others Smoke Purge System	a. Maintenance: Routine testing & lubrication of 60 smoke purge fans will be time consuming since the only access is via a man lift. Risk: Medium	9/14/09	Brooklyn				
20 OCU-0588	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M2b	A8250 and others Smoke Purge System	b. Service: It is unclear how one individual at a man lift will be able to remove a fan motor (approx. 80-100 lbs.) from its normally installed position and moved to the demountable hanger which is about 3 feet away from the motor. Risk: Medium	9/14/09	Brooklyn				
20 OCU-0589	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M3	A8250 and others Energy Model	M3: ENERGY MODEL: Need finalized energy model and documentation for compliance with WTC/105 sustainable design guidelines (SDG) based on the latest glass and equipment selections, infiltration from Oculus sliding anly doors and Oculus geometry. Risk: Medium	9/14/09	Brooklyn				
20 OCU-0590	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M4	A8250 and others Validation	M4 VALIDATION: No modeling performed to date to validate that a conditioned environment is provided in the occupied space for large volume high ceiling spaces (Oculus/mezzanine). Validation of center areas within occupied zone is required by ASHRAE 55-2004 and WTC/105 SDG (REQ-8) Risk: High	9/14/09	Brooklyn				
20 OCU-0591	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M5	A8144, A8150, A8153, A8154 and others Skylight Mechanism	M5 SKYLIGHT MECHANISM: How can we be sure the Carriage, Actuator, Drive and Motor Systems work? Has this been patented similarly in the fashion anywhere else in the world? Risk: High	9/14/09	Keyl				
20 OCU-0592	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M6a	A8144, A8150, A8153, A8154 and others Skylight Mechanism	a. Location: Requires man lift for access. Risk: Low	9/14/09	Keyl				
20 OCU-0593	Oculus	Final Submittal	7/31/2009		PA	Mechanical	M6b	A8144, A8150, A8153, A8154 and others Skylight Mechanism	b. Winter: While the DOP has stated the mechanism will be specified as outdoor rated, there still exists the possibility of freezing/cold air buildup during winter conditions that may render it inoperable. Risk: Medium	9/14/09	Keyl				

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20 OCU-0594	OCUs	Final Submit#	7/31/2009		PA	Mechanical	MEC	AB144 AB150 AB153 AB154 Skylight Mechanism Maintainability/ Serviceability	c. Drawn: What will prevent freezing/clogging of cavity drain? Risk: Medium	9/14/09	Key:				
20 OCU-0595	OCUs	Final Submit#	7/31/2009		PA	Mechanical	MEC	AB144 AB150 AB153 AB154 Skylight Mechanism Maintainability/ Serviceability	d. Testing: Describe routine testing and lubrication of skylight mechanism Risk: Low	9/14/09	Key:				
20 OCU-0596	OCUs	Final Submit#	7/31/2009		PA	Mechanical	MEs	AB144 AB150 AB153 AB154 Skylight Mechanism Maintainability/ Serviceability	e. Racking: Racking of adjacent modules is a concern. How are the actuator arms stopped in case adjacent modules no longer more parallel to each other? Risk: High	9/14/09	Key:				
20 OCU-0597	OCUs	Final Submit#	7/31/2009		PA	Mechanical	MEs	AB144 AB150 AB153 AB154 Skylight Mechanism Maintainability/ Serviceability	f. Commissioning/Acceptance: Are the prototypes/modules adequate to prove the systems will work over time? Risk: High	9/14/09	Key:				

ATTACHMENT - B

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File No.	Date	Method	Subject	Revision	Revision Date	Project No.	Count	Category	Author	Reviewer	Date	Status		
RC-0387	9/29/08	PA-DDP-1189-08R	20	Revision 1	9/19/08	20SG(6077-6096)	20	PA			PA-Mechanical written comments	Bredt-v, Gilboa	12/22/2008	ISSUED
RC-0381	2/4/09	E-mail	20	Add 1 Add 2	11/17/08 12/19/08	20SG(6178-6350)	173	PMOC			PMOC Comments		4/3/2009	ISSUED
RC-0406	4/7/09	E-mail	20			20SG(6561-7004)	444	PB/URS			S&S, Add 2 comments		4/20/2009	ISSUED
RC-0407	4/27/09	E-mail	20	Addendum No 4	4/6/09	20SG(7005-7006)	2	PA			Hydraulic calculation comments	Koumjan	4/30/2009	ISSUED
RC-0409	5/6/09	E-mail	20	Addendum No 3	1/23/09	20SG(7007-7059)	53	PMOC				Mauritz, Altobelli Hand, Schuller, Gilboa, Koumjan	5/28/2009	ISSUED
RC-0420	5/27/09	E-mail	20 Oculus	90%	4/30/09	20 OCU(0040-0091)	52	PMOC			PA-Arch&Struct comments	Schuller, Lem	6/5/2009	ISSUED
RC-0424	6/2/09	E-mail	20 Oculus	90%	4/30/09	20 OCU(0092-0101)	10	PA	Kneifel		Architectural comments	Lem	6/5/2009	ISSUED
RC-0429	6/2/09	E-mail	20 Oculus	90%	4/30/09	20 OCU(0102-0136)	35	PA	Kamocsa		Structural comments	Altobelli	6/5/2009	ISSUED
RC-0426	6/5/09	E-mail	20 Oculus	90%	4/30/09	20 OCU(0137-0144)	8	GHSC	G. Smith		Architectural comments	Lem	6/5/2009	ISSUED
RC-0425	6/5/09	E-mail	20 Oculus	90%	4/30/09	20 OCU-0101A	1	PA	Kneifel		Updated architectural comments	Lem	6/5/2009	ISSUED
RC-0436	6/24/09	E-mail	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7135-7182)	48	PA			Arch, Struct, MEP, Geo, Civil comments	Schuller, Litterer, Hand, Brodsky, Gilboa, Cregger, Mauritz, Altobelli, Charalambous Koumjan	7/2/2009	ISSUED
RC-0437	6/24/09	PA-DDP-0668-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)	448	PA			Fire Protection comments		7/27/2009	ISSUED
RC-0439	6/24/09	PA-DDP-0669-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 4		7/27/2009	ISSUED
RC-0441	6/24/09	PA-DDP-0670-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 5		7/27/2009	ISSUED
RC-0442	6/24/09	PA-DDP-0671-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 6		7/27/2009	ISSUED
RC-0443	6/24/09	PA-DDP-0672-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 7		7/27/2009	ISSUED
RC-0444	6/24/09	PA-DDP-0674-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 8 - No marked-up comments		7/27/2009	ISSUED
RC-0445	6/24/09	PA-DDP-0673-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 9		7/27/2009	ISSUED
RC-0446	6/24/09	PA-DDP-0675-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 10		7/27/2009	ISSUED
RC-0447	6/24/09	PA-DDP-0676-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 11		7/27/2009	ISSUED
RC-0448	6/24/09	PA-DDP-0677-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 12		7/27/2009	ISSUED
RC-0449	6/24/09	PA-DDP-0678-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 13		7/27/2009	ISSUED
RC-0450	6/24/09	PA-DDP-0679-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Volume 14		7/27/2009	ISSUED
RC-0451	6/24/09	PA-DDP-0680-09R	Structures to Grade, Fitout and MEP	Addendum No 7	6/12/09	20SG(7183-7630)		PA			Plumbing comments		7/27/2009	ISSUED
RC-0454	6/29/09	E-mail	20 Oculus	90% Rev 1	6/15/09	20 OCU(0248-0291)	44	GHSC			Spec comments 08900	Kasakyan	6/22/2009	ISSUED
RC-0454	6/29/09	E-mail	20 Oculus	90% Rev 1	6/15/09	20 OCU(0238-0247)	10	GHSC			Drawing comments	Kasakyan	6/22/2009	ISSUED
RC-0456	6/29/09	E-mail	20 Oculus	90% Rev 1	6/15/09	20 OCU(0222-0223)	2	PA	Kamocsa		Updated Structural comments	Altobelli	6/5/2009	ISSUED
RC-0457	6/29/09	E-mail	20 Oculus	90% Rev 1	6/15/09	20 OCU(0167-0189)	23	PMOC			Architectural comments	Lem, Koumjan, Altobelli, Schuller	6/5/2009	ISSUED

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RC No.	Date	Method	Discipline	Revision	Drawn	Checked	Count	Discipline	Author	Comments	Reviewed	Date	Status
RC-0457	8/29/09	E-mail	20 Oculus	90% Rev 1	6/15/09	20OCU(0190-0192)	3	PMOC		Electrical comments on 90% rev 1 Oculus and MEP Reference vol	Schuller	8/5/2009	ISSUED
RC-0459	6/30/09	E-mail	20 Oculus	90% Rev 1	6/15/09	20OCU(0193-0215)	23	PMOC	Fassman/Dameron	Architectural and structural comments	Lem, Atabba	8/5/2009	ISSUED
RC-0462	7/2/09	E-mail	Structures to Grade, Fitout and MEP	Addendum 7	4/3/09, 5/31/09 and 6/12/09	20SG(7687-7697)	11	DSP		Plumbing comments on MEP Reference vol for Oculus	Kourtean	7/27/2009	ISSUED
RC-0461	7/8/09	E-mail	20 Oculus	C Draft		20 OCU(0308-0328)	21	PA	Casper	Same comments received on 3/3/08 for spec 08900	Kasakyan	8/5/2009	ISSUED
RC-0466	7/13/09	E-mail	20 Oculus	90% Rev 1	6/15/09	20 OCU(0292-0307)	16	PA	Marino	PA-mechanical comments	Brodsky	8/5/2009	ISSUED
RC-0465	7/15/09	E-mail	Structures to Grade, Fitout and MEP	Addendum 7	6/12/09	20SG(7698-7804)	107	PA		PA-mechanical discrepancies	Brodsky	7/20/2009	ISSUED
RC-0467	7/16/09	E-mail	Structures to Grade, Fitout and MEP	Addendum 7	6/12/09	20SG(7147, 7149, 7152-7156)	7	PA	Levine	PA-Electrical follow-up comments	Uttler, Schuller	7/21/2009	ISSUED
RC-0465	7/22/09	E-mail	Structures to Grade, Fitout and MEP	Addendum 7	6/12/09	20SG(6391, 6505, 6522, 6523, 6529, 7158, 7163, 7169, 7174)	9	PA	Kamocsa	PA-Structural follow-up comments	Mauritz, Atabba	7/27/2009	ISSUED
RC-0464	7/27/09	E-mail	20 Oculus	C Draft	7/16/09	20 OCU(0329-0331)	3	PA	Casper	Spec comments 08900	Kasakyan	8/5/2009	ISSUED
RC-0464	7/27/09	E-mail	20 Oculus	C Draft	7/16/09	20 OCU(0332-0338)	7	PA	Casper	Spec comments 08440	Kasakyan	8/5/2009	ISSUED
RC-0470	7/27/09	E-mail	Structures to Grade, Fitout and MEP	C Draft	7/15/09			PA	Levine	Spec comments 14350	Karyannis/Cossentino	8/25/2009	ISSUED
RC-0471	7/22/09	E-mail	20 Oculus	C Draft	7/16/09	20 OCU(0339-0404)	66	GHSC		Spec comments 08440	Herriges	8/13/2009	ISSUED
RC-0472	8/13/09	E-mail	20 Oculus	C Draft	7/31/09	20 OCU(0405-0426)	22	GHSC		Spec comments 08440	Herriges		OPEN
RC-0472	8/13/09	E-mail	20 Oculus	C Draft	7/31/09	20 OCU(0427-0443)	17	GHSC		Spec comments 08900	Herriges		OPEN
RC-0472	8/13/09	E-mail	20 Oculus	Final	7/31/09	20 OCU(0444-0451)	8	GHSC		Arch Drawing comments	Herriges		OPEN
RC-0472	8/13/09	E-mail	20 Oculus	Final	7/31/09	20 OCU(0140, 0141, 0240, 0241, 0243, 0244, 0246, 0247)	8	GHSC		Follow-up comments	Herriges		OPEN
RC-0472	8/13/09	E-mail	20 Oculus	Final	7/31/09	20 OCU(0452-0461)	10	PA	Kriegel	Arch Drawing comments	Lem		OPEN
RC-0473	8/14/09	E-mail	20 20			20 20-0325	1	PA	Kamocsa	Follow-up comments	Cossentino		OPEN
RC-0474	8/14/09	E-mail	20 Oculus					PA	Kriegel	General comment			OPEN
RC-0475	8/19/09	E-mail	20 Oculus	Final	7/31/09		37	PA		Follow-up structural comments	Atabba		OPEN
RC-0475	8/19/09	E-mail	20 Oculus	Final	7/31/09	20 OCU(0462-0482)	21	PA	Kamocsa	Structural comments	Atabba		OPEN
RC-0475	8/20/09	E-mail	20 Oculus	Final	7/31/09		44	PMOC		Follow-up comments			OPEN
RC-0476	8/20/09	E-mail	20 Oculus	Final	7/31/09	20 OCU(0483-0485)	3	PMOC		New comments			OPEN
RC-0476	8/20/09	E-mail	Structures to Grade, Fitout and MEP			20SG-6226	1	PMOC		third set of comments			OPEN
RC-0476	8/20/09	E-mail	Structures to Grade, Fitout and MEP			20SG(7645, 7646, 7652-7677)	28	PMOC		Follow-up comments			OPEN
RC-0477	8/20/09	E-mail	20 Oculus	Final	7/31/09		58	PMOC		Follow-up comments			OPEN
RC-0478	8/21/09	E-mail	9X All 1				14	PMOC				8/26/2009	ISSUED
RC-0479	8/25/09	E-mail	Structures to Grade, Fitout and MEP	Addendum 8	7/15/09	20SG(7805-7815)	11	PA	Yakubov	PA geotech comments	Cregger		OPEN
RC-0482	8/26/09	E-mail	PHTH	C Draft	8/24/09			PA	Levine	Spec comments 14350	Karyannis	10/16/2009	ISSUED
RC-0481	8/31/09	E-mail	PHTH				56	PMOC		Follow-up comments			OPEN
RC-0483	9/2/09	E-mail	PHTH	C Draft				PA		Spec comments 15360	Kourtean	9/23/2009	ISSUED
RC-0484	8/18/09	E-mail	9X All 1				16	NYCT CPM		Follow-up comments	Mirzakhani	9/23/2009	ISSUED
RC-0485	9/25/09	E-mail	20 Oculus	Final Submittal	7/31/09	20 OCU(0598-0610)	22	PA	Yadoo/Kamocsa	PA structural comments	Atabba		OPEN
RC-0485	9/25/09	E-mail	20 Oculus	Final Submittal	7/31/09	20 OCU-0611	1	PA	Manno	PA-mechanical comments on smoke purge concept	Brodsky		OPEN
RC-0483	9/25/09	E-mail	20 Oculus	C Draft		20 OCU(0612-0613)	2	PA		Spec comments 07560	Kasakyan	10/27/2009	ISSUED
RC-0487	9/28/09	E-mail	PHTH	Rev 0	7/20/09	20SG(7816-7821)	6	PMOC		New Mech comments(55,56,66-69)	Gibson		OPEN
RC-0488	9/30/09	E-mail	20 Oculus	C Draft		20 OCU-0613	1	PA		Spec comment withdrawn 07560			ISSUED

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RC-0489	9/30/09	E-mail	PHTH	Rev 0	7/20/09	20SG(7656,7659,7664,7670)	4	PMOC		Updated follow-up comments(2,7,14,24)	Schuler						OPEN
RC-0489	9/30/09	E-mail	PHTH	Rev 0	7/20/09	20SG(7822-7839)	18	PMOC		New Elec comments(1,3,6,8-10,12,13,16,23,37,39)	Schuler						OPEN
RC-0490	10/1/09	E-mail	PHTH	Rev 0	7/20/09	20SG(7840-8044)	205	PA		Radio comments	Littler						OPEN
RC-0491	10/2/09	E-mail	PHTH	C Draft				PA		Spec comments 16935		Schuler		11/12/2009			ISSUED
RC-0492	10/9/09	E-mail	WG #2	Signed and Sealed	7/27/09		5	PA QAD		Electrical comments	Kamboj			10/9/2009			ISSUED
RC-0493	10/14/09	E-mail	9X Alt 1	Add 7	7/2/09	9XAlt 1(0432-0450)	19	SPI		Structural comments	Kopkalk			10/16/2009			ISSUED
RC-0494	10/13/09	E-mail	PHTH	Rev 00	10/9/09	20SG(8045-8046)	2	PA		NFPA 130 comments	Brodsky			10/13/2009			ISSUED
RC-0495	10/15/09	E-mail	PHTH	C Draft				PA		Spec comments 15360		Schuler		11/10/2009			ISSUED
RC-0497	10/15/09	E-mail	PHTH					PA		TBD Comments				10/27/2009			ISSUED
RC-0498	10/19/09	E-mail	PHTH	Rev 0	7/20/09	20SG(8047-8094)	48	PA		Radio comments	Littler						OPEN
RC-0499	10/19/09	E-mail	PHTH	C Draft				PA		Spec comments 16481		Schuler		11/12/2009			ISSUED
RC-0500	10/23/09	E-mail	PHTH			20SG(7375,7376,7450)	3	PA		MEP TBD Comments	Koumpan, G4boa						OPEN
RC-0501	10/27/09	E-mail	PHTH	Rev 0	7/20/09		18	PB		Structural follow-up comments							OPEN
RC-0502	10/19/09	E-mail	20 20		7/29/09		1	PA QAD		FP comments		Kamboj		10/19/2009			ISSUED
RC-0503	10/19/09	E-mail	PHTH	C Draft		20SG-8095	1	PA		Spec comments 09310		Katakyan		10/22/2009			ISSUED
RC-0504	10/29/09	E-mail	20 Oculus	C Draft				PA		Spec comments 09600		Katakyan		11/3/2009			ISSUED
RC-0505	10/29/09	E-mail	PHTH			20SG(7145,7146,7148,7150,7151)	5	PA		Electrical TBD comments							OPEN
RC-0506	10/30/09	E-mail	PHTH			20SG-1181	1	PA		Civil TBD Comments							OPEN

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File No.	Date Received	Document Control No.	Package Description			Review Comments					Responses					Current Status				
			Rev.	Submission	Date	Master No.	Date	Number of Comments	Entity	Name	Date	Remarks	Due From	Date Distributed	Date Due		Completed By	Submitted to PA	Remarks	
RC-0507.1	11/3/09	E-mail	PHTH	C Draft	8/29/09	20SG(8096-8142,8144-8160)		64	PA							Giboa	1/11/2010		CLOSED	
RC-0507.2	11/3/09	E-mail	PHTH	C Draft		20SG(8161-8184)		24	PA							Schuller	1/11/2010	Approved by PA 1/12/2009	CLOSED	
RC-0508	11/3/09	E-mail	PHTH	C Draft	8/29/09	20SG-8143		1	PA	Levine						Giboa	1/11/2010		CLOSED	
RC-0509.1	11/4/09	E-mail	PHTH			20SG(7015-7017)		3	PMOC									11/4/2009	CLOSED	
RC-0509.2	11/4/09	E-mail	PHTH			20SG(7011-7014)		4	PMOC										DUPLICATE	
RC-0509.3	11/4/09	E-mail	PHTH			20SG(6315-6317,6319,6321,6322,6324,6333,6334,6338,6339,6342,6344,6348-6350)		16	PMOC									11/4/2009	CLOSED	
RC-0509.4	11/4/09	E-mail	PHTH			20SG(6318,6320,6323,6335,6337,6340,6341,6343,6345,6347)		13	PMOC										DUPLICATE	
RC-0509.5	11/4/09	E-mail	PHTH						PMOC										For Record Only	
RC-0510	11/4/09	E-mail	PHTH			20SG(7160,7162,7173,7175,7176,7180)		6	PA									1/25/2010	Comment resolution as per mtg w/ PA. See RC-0546	CLOSED
RC-0511	11/4/09	E-mail	PHTH			20SG(6381,7175,7176)		3	PA									1/25/2010	Comment resolution as per mtg w/ PA. See RC-0546	CLOSED
RC-0512	11/10/09	E-mail	PHTH			20SG(7148,7155,7257,7375,7376)		5	PA	Levine								11/10/2009		CLOSED
RC-0513.1	11/12/09	E-mail	PHTH						PA	Kwolek						Giboa	12/18/2009		CLOSED	
RC-0513.2	11/12/09	E-mail	PHTH						PA	Kwolek						Giboa	12/17/2009		CLOSED	
RC-0513.3	11/12/09	E-mail	PHTH						PA	Kwolek						Giboa	12/17/2009		CLOSED	
RC-0514	11/13/09	E-mail	PHTH						PA	Levine						Schuller	11/25/2009		CLOSED	
RC-0515	11/13/09	E-mail	PHTH	C Draft	11/12/09				PA	Levine						Schuller	11/25/2009		CLOSED	
RC-0516	11/13/09	E-mail	PHTH	C Draft	11/10/09				PA	Renaud						Schuller	12/16/2009		CLOSED	
RC-0517	11/13/09	E-mail	PHTH	C Draft	11/10/09				PA	Levine						Schuller	12/16/2009		CLOSED	
RC-0518	11/16/09	E-mail	Plan B	Progress	10/30/09	81001-8020		21	LSP										OPEN	
RC-0519	11/16/09	E-mail	Plan B	Progress	10/30/09	810021-8047		27	BBB							Patel			OPEN	
RC-0520	11/13/09	E-mail	PHTH			20SG(8203-8226)		24	PA	Manno									CLOSED	
RC-0521	11/17/09	E-mail	2/Oculus			20 OCU(0556-0563,0565-0579,0591-0593,0595-0596)		28	GHSC									12/29/2009		CLOSED
RC-0522	11/25/09	E-mail	PHTH	C Draft					PA	Levine						Schuller	12/3/2009		CLOSED	
RC-0523.1	11/25/09	E-mail	PHTH	C Draft					PA	Levine						Giboa	12/3/2009		CLOSED	
RC-0523.2	11/25/09	E-mail	PHTH	C Draft					PA	Levine						Giboa	12/3/2009		CLOSED	
RC-0524	11/25/09	E-mail	PHTH	C Draft					PA	Levine						Schuller	12/3/2009		CLOSED	
RC-0525	12/3/09	E-mail	PHTH	C Draft					PA	Levine						Schuller	12/6/2009		CLOSED	
RC-0526.1	12/7/09	E-mail	Oculus			20 OCU(0614-0627)		21	PA/PB									12/29/2009		CLOSED
RC-0526.2	12/7/09	E-mail	Oculus					14	PB									1/8/2010		CLOSED
RC-0527	12/8/09	E-mail	PHTH	C Draft															CLOSED	
RC-0528	12/9/09	E-mail	PHTH	C Draft												Schuller	12/16/2009		CLOSED	
RC-0529	12/14/09	E-mail	Oculus																For Record Only	
RC-0530.1	12/14/09	E-mail	PHTH	Add 2	11/16/09	20SG(8185-8200)		16	PA	Kwolek						Giboa, Schuller	3/25/2010		CLOSED	
RC-0530.2	12/14/09	E-mail	PHTH	Add 2	11/16/09	20SG(8201-8202)		2	PA	Cobourne/Renaud						Kourmyan	3/25/2010		CLOSED	
RC-0530.3	12/14/09	E-mail	PHTH	Add 2	11/16/09				PA	Lizzo									DUPLICATE	
RC-0531	12/18/09	E-mail	PHTH	C Draft					PA	Levine								12/18/2009		CLOSED
RC-0532	12/18/09	E-mail	PHTH	C Draft					PA	Levine								12/18/2009		CLOSED
RC-0533	12/18/09	E-mail	PHTH	C Draft					PA	Levine								12/22/2009		CLOSED
RC-0534	12/18/09	E-mail	PHTH	C Draft					PA	Kwolek								12/22/2009		CLOSED
RC-0535	12/18/09	E-mail	PHTH	C Draft					PA	Kwolek								2/18/2010		CLOSED
RC-0536	12/18/09	E-mail	PHTH	C Draft					PA	Kwolek						Giboa	2/18/2010		CLOSED	
RC-0537.1	1/6/10	E-mail	PHTH			20SG(6523,7034,7134,7150,7162,7173,7175,7176,7180)		9	PA							Giboa	1/25/2010	Comment resolution as per mtg w/ PA. See RC-0546	CLOSED	
RC-0537.2	1/6/10	E-mail	PHTH			20SG(7593,7594,7599,7618)		4	PA									1/6/2010	Comments closed by PA	CLOSED
RC-0537.3	1/6/10	E-mail	PHTH			20SG(7181-7182)		2	PA									3/9/2010		CLOSED
RC-0537.4	1/6/10	E-mail	PHTH			20SG(7194,7196,7201,7204,7210)		5	PA										For Record Only	

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File No.	Date Received	Document Control No.	Package Description			Review Comments					Responses					Current Status			
			Mo.	Substation	Date	Master No.	Number of Comments	Entity	Name	Date	Remarks	Due From	Date Distributed	Date Due	Completed by		Submitted to PA	Remarks	
RC-0538.1	1/14/10	E-mail	PHTH	Signage Presentation	4/30/08	20SG(8227-8235)	9	PA					Repeated comments Already received on 5/27/08						DUPLICATE
RC-0538.2	1/14/10	E-mail	PHTH	Signage Presentation	12/28/09	20SG(8236-8238)	3	PA					Superseded See RC-0560.1					See RC-0560.1	SUPERSEDED
RC-0538.3	1/14/10	E-mail	PHTH	Signage Presentation	12/28/09	20SG(8239-8241)	3	PA					New Signage comments	Patel		5/5/2010			CLOSED
RC-0538	1/15/10	E-mail	PHTH			20SG-7366		PA					Close out Comms TBD comments			1/15/2010			CLOSED
RC-0540	1/18/10	E-mail	PHTH					Tishman					GT 2001 drawing			1/18/2010			For Record Only
RC-0541	1/18/10	E-mail	PHTH	Rev 0	7/20/09			BBB					Marked-up comments on drawings	Utler					OPEN
RC-0542	1/20/10	E-mail	PHTH	C Draw		20SG(8252-8270)	19	PA					Spec comments 15950			4/15/2010	Revised spec issued on 4/15/10		CLOSED
RC-0543	1/21/10	E-mail	PHTH			CTS(0001-0056)	36	MTA					Corland St Comments	Meghrshi		1/28/2010			CLOSED
RC-0544.1	1/25/10	E-mail	PHTH			20SG(7450,7465,7467,7468,7473,7474,7482,7485,7507)	9	PA	Kwolek				Closed Mech TBD comments			1/25/2010	Closed as per PA's e-mail dated 1/23/10		CLOSED
RC-0544.2	1/25/10	E-mail	PHTH			20SG-7470	1	PA	Kwolek				Open Mech TBD Comments			3/18/2010			CLOSED
RC-0545.1	1/25/10	E-mail	PHTH			20SG-6743	1	PA	Levine				Open Elec TBD Comments			4/7/2010	Comment withdrawn as per mtg w/ PA		WITHDRAWN
RC-0545.1A	1/25/10	E-mail	PHTH			20SG(7152,7156,7157,722,7224,7248,7284,7316-7319,7323,7331-7336,7338,7339,7352,7644,7669)	23	PA	Levine				Elec TBD Comments	Schuller		2/18/2010	See RC-0552.2		CLOSED
RC-0545.2	1/25/10	E-mail	PHTH			20SG(7145,7148,7150,7151,7244,7245,7293,7368,7659,7661,7667,7670,7678,7677)	15	PA	Levine				Closed Elec TBD comments			1/25/2010	Closed as per PA's e-mail dated 1/25/10		CLOSED
RC-0546.1	1/25/10	E-mail	PHTH			20SG(6523,7134,7160-7163,7176,7557)	8	PA	Kamecka				Structural TBD Comments						OPEN
RC-0546.2	1/25/10	E-mail	PHTH			20SG(6505,7173,7175,7180,7537,7555)	6	PA	Kamecka				Closed Structural TBD comments			1/25/2010	Closed as per PA's e-mail dated 1/25/10		CLOSED
RC-0547.1	1/27/10	E-mail	PHTH			20SG(6261,6315,6319,6321,6322,6334,6342,7644,7669)	9	PMOC					Open TBD PMOC comments as reflected on 12/17/09-TBD matrix			4/28/2010			CLOSED
RC-0547.2	1/27/10	E-mail	PHTH			20SG(7659,7661,7667,7669,7670,7676,7677)	7	PMOC					Closed TBD PMOC comments reflected on 12/17/09-TBD matrix			1/27/2010			CLOSED
RC-0548	1/27/10	E-mail	PHTH			20SG(7526,7529,7530,7680,7690-7693,7696,7697)	10	PA					Plumbing/PP TBD comments						For Record Only
RC-0549	1/15/10	E-mail	PHTH			20SG-7394	1	PA					Electrical TBD comments	Schuller		1/21/2010			CLOSED
RC-0550	1/29/10	E-mail	PHTH	Progress	1/18/10	20SG(8242-8250)	9	DSP					Comments on Bermuda Triangle	Mauriz, Koumyan, Patel		2/23/2010	Draft Responses issued on 2/9/10 Final responses issued on 2/23/10		CLOSED
RC-0551.1	2/5/10	E-mail	PHTH			20SG(7805-7810,7812,7815)	9	PA	Yakubov				Closed comments			2/5/2010			CLOSED
RC-0551.2	2/5/10	E-mail	PHTH			20SG(7811,7813,7814,7815)	3	PA	Yakubov				Follow-up geotech comments	Gregger		2/11/2010			CLOSED
RC-0551.3	2/5/10	E-mail	PHTH			20SG-8251	1	PA	Yakubov				New geotech comment	Gregger		2/11/2010			CLOSED
RC-0552.1	2/22/10	E-mail	PHTH			20SG(7156,7157,7223,7284,7316,7317,7318,7319,7323,7328,7352,7669)	12	PA	Levine				Open TBD Electrical comments			4/28/2010	Some responses issued on 3/19 & 4/13/10		CLOSED
RC-0552.2	2/23/10	E-mail	PHTH			20SG(7224,7248,7331-7336,7338,7339)	10	PA	Levine				Closed TBD Electrical comments			2/23/2010	Closed by PA		CLOSED
RC-0553	3/3/10	E-mail	PHTH	20 Octopus				PA	Levine				Spec Comments 16829						CLOSED
RC-0554	3/9/10	E-mail	PHTH			20SG(8271-8276)	6	PA OAD	Bhol				Arch, Pblg and PP comments	Patel/Hand		4/5/2010			OPEN
RC-0555	3/12/10	E-mail	PHTH	20 Octopus				PA	Levine				Spec comments 16640			4/5/2010			CLOSED
RC-0556	3/16/10	E-mail	PHTH			20SG(7316-7319,7323,7328,7331-7336,7338,7339)	14	PA	Levine				Closed Elec comments			3/16/2010	Closed as per PA's e-mail dated 3/15/10		CLOSED
RC-0557	3/24/10	E-mail	PHTH	Addendum 2 Progress		18B(0844-0854)	11	PA					PA Mech comments			4/16/2010			CLOSED
RC-0558.1	3/30/10	E-mail	PHTH			20SG(8188,8192-8194,8196-8201)	10	PA	Kwolek				Follow-up comments			4/28/2010			CLOSED
RC-0558.2	3/30/10	E-mail	PHTH	Add 15	3/7/10	20SG(8277)	1	PA	Kwolek				New Mech comment			4/28/2010			CLOSED

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File No.	Date Received	Document Control No.	Package Description			Review Comments					Responses						Current Status			
			No.	Substation	Date	Master No.	Number of Comments	Entity	Name	Date	Remarks	Date From	Date Distributed	Date Due	Completed by	Submitted to PA		Remarks		
RC-0558.3	3/30/10	E-mail	PHTH			20SG(0185-0187-0189-0181-0185-0202)	8	PA	Kwolek			Closed Mech comments					3/30/2010	Closed by PA	CLOSED	
RC-0559	4/1/10	E-mail	20 Oculus	30% Progress (100% PE)	3/3/10	20 OCUI(0628-0645)	18	PA	Bonka Kriegl	3/31/10		Landscape comments				Lem	6/16/2010		CLOSED	
RC-0560.1	4/1/10	E-mail	PHTH	Signage Presentation		20SG(0236-0238)	3	PA				Updated signage comments				Patel	5/5/2010		CLOSED	
RC-0560.2	4/1/10	E-mail	PHTH	Signage Presentation		20SG(0227-0229-0235-0278)	9	PA				Signage follow-up comments				Patel	5/5/2010		CLOSED	
RC-0560.3	4/1/10	E-mail	PHTH	Signage Presentation		20SG(0294-0278)	2	PA				Closed comments					4/1/2010	Closed by PA	CLOSED	
RC-0561.1	4/9/10	E-mail	PHTH			20SG(7805-7813,7812,7814-7815)	9	PA				Closed comments by PA- Geotech memo dated 2/5/10					2/9/2010		DUPLICATE	
RC-0561.2	4/9/10	E-mail	PHTH			20SG(7811,7813,7814)	3	PA				Closed comments by PA- Geotech as per Add 14					4/9/2010	Closed by PA	CLOSED	
RC-0562	4/9/10	E-mail	PHTH			20SG-0251	1	PA				PA-Geotech follow-up				Clegger	4/27/2010		CLOSED	
RC-0563.1	4/14/10	E-mail	Oculus			20 OCUI(0042-0050,0052-0-055-0057,0058-0060,0062,0065-0071,0078,0081,0083-0144-0150-0167,0178-0186)	22	PMOC				Follow-up comments							OPEN	
RC-0563.2	4/14/10	E-mail	PHTH			20SG-7822	1	PMOC				Follow-up Elec comment						5/17/2010	Closed by PMOC See RC-0579.2	CLOSED
RC-0563.3	4/14/10	E-mail	Oculus			20 OCUI(0046-0084)	29	PMOC				New comments							OPEN	
RC-0563.4	4/14/10	E-mail	Oculus			20 OCUI(0042-0043-0045,0-048,0050-0052-0055,0057,0058,0060,0062,0065-0071,0078-0081,0083-0144-0148-0150,0151,0153-0154-0155-0167,0169-0178,01-86-0193-0195,0196-0200-0202-0206-0215)	48	PMOC					Follow-up comments							For Record Only
RC-0564	4/14/10	E-mail	PHTH					PMOC				Repeated comments							DUPLICATE	
RC-0563	4/15/10	E-mail	Oculus					PA	Levine			Spec comments 16929	McDonald/Keyl			McDonald/Keyl	5/10/2010		CLOSED	
RC-0566	4/16/10	E-mail	Oculus					PA	Levine			Spec comments 18640	McDonald/Keyl			McDonald/Keyl	5/10/2010		CLOSED	
RC-0567.1	4/26/10	E-mail	PHTH			20SG(0253-0255-0257-0267-0269-0270)	16	PA	Kwolek			Agreed comments by PA- Mechanical							Agreed by PA	CLOSED
RC-0567.2	4/26/10	E-mail	PHTH			20SG(0256-0266)	2	PA	Kwolek			Spec follow-up comments 15950	Gilboa						OPEN	
RC-0567.3	4/26/10	E-mail	PHTH	C Draft	4/1/10	20SG(0278-0283)	6	PA	Kwolek			New Spec comments 13950	Gilboa						OPEN	
RC-0568	4/28/10	E-mail	20 Oculus	Signed & Sealed	4/1/10		6	PA	Kriegl			Architectural drawing comments				Lem			OPEN	
RC-0569	4/28/10	E-mail	20 Oculus	C Draft	2/8/10		8	GMSC	Smith			Spec comments 08900	Kasakyaru/Lem						OPEN	
RC-0570	4/28/10	E-mail	20 Oculus	C Draft	2/8/10		13	GMSC	Smith			Spec comments 08440	Kasakyaru/Lem						OPEN	



Final Design Wrap Up Analysis (DDP)
DRAFT - (Revised 7/27/10)

Group 1 Activity #	WBS Code	INOC # DCC #	Task Description	Payment Budget (As of 10/31/09)	DDP Proposed Payment Schedule							Anticipated Totals	Responsible DDP/PA PMs			
					Nov. '09	Dec. '09	Jan. '10	Feb. '10	Mar. '10	Apr. '10	May '10			Jun. '10	Jul. '10	
1000	Varies		Final Design (Labor + ODCs)	\$3,072,286	\$921,686	\$921,686		\$921,686	\$307,229						\$3,072,286	S. M./M. Garz/J. Parne S. L./S. L./T. G./E. D.
2000	6127	265	PA Specialty Review of Security Deliverables	\$47,953	\$14,386	\$14,386	\$14,386	\$4,795							\$47,953	
2010	6053	178	Platform Level HVAC, Plumbing & Fire Protection	\$48,310		\$43,479	\$4,831								\$48,310	V. Brodsky E. Dejak
2020	6172	299	PA Specialty-Russell Corrosion	\$24,886	\$11,199	\$11,199	\$2,489								\$24,886	
2030	6303	372	Lateral Loads - West Side	\$152,700				\$137,430	\$15,270						\$152,700	P. Mauritz S. Leone
2040	6224	413	WP 11-Fan Plant Equipment Purchase (PB)	\$38,803					\$34,923	\$3,880					\$38,803	
2050	6292	455	WP 18.B Alternative 78" Sewer Protection Measure	\$197,709						\$177,938	\$19,771				\$197,709	Full Payment Budget Authorized
2060	6306	497	Add PB Review on PATH PA-5 Heat Release	\$24,145		\$10,865	\$10,865	\$2,415							\$24,145	
2070	6328	507	CFD Modeling Permanent PATH Station & Related Areas	\$49,552		\$44,597	\$4,955								\$49,552	Full Payment Budget Authorized
2080	6284	467	N. Fan Plant & Relocation of S. Fan Plant (HUB)	\$77,963			\$70,167	\$7,796							\$77,963	R. Lem/V. Brodsky E. Dejak
2090	6272	375	Design of the First Responder & O&M Radio System	\$105,511					\$94,960	\$10,551					\$105,511	M. Littler D. McShane
2100	6227	376	Exp Hub Sec. Monitoring & Access Control /Retail	\$7,769		\$6,992	\$777								\$7,769	Full Payment Budget Authorized
2110	TBD	387	Hub Impacts due to R/W Cortlandt. Station's SE Entrance	\$125,685				\$113,117	\$12,569						\$125,685	R. Lem S. Leone/V. Stellato
2120	6075	204	R/W to E Connection and Related Services	\$680,674				\$340,337		\$272,269	\$68,067				\$680,674	R. Lem S. Leone/V. Stellato
2130	ODC's	412	PATH PA-4/PA-5 Car Materials Retesting	\$25,964	\$23,368	\$2,596									\$25,964	Full Payment Budget Authorized
2140	6266	441	Retail Graphics and Signage East & West Bathtubs	\$281,622					\$140,811	\$112,649	\$28,162				\$281,622	K. Patel T. Grassi/S. Lenahan
2150	6257	453	N/S Concourse Retail Design Change. WP 20 Incorporate	\$26,977		\$24,279	\$2,698								\$26,977	Full Payment Budget Authorized
2160	6277	470	MTA 1 Line Cortlandt St. Station Prep	\$160,568			\$144,511	\$16,057							\$160,568	Full Payment Budget Authorized
2170	6239	446	WP 20 - Design SE Corner of W Bathtub (Bermuda)	\$526,370			\$473,733	\$52,637							\$526,370	Full Payment Budget Authorized
2180	6286	475	NYCT N. Fan Plant and Relocation. of NYCT S. Fan Plan	\$105,399			\$94,859	\$10,540							\$105,399	Full Payment Budget Authorized
2190	6313	500	Additional MEP Coordination w/ T2,3 & 4	\$198,269	\$0	\$59,481	\$59,481	\$79,307							\$198,269	
2200	6310	501	Redesign of WP 9X Alternate Design	\$200,054		\$180,049	\$20,005								\$200,054	Full Payment Budget Authorized
Total Group 1 :				\$6,179,169	\$970,638	\$1,319,609	\$594,220	\$1,370,377	\$932,505	\$298,532	\$577,288	\$116,000	\$0	\$6,179,169		



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

September 28, 2010

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV, Inc.
605 Third Avenue
New York, New York 10158

ATTENTION: Ira Levy, P.E., President, AECOM, Inc.

**Subject: PROFESSIONAL SERVICES CHANGE ORDER #CO-09-006(B) –
DESIGN CONTRACT CHANGE [DCC] #494 – SERVICES DURING
CONSTRUCTION**

Reference: (1) Performance of Expert Architectural and Engineering Services for the Permanent World Trade Center PATH Terminal on a Task Order Basis, PA Agreement #407-07-013; as amended
(2) Port Authority of New York & New Jersey (Authority) Request for Proposal, dated June 10, 2009
(3) Downtown Design Partnership (DDP) Proposal, dated July 24, 2009
(4) DDP Revised Proposal, dated November 3, 2009
(5) Authority Change Order Amendment letter dated November 4, 2009

Dear Mr. Levy:

This letter acknowledges that you performed additional expert professional Architectural and Engineering Support Services During Construction (Stage IV) as set forth in Reference (4), DDP revised Proposal, dated November 3, 2009 and as outlined in the attached Scope of Work as directed by the Authority as additional work items under the referenced agreement for the WTC Transportation Hub. This is a partial Notice to Proceed as noted below pending full authorization of the Stage IV Services for the World Trade Center PATH Terminal.

115 Broadway, 7th Floor
New York, NY 10006



**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

Total compensation at this time for the performance of these above mentioned services shall not exceed the amount of **\$21,622,975**. This amount represents a percentage of the DDP-proposed amount of \$78,142,505 for Stage IV. Therefore, the total authorized amount for Stage IV is as follows:

Amount in DDP Proposal dated August 10, 2010:	\$ 78,142,505
CO-09-006(A) authorization:	\$ 17,877,025
CO-09-006(B) authorization:	\$ 21,622,975
DDP Proposal amount less authorized amount:	\$ 38,642,505

Therefore, the previously authorized total amount for the referenced Agreement is increased from **\$228,888,554 to \$250,511,529**.

Authorizations for the remaining balance under the referenced proposal as noted above will be forwarded under a separate Notice to Proceed. The attached Scope of Work shall cover the remaining Stage IV term of January 1, 2010 through December 31, 2014. The quantities shown in the Scope of Work are estimated quantities for the purposes of estimating the Consultant's full compensation for Stage IV services. As discussed and agreed, this change order addresses all anticipated effort required to complete the attached scope of work for Services During Construction within the agreed upon time frame. Compensation shall be based on actual services performed, but shall not exceed the estimated values unless approved by the Authority in writing.

The Downtown Design Partnership Joint Venture multiplier for Stage IV services effective 7/31/2010 is **2.36**.

The Consultant shall employ, to every extent possible, the most cost-effective methods of performing the Scope of Services as defined in the attached. This includes but is not limited to, utilizing appropriate staff as needed (i.e., combining management and technical efforts) and tracking hours of technical staff. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to exceed total amount noted above. The Consultant shall continue to render the additional services to completion after the point when the Consultant's compensation reaches 100% of such amount for each change order.

The above referenced Agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced Agreement.



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
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**WORLD TRADE CENTER
TRANSPORTATION HUB**

Please return two original signed copies of this letter to the attention of Richard Perez, Contract specialist, Procurement Department, 115 Broadway, 19th floor, New York, New York 10006. Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

If you have any questions relating to the performance of the subject services, please do not hesitate to contact me at 212-435-5333.

Sincerely,

Frank Gallo
Program Director
WTC Construction Department

Attachment

Receipt Acknowledged: Downtown Design Partnership

D. Servello, Chairman, CEO

Date: 11-10-10

J. A. Levy, President

Date: 11-10-10

CC: F. Gallo, T. Grassi, L. Foster, S. Lenahan, M. Pagliettini, R. Perez, N. Ranalli, A. Reiss,
S. Plate; WTC Document Control

**FOR EXPERT PROFESSIONAL ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL WITH DOWNTOWN DESIGN PARTNERSHIP (DDP),
A JOINT VENTURE OF DMJM+HARRIS, INC. AND STV, INC.**

**PA AGREEMENT #407-03-013
Purchase Order #4900000675
SCOPE OF WORK DESCRIPTION**

**Change Order (CO) # 09-006
Design Contract Change (DCC) 494
Services During Construction**

I. SCOPE OF WORK DESCRIPTION

The services of the Downtown Design Partnership (DDP) shall consist of performing Construction Support Services (Stage IV) for all remaining work of the World Trade Center (WTC) Hub and Non-Hub segments of the overall P.A. Agreement and related documents listed below:

- Work Package No. 20, PATH Hall and Transit Hall Construction – Contract No. 264
- Work Package No. 20, Greenwich Street Corridor Construction – Contract No. 224.545
- Work Package No. 20, Oculus Construction, Contract No. 264
- Work Package No. TBD, Cortlandt Street Station, Contract No. TBD
- Work Package Nos. #3E, #5C, #6C, #6C.1, #10.2, and # 10.3. Contract No. 284.548

DDP shall provide Miscellaneous Stage IV Construction Phase Services limited to the scope of work delineated in the following On-going Work Packages:

- #1H
- #2
- #4B and #4C
- #6B
- #6X
- #9
- #12
- #17
- #17A, 18B and 18B.1
- #20 BCD.1

- #20.20

All applicable documents forming the basis of design and DDP designed contract documents for the Work Packages listed above are included by reference herein.

Work also includes Project Management services during Stage IV and associated Other Direct Costs (ODCs) from July 1, 2009 through December 31, 2014.

DDP's services and associated designs shall comply with all Federal, State and Local codes that would apply if the Authority were a private corporation and with all industry standards, including, but not limited to those identified herein.

DDP shall be responsible for staffing of all involved disciplines, which may be assigned to perform Work under this Change Order.

All submittals shall be returned to the Contractor(s) via the Construction Manager (or other party as directed by the WTCC Director or its designee(s)) within 10 working days of receipt. If requested by the WTCC Director or its designee(s), DDP shall expedite, if possible, certain submittals as may be required from time to time to keep pace with the construction activities as determined by the Project Schedule.

DDP shall serve as Engineer of Record as provided herein.

The DDP's Services During Construction shall include, but not be limited to, the following tasks. In the event that DDP feels that a task is beyond the scope described herein, DDP shall perform, upon authorization by PA, the task within the timeframe needed, and develop the backup as needed in order to justify the additional cost to the contract.

TASK 1: General

Task 1.1 – Submit a Quality Control/Quality Assurance (QA/QC) Program for the professional services to be undertaken in connection with the performance of Post Award Duties specified herein. The QA/QC program shall be submitted within ten (10) days of approval of this work.

Task 1.2 – Maintain clear, dated records of all pertinent documents submitted to DDP, including but not limited to, transmittals, submittals, and associated reviews, Request For Information (RFIs) and responses, Requests for Clarifications (RFCs) and responses, meeting minutes, submittals and their markups, as well as designs, calculations or drawings prepared during the construction phase. These documents shall be made available to the Authority. Upon project completion, or request by the Authority, all these documents shall be listed, filed and submitted to the Authority for their files, electronically per Engineering Department standards, and in hard copy.

Task 1.3 (Allowance) – Coordinate with the WTCC Director or its designee(s) on a continuous basis to respond to any technical issues that may arise during the bidding phase or construction. At the discretion of the Authority, the DDP and WTCC designee(s) shall co-reside with WTCC person and be capable to review and respond immediately to technical issue that develop.

NOTE: Allowances require prior approval and budget through the DCC process prior to performing any work under this task.

TASK 2: Services During Bidding Phase

Task 2.1 – Attend pre-bid meetings as requested. (Assume 10 meetings are required).

Task 2.2 – Respond to RFCs relating to the bid documents (Assume 1,000 such RFCs are required.)

Task 2.3 – Prepare a “Conformed” set of contract drawings incorporating all Addenda, sketches issued to the contractor as information, etc. that may have been in response to questions specifically raised by Construction Manager and/or Contractor(s). Specific approval from WTCC is required prior to performing any work under this task. Conformed set shall be delivered with 20 business days from such approvals. WTCC Director or its designee(s) may request that DDP shall complete this task earlier than the 20 business days and that more than one “Conformed” set may be required. (Assume 4500 drawings are required).

Task 2.4 – Attend meetings between Contractor(s) and WTCC Director or its designee(s) as requested. Prepare minutes of pre-bid meeting(s) within 3 business days and submit final version within 5 business days of each meeting. (Assume 100 such meetings for this Task).

TASK 3: Services During Construction Phase

Task 3.1 – Attend field meetings as requested by WTCC Director or its designee(s) in coordination with the Resident Engineer. Any response to questions or requests that might arise from such meeting shall be considered part of Task 3.6 below. (Assume 1,352 meetings).

Task 3.2 – Provide full time technical expeditor(s)/field engineer(s) during the construction period to coordinate with the Resident Engineer, and resolve field conflicts in a timely manner and/or expedite responses from the designers to any field questions that may arise. Any response to questions and/or requests that may arise shall be considered as part of Task 3.6 below. The proposed individual shall possess the skills to expedite timely responses in the field and his or her resume shall be submitted for consideration and approval by the WTCC Director or its designee(s) within 5 business days.

Task 3.3 – At the request of the WTCC Director or its designee(s), coordinate with and attend meetings with third parties, other agencies and stakeholders to address any and all conflicting or technical issues that may arise due to discrepancies of the final design documents between the WTCC’s HUB Engineer-of-Record drawings produced by DDP and those of the various stakeholders. The WTCC Director or its designee(s) may direct DDP to review third party drawings and specifications as part of this effort. (Assume 250 such meetings are required and shall include preparation time).

Task 3.4 (Allowance) – Perform Engineering Services related to coordination or construction issues that may develop due to third parties, such as MTA, Memorial, Retail, SPI, Vehicular Security Center (VSC), Streets, Chiller Plant, etc. Specific direction from WTCC Director or its designee(s) will be required prior to performing any such service. Such services would include any required drawings, sketches, technical memorandums, calculations, etc to address the issues identified while performing Task 3.3.

NOTE: Allowances require prior approval and budget through the DCC process prior to performing any work under this task.

Task 3.5 (Allowance) – Prepare supplemental documents for Post Award Contract Changes (PACCs) and provide cost estimates associated with the changes. In general, PACCs shall be

initiated by either the WTCC Director or its designee(s) or the Construction Manager to address field conditions or proposed means and methods. All direction to DDP shall be in writing from the WTCC Director or its designee(s).

NOTE: Allowances require prior approval and budget through the DCC process prior to performing any work under this task.

Task 3.6 – Respond to Construction Manager or Contractor-submitted RFIs. Prepare appropriate sketches, drawings, calculations, etc. to help clarify any such contractor's requests. WTCC will categorize RFIs in groupings including: Design Change, Design Error & Omission, Contractor's Request, WTCC Request, or others groups that may be appropriate. (Assume 5,000 RFIs submittals).

Task 3.7 – Review, comment, and sign-off on all Contractor's submittals, including shop drawings, calculations, product data, catalog cuts, temporary structures/MEP systems submittals, Contractors' erection drawings/procedures/manuals, samples, certificates, test reports, etc. for which the Consultant is the Engineer-of-Record. DDP to indicate any corrections or revisions that may be required on the submittals and advise the Director or its designees the reasons for the actions indicated. The number of copies for each working drawing will be determined between DDP and the WTCC Director or its designee(s). (Assume a total of 15,000 individual drawings/calculations and 8,000 catalog cuts).

Task 3.8 – Review and comment on Contractor (s) prepared operational manuals required for operating and servicing installed equipment, systems, and machinery. Specific approval by the WTCC Director or its designee is required prior to performing work under this task. (Assume 25 manuals will require review).

Task 3.9 – Prepare "Record" drawings upon completion of construction "as built" information that is to be incorporated into the "Record" drawings. Marked-up drawings showing actually installed items will be provided by the WTCC Director's Resident Engineer. This will be performed electronically using the conformed set of documents. Specific approval is required prior to performing any work under this task. (Assume 1,500 contract drawings will need to be modified).

Task 3.10 (Allowance) – At the specific written request of the WTCC Director or its designee(s), DDP shall review Construction Manager or Contractor(s)' proposed design changes and comment upon their impacts from technical, schedule and cost perspectives. This shall include evaluating and, if directed by PA, incorporating alternative construction details and materials, as requested by the WTCC Director or its designees. (Assume 75 such proposed design changes).

NOTE: Allowances require prior approval and budget through the DCC process prior to performing any work under this task.

Task 3.11 (Allowance) – At the request of the Director or its designee(s), review Contractor(s)' claims and/or proposed Change Orders, commenting upon their appropriateness based upon DDP's design intent.

NOTE: Allowances require prior approval and budget through the DCC process prior to performing any work under this task.

Task 3.12 – Deleted From Scope.

Task 3.13 – Attend meetings and supply appropriate information to support the Authority’s Risk Management Group in their development and ongoing maintenance of a Risk Register.

Task 3.14 (Allowance) – Perform unspecified Engineering Services that may be required to support ongoing construction activities. Specific approval from the WTCC Director or its designee(s) is required prior to performing any work under this task.

NOTE: Allowances require prior approval and budget through the DCC process prior to performing any work under this task.

TASK 4: Commissioning Services

Task 4.1 (Allowance) – Assist the WTCC Director or its designee(s) in commissioning, testing, balancing and quality assessment efforts prior to turnover and acceptance of all systems. Specific approval is required prior to performing any work under this task.

NOTE: Allowances require prior approval and budget through the DCC process prior to performing any work under this task.

Task 4.2 (Allowance) – Assist the WTCC Director or its designee in the Sustainable Design Guidelines Commissioning process. Specific approval is required prior to performing any work under this task.

NOTE: Allowances require prior approval and budget through the DCC process prior to performing any work under this task.

TASK 5: Project Management During Stage IV Services

Provide Project Management Services from 7/1/2009 through 12/31/2014. Project Management services are a time phased effort and will cover DDP’s Project Management during this period for the construction efforts. Services during this period shall include, but not be limited to the following:

- Project Management
- Project Controls and Reporting
- Design Management During Construction
- Quality Assurance/Quality Control
- Environmental/External Interface

TASK 6: Other Direct Costs During Phase IV Services (Allowance)

Other Direct Costs (ODC) that the Authority will directly reimburse to DDP for the period between 1/1/2010 through 12/31/2014, include but are not limited to the following:

- Office Maintenance
- Build Out Costs

- Office Telephone Service
- Office Equipment Rentals
- Office Supplies
- Computer Equipment
- Computer Software
- Data Storage
- Reproduction costs associated with printing, including but not limited to drawing, calculations, specifications, estimates, contractor submittals, etc. required in the design, project management for the project and by the WTCC Director or its designee for review and distribution.
- Short-term travel costs for visitors to DDP's or Authority's offices. The intent of short-term travel is for reasonable non-occurring travel expenses associated with bringing specialists to the project. Approval by the WTCC Director or its designee(s) shall be obtained prior to incurring such expense and shall be in accordance with the guidelines for travel and lodging expenses previously provided to the DDP.
- Short-term Room and Board for visitors to DDP's or Authority's offices. The intent of short term Room and Board is for reasonable non-reoccurring travel expenses associated with bringing specialists to the project. Approval by the WTCC Director or its designee(s) shall be obtained prior to incurring such expense and shall be in accordance with the guidelines for travel and lodging expense previously provided to the DDP.
- Mailings, Shipping and Delivery Service
- Miscellaneous costs agreed to in writing by the WTCC Director or its designee(s) that does not fall into the above categories.
- Payments to approved DDP Specialty Consultants for their Services within established budgets.

Each item shall be tracked and billed separately and within the limits negotiated for that specific item.

The DDP shall provide all deliverables (Services During Construction) as outlined below:

- Quality Control/Quality Assurance (QA/QC) Program 10 days from NTP.
- Requests for Information/Requests for Clarification (RFIs/RFCs) and responses, meeting minutes, submittals and their markups shall be submitted within 5 working days, if possible, in the timeframe as requested by the WTCC Director or its designee(s) to keep pace with the construction activities

- Conformed set of contract drawings within 20 days from the WTCC Director or its designee(s)' approval. If requested by the WTCC Director or its designee(s), DDP shall, if possible, expedite the Conformed set of contract drawings as may be required to keep pace with the construction activities as determined by the Project Schedule. Prepare Post Award Contract Changes (PACCs) and provide cost estimates no later than 5 working days from notice to prepare such PACC.
- Comment on Contractor's submittals, including shop drawings, calculations, catalog cuts, temporary structures/MEP systems submittals, Contractor's erection drawings/procedures/manuals, samples, certificates, test reports, etc. shall be submitted no later than 10 days from receipt by the WTCC Director or its designee(s). If requested by WTCC Director or its designee(s), DDP shall expedite, if possible, certain submittals as may be required from time to time to keep pace with the construction activities as determined by the Project Schedule.
- Prepare and submit "as built" drawings no later than 120 days upon completion of construction.
- Comments on Contractor(s)' proposed design changes shall be submitted to the PA no later than 5 working days, if possible, as requested by the WTCC Director or its designee(s)

END STAGE IV SCOPE OF WORK



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

September 3, 2008

Downtown Design Partnership
A Joint Venture of DMJM+HARRIS, Inc. and STV Incorporated
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE
DMJM+HARRIS, Inc. Executive Vice President

**SUBJECT: SUPPLEMENTAL SERVICES TASK ORDER #08-002 - AMENDMENT
LETTER**

Ref 1.: PERFORMANCE OF EXPERT ARCHITECTURAL AND ENGINEERING SERVICES
FOR THE PERMANENT WORLD TRADE CENTER PATH TERMINAL ON A TASK
ORDER BASIS P.A. Agreement No.407-03-013; Supplemental Agreement #1

Ref 2: Letter F. Ross Edwards to R. Perez; dated August 4, 2008; Reference: Negotiated
Technical and Cost Proposal for Port Authority Supplemental Agreement Task Order
#08-002

Dear Mr. Levy:

The Authority hereby accepts your proposal dated August 4, 2008, which is attached hereto and incorporated into the referenced agreement by reference, for performance of the services in the scope of additional services request, which formed the basis for submission of your proposal.

Total compensation for the performance of the abovementioned services shall not exceed the amount of \$21,331,433. For each task, you will receive a formal notice to proceed with the separate submission of an executed Design Contract Change (DCC) form. It is understood that no work will commence or charges made until DDP is in receipt of the executed DCC form.

The Consultant shall employ, to every extent possible, the most cost-effective methods of performing the scope of services noted above. This includes, but is not limited to, utilizing appropriate staff as needed (i.e. combining management and technical efforts) and tracking hours of technical staff. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to-exceed amount noted above. The Consultant shall not

115 Broadway, 7th Floor
New York, NY 10006



**WTC CONSTRUCTION
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continue to render services under this Authorization after the point at which the total amount to be paid to hereunder including reimbursable expenses reaches the not-to-exceed amount unless you are specifically authorized in writing to continue by the Director

The previously authorized total amount for the referenced agreement is increased from \$22,463,067.00 to \$43,794,500.00.

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

Please return two original signed copies of this letter to the attention of Richard Perez, Contract Specialist, Procurement Department, 115 Broadway, 19th floor, New York, N. Y. 10006. Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

Please contact me at 212-435-5655 if you have any questions.

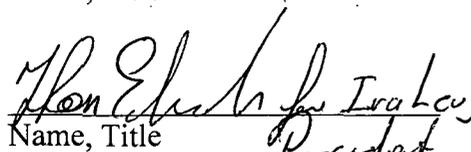
Sincerely,

Shawn T. Lenahan
Senior Program Manager
WTC Construction Department

Att.

Accepted: Firm Name: Downtown Design Partnership

 9/4/08
Name, Title Date

 9/4/08
Name, Title *President* Date

Cc: S. Lenahan, N. Lombardi, K. Matthews, M. Pagliettini, R. Perez, N. Ranalli, Document Control



**DOWNTOWN
DESIGN PARTNERSHIP**

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August 4, 2008

Ref #: DDP-PA-1748-08

The Port Authority of New York and New Jersey
115 Broadway, 19th Floor
New York, New York 10006

Attention: **Mr. Richard Perez**

Subject: **P.A. Agreement No. 407-03-013
Performance of Expert Professional
Architectural and Engineering Services for the
World Trade Center Transportation Hub**

Reference: **Negotiated Technical and Cost Proposal for Port Authority
Supplemental Agreement Task Order TO# 08-002**

Dear Mr. Perez,

In response to the Port Authority of New York & New Jersey's request for proposal, dated February 22, 2008, to provide additional architectural and engineering services, attached please find Downtown Design Partnership's negotiated technical and cost proposal for Port Authority TO# 08-002. The total proposed amount for TO#08-002 is \$21,331,433.

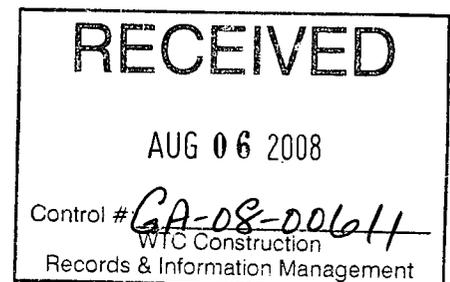
The attached supersedes DDP's technical and cost proposals for CO-08-002, originally submitted to Port Authority on March 11, 2008, April 17, 2008 and May 30, 2008 (Task 45 – Alternative Analysis for the Merrill Lynch Proposal only).

You are advised that the technical and cost proposal for Retroactive Professional Services Task Order 08-001, last submitted on April 17, 2008, remains unchanged. The total proposed amount for TO-#08-001 remains \$11,486,885.

Should you have any questions regarding the attached, please do not hesitate to call.

Sincerely,
Downtown Design Partnership


F. Ross Edwards, P.E.
Project Director



Attachments: (1) Unbound Reproducible Original

Cc:

w/ attachments	S. McIntyre	M. Garz	J. Charalambous	J. Son	File
w/o attachments	D. Servedio	I. Levy	A. Basta	K. Auletta	

**FOR EXPERT PROFESSIONAL ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL WITH DOWNTOWN DESIGN PARTNERSHIP (DDP),
A JOINT VENTURE OF DMJM+HARRIS, INC. AND STV, INC**

**PA AGREEMENT #407-03-013
Purchase Order #4900000675
Supplemental Agreement #1**

SCOPE OF WORK DESCRIPTION

**SUPPLEMENTAL AGREEMENT TASK ORDER
(REVISED) Task Order TO# 08-002**

The following is a proposal to provide additional architectural and engineering services as an additional work item. The design of their respective facilities by the various WTC Stakeholders will require supplemental services by DDP to determine relative issues, impacts and concerns and provide technical input to allow the Authority to make an informed decision and provide clear direction. Unless stated otherwise, all scope of work and associated design costs do not include Services During Construction efforts. All Work agreed upon by all parties shall be authorized under the referenced Change Order. This proposal includes Project Management, Project Controls and Other Direct Costs (ODC's), from July 1, 2007 through September 30, 2008. The scope of services for Supplemental Task Order No. TO# 08-002 includes the following Tasks:

Task 1. – Coordination Efforts:

Provide technical input and advice at meetings as an agent to the Authority. Meetings shall be attended as directed by the Authority. For purposes of this proposal, thirty five hundred (3,500) person hours were allocated for this effort.

The proposed budget is an allowance. Charges shall be incurred up to the proposed budget for this task, as directed by the PA. Work for this task shall be performed only when and as directed by the PA Project Manager or his designee, in writing.

Deliverable: Meeting minutes

Task 2. – Design of the First Responder and O&M Radio Systems:

Perform the final design, construction documents and technical specifications for the following tasks:

Task A. Master Head End Radio Communication Systems Design – The design shall include primary and backup for mechanical, electrical, plumbing and the necessary ancillary support for the Master Head End radio systems and its occupied spaces. DDP

shall meet and coordinate with NYSTEC to obtain the necessary clarifications on the overall system architecture of the Master Head ends and stakeholders' amplifier rooms.

Deliverable: Documentation package of Master Head End Radio System.

Task B. Port Authority Transport Network (PATnet) Design – This design shall include coordination meetings and system components design as necessary to communicate with WTC stakeholders and first responders/public agencies including all associated fiber optic design optimization and provision of all system details

Deliverable: Documentation package for fiber optical interfacing equipment, which is to be procured by stakeholder.

Task C. Radio System Controls – The design shall propose system control schematics, to be reviewed and approved by all involved parties which supports primary vs. auxiliary/redundant, backup, fail over and recovery, and establishes radio system control consoles for site-wide OCC, WTC Police Command, Police Desk, Hub-OC and stakeholders' SCC.

Deliverable: System Control schematics.

Task D: WTC Stakeholders' Amplifier Rooms – Design Guidelines and Requirements – The design shall provide system performance parameters and criteria by stakeholders, e.g., signal loss, delay and noise requirements; system interfaces and interconnection, as required in the PATnet design; external antenna requirements as well as test and acceptance methodology for exchange of signals at demarcation points.

Deliverable: Design Guidelines and Requirements memorandum

Task E: Expansion of Hub Radio Coverage – To integrate the Master Head End radio systems, this Design may require expansion and modification to the existing WTC Hub radio design. The existing Hub O&M radio design will be modified as required in the referenced Master Manager O&M Radio System by DDP. Required antenna locations will be identified to meet coverage requirements. Radio Head-end design will be modified to accommodate coverage of areas outside of the Hub. Current Hub radio fiber-optic infrastructure will be assessed to determine spare capacity available for use by the Master Head End radio systems.

Deliverable: Design documents of Hub radio modifications.

Task 3. – Expansion of Hub Security Monitoring and Access Control Systems to include Retail space:

Retail has requested that the Hub expand its CCTV and Access Control systems to include all Retail back of house and operation areas (i.e. staff facilities, Operation Control Center, etc). This does not include Retail tenant space. This work involves expanding the

Hub CCTV distribution system and access control systems to Retail areas below grade. Work shall include all cable and conduit designs and may involve expansion of Hub CCTV systems at the head end location.

Deliverable: Design of contract documents to expand the Hub security monitoring and access control.

Task 4. – Expansion of Hub Security Monitoring and Access Control Systems to the Vehicle Security Center (VSC) and Central Chiller and Refrigeration Plant (CCRP):

As the Master Manager is responsible for these spaces, there may be long-term operational benefits to expanding the Hub CCTV and Access Control systems to operate the VSC and CCRP. This work shall involve an expansion of both the primary and secondary CCTV and Access Control system head ends.

Deliverable: Design of contract documents to expand the Hub security monitoring and access control.

Task 5. – RWDI Wind Engineering Services for West Vent Structure, WTC Memorial and Museum:

Perform wind-engineering services for the West Vent Structure, World Trade Center Memorial and Museum. Investigate the potential re-entrainment of exhausts from various sources located on the West Vent Structure into the Emergency Exhaust/Intake for the PATH and to assess the potential for re-entrainment of exhausts from the PATH system into intakes located on the West Vent Structure. Perform the following Tasks:

Task A: Site Visit and Initial Data Collection

- 1) Compile mechanical design information for the exhausts and intakes for the West Vent Structure and the Port Authority system, including any available design drawings and specifications.
- 2) Provide initial feedback on any identifiable design issues relating to exhaust re-entrainment to the Port Authority, along with potential solutions.
- 3) Assess number of exhaust sources appropriate for modeling in consultation with the Port Authority.

Task B: Complete Exhaust Re-Entrainment Study

1) Define Exhausts and Receptors Test Plan

Develop a plan to model a minimum of 4 exhaust sources, 5 wind speeds and 12 wind directions per source. Determine and document the design criteria applicable for the study. The test plan shall be submitted to the Port Authority for concurrence prior to proceeding with the modeling efforts.

2) Complete Wind Tunnel Test

- Prepare a model to simulate the conditions agreed in the Exhaust and Receptor Test Plan developed under Task 2a.
- Perform re-entrainment tests, including any remedial tests for exhausts that were found to produce unacceptable air quality impacts in the initial scenarios.

Deliverables: Submit initial test report documenting the results of the study; submit draft final report documenting the tests undertaken; incorporate comments and submit final Exhaust Re-Entrainment Report.

Task 6. – Revise Sprinkler and Fire Stand Pipe Loops Design to meet NYCBC 2008 Code: Per PA request, removed from this proposal and included in DDP's proposal for Change Order CO# 08-002 – Task 16.

Task 7. – Expansion of the Hub Fire Alarm System to Retail Spaces:

Under the Preliminary Engineering design and as defined in the Basis of Design Report, the Hub Fire Alarm system would provide a Tenant Interface Box (TIB) to collect basic alarms from each Retail Tenant space. This was the planned architecture in the original WTC Towers. The Retail Tenant would be responsible for the design and maintenance of their own Fire alarm system as it would be separate from the Hub system. Under this design, the Hub Fire Command Station would be notified that an alarm has occurred within the Tenant space but have no visibility of end devices within the Retail Tenant space. This approach would also isolate the Tenant fire alarm from the Hub system to lessen the impact of turnover and renovations in terms of Fire Alarm system maintenance.

World Trade Center Redevelopment, in consultation with Retail and the new Retail Master Manager, is requesting the elimination of the TIB and the extension of the Hub Fire Alarm system so that it has visibility of all tenant devices, which will now be considered part of the Hub Fire Alarm System.

This change requires DDP to revise the current design by eliminating all TIBs on drawings, adding data gathering panels (DGP) as required due to the increase in end devices on the Hub system and updating the Fire Alarm specifications to reflect the new architecture.

Deliverable: Design of contract documents for Hub fire alarm system to retail spaces.

Task 8. – Transfer Structure Re-design:

DDP designed a structure (transfer girders) to transfer loads from the column locations at plaza grade as indicated in the 50% design development submission by Snohetta, the Designer of Record for the Museum Pavilion for the National Memorial (NS11MM). The columns are within the footprint of the Museum Pavilion at approximately EL. 313'0". The transfer girders shall align with the Transit Hub columns to the tracks

below. This shall include Snohetta's redesign and reconfiguration of the Museum Pavilion's "core" and spaces from the plaza level up in the Pavilion so that they will be parallel to the Transit Hub structural framing in the north/south direction.

Deliverable: Design of contract documents for transfer structure.

Task 9. – Memorial Retail Restaurant Design Reimbursement:

A policy review memorandum of justification (PRMJ) will authorize the Executive Director, as delegated to the Director of WTC Construction, to enter into an agreement with the National September 11 Memorial and Museum at the World Trade Center (National Memorial) for design services related to the Retail LCC Proposal, which provides space for a restaurant at level 285 above the PATH Mezzanine level. DDP shall review this Proposal for the Authority.

Deliverable: Technical memorandum on proposed review.

Task 10. – West Bathtub PATH Approaches and Tunnel Lighting and Ventilation for the Memorial/Freedom Tower (INOC 319):

Scope of work to include relocation and/or modification of existing drainage systems to accommodate new footings and caissons for overbuild structures. Proposed areas for overbuild structures are between south end of platforms to South Projection, and between north end of platforms to North Projection.

The required work shall include the following:

Design sprinkler, standpipe fire protection, signal, traction power, security, sanitary, water, ventilation, lighting, communication (including radio antenna, FM-200), blue light (including spot lights on turnouts), smoke exhaust ductwork (based on a CFD study), heat tracing systems. Locate emergency exits and lighting, engineers' telephones, switches. Relocation and/or modification of existing fire standpipes, compressed air, plumbing/fire protection equipment and piping. Prepare and provide clearance diagrams identifying "no clearance zones", riser diagrams for waste, water, vent, sprinkler and fire standpipe systems. Update schedule drawings for drains, plumbing fixtures, sprinkler, standpipe systems. Specify/Modify equipment sizes, sequence of operation and control wiring diagrams.

Work to be in conformance with NFPA 130 requirements. Ancillary areas to be separated from trackways with 2 hour rated construction. Wiring to be in conformance with NEC as well as the NFPA 130. Interface with PATH/HOBAN will be addressed and coordinated with Fire Alarm System in the North and South Projection rooms. Existing North and South Approaches will be reviewed for verification of interferences with the PAC shear walls.

Cost estimating and modification of specifications to be included.

Deliverable: Design of contract documents for Memorial/Freedom Tower.
Coordination as detailed above.

Task 11. – Re-coordination with Memorial and Memorial Museum WP #5C:
As directed, HUB design team was requested to re-coordinate with Memorial and Memorial Museum on the location and placement of beam pockets and embedded plates, because of the redesign of their designs. Re-coordination shall also require redesign of wall elevations at locations adjacent to Memorial and Memorial Museum spaces.

Deliverable: Design of wall elevation contract documents.

Task 12. – WP #6C.1 and 10.2 Bulletin# 2 – Revision of Package 6C.1 and 10.2 Bulletin #2 (INOC 339):

The evaluation of design became necessary because of the difficulties welding and enforcing the existing columns and beams. Also the option of dropping columns into the substation became available when the HUB's EDS Room was relocated outside the substation. These work packages are completed and will be re-evaluated/redesigned.

Deliverable: Design of WP 6C.1 and 10.2 Bulletin 2

Task 13. – NYCT 1 Line North of the WTC Hub Underpass/ Impacts to the Hub Project due to 1 Cortlandt Station Project (INOC 346):

Per negotiations, cost and scope for Task 13 related to design revisions to Package 9.X have been transferred from CO-08-002 to CO-08-006 – Continued Package 9.X.

Discussions have been on going with the MTA relative to the coordination of the Cortlandt Program (i.e., fan plant) with other stakeholders and MTA's interest in widening its platform and modifying its entrances. DDP prepared design plans for Package 9X with a placeholder allocation of space to be able to address the MTA needs when it was clear what the direction from MTA would be. This impacts stairs, infrastructure, displacement of adjacent systems, and related ancillary design features.

DDP has been requested by the Authority to continue to participate in on going coordination at the project level to address and resolve details. In several cases, there was a need to identify options to address potential impacts if one or more schemes were presented.

Upon resolution of the configuration, DDP is to be directed to complete the design to address structures, architecture, mechanical, electrical, life safety systems and related engineering design efforts to complete the design in this area. This will require updates and revisions to the Package 9X contract documents.

Modifications on the east side of the Hub Project have necessitated redesign of sub grade and above grade components to address updates to the MTA design efforts on the #1 Line, including vertical circulation, programming adjustments, e.g., access/egress paths and a reconfigured platform. Adjustments were required to previously designed areas, e.g. MEP, structural and architectural disciplines. DDP also revised its plan after revisiting criteria for WTC Security.

Deliverable: Design of contract documents for NYCT 1 Line, per MTA direction, as directed by the Port Authority. Incorporate all revisions into Hub contract documents.

Task 14. – Temporary Bracing – Package 4C:

The temporary underpinning pile bracing design assumed top of slab on grade at elevation 242 and top of excavation at elevation 240. Subsequently, top of slab on grade was required to be lowered to accommodate Hub Mechanical Room, utility tunnel from East to West Bathtubs and NYCT fan room. The resultant additional excavation will need to require modification of pile bracing design. Approximately eight (8) drawings for WP 4C will need to be revised and two (2) new drawings shall be added as an addendum.

Deliverable: Design of temporary bracing contract documents.

Task 15. – WTC Memorial Tree Pits:

Additional tree pits for the Memorial design required modifications to several infrastructure elements to be adjusted to accommodate them, including utilities, HVAC, site work and landscaping at street level and below grade infrastructure. This effort does not include the revision of structural elements as required to accommodate these additional tree pits.

Iterations and revisions were required to be reviewed, assessed and incorporated at each phase of delivery by others. This required DDP to prepare an assessment report, revise preliminary contract documents for affected disciplines, and revise final contract documents.

Deliverable: Design of contract documents to accommodate additional tree pits.

Task 16. – Greenwich/Fulton Streets Intersection elevation:

Planning coordination previously performed identified feasible schemes if this intersection at street level was at Elevation 314 or Elevation 316. This impacts the entrances to the facilities and the details of the Tower design. Upon resolution of this issue and provision of street profiles and curb elevation drawings by the Port Authority, the Authority will direct DDP to incorporate revisions and adjust the design and detailing of the Hub structure, architecture, mechanical, electrical and life safety systems to accommodate the final elevation at this intersection.

The proposed budget is an allowance. Charges shall be incurred up to the proposed budget for this task, as directed by the PA. Work for this task shall be performed only when and as directed by the PA Project Manager or his designee, in writing.

Deliverable: Re-design of intersection elevation contract documents

Task 17. – Silverstein Properties Sub-grade Car Parking:

DDP designed this area under the Authority's direction to consider the locations of the columns to support the transportation hub oculus. Stakeholders have subsequently requested an open space area to allow for maximum space availability for car parking. This has been determined to be structurally infeasible. The result is a constraint to the number of available sub grade car parking spaces, as per the agreements made during the planning process. There will be some limited adjustments to the proposed DDP design that will address the coordination and interface of sub grade infrastructure elements in this area. This effort will include the design revisions required and directed by the Authority based on the review and assessment.

Deliverable: Coordination of sub-grade parking contract documents with Package 9X and other Hub work in Package 20.

Task 18. – Tower 3 Bottom of Footing:

This item requires efforts to resolve to finalize the integrated plans. Currently, a Placeholder has been held in the DDP design per Port Authority direction. However, this shall require resolution and finalization to adjust the infrastructure interfaces as well as the architectural, mechanical, electrical and life safety systems at this portion of the site.

This effort shall include the design revisions required and directed by the Port Authority based on the review and assessment.

Deliverable: Design of Tower 3 bottom of footing contract documents to coordinate with Tower 3 bottom of footings..

Task 19. – East Bathtub Sub Drainage Systems:

The current design provides a stand-alone sub-drainage system with no integration of the Tower systems. The stakeholders have proposed a sub-drainage system that integrates with the Hub sub-drainage system. Resolution shall be required to coordinate the interface and then adjust the design elements to complete this sub-element.

Deliverable: Design of contract documents for coordination/interface with East Bathtub sub-drainage system.

Task 20. – WTC Streets:

The streets design is in Stage II - Preliminary Engineering with an expected completion of approximately mid-year 2008. Design coordination is required and has been ongoing with the various stakeholders including DDP. As the progresses, additional coordination must take place. It is expected to have a stage II set of design documents available for stakeholder use.

Deliverable: Design of contract documents coordinated with Stage II-Preliminary Engineering for WTC Street design.

Task 21. – WTC Site Security: (Per PA request, removed from this Task Order)

Task 22. – Impacts to the Hub Project due to 1 Cortlandt Station Project: (Scope and Design Estimate Included in Task #13 of this Task Order)

Task 23. – Impacts to the Hub Project due to R/W Cortlandt Station’s Southeast Entrance:

Modifications on the east side of the Hub Project have necessitated redesign of sub-grade and above grade components to address updates to the MTA design efforts on the R/W Line at the southeast entrance, including vertical circulation, programming adjustments, e.g., access/egress paths and a reconfigured platform. Adjustments were required to previously designed areas, e.g., MEP, structural and architectural disciplines. A revisit of criteria for WTC Security resulted in DDP revising its plan.

Deliverable: DDP to incorporate required revisions to the contract documents.

Task 24. – Impacts to the Hub Project due to PAC/Helix Coordination:

PAC/Helix development is still ongoing and the phasing and final design of the PAC/Helix may necessitate future coordination not accommodated to date. This will not include adjustments to the below as well as above grade and will not required DDP to change MEP, structural and architectural designs and contract documents that interface with the Hub.

Deliverable: DDP shall attend coordination meetings through 9/30/08.

Task 25. – Impacts to Hub Project by Memorial/VOEC Design Changes:

Memorial/VOEC revisions have necessitated adjustments to the below as well as above grade substructure at each stage of development, as updated progress plans have been provided for review. This effort has required DDP to revisit MEP, structural and architectural disciplines and assess the interface with the Hub and revise contract documents. Not included in this task are revisions to contract documents that may result from a change in Spatial Program by Memorial/VOEC (Memorial Pavilion).

Deliverable: DDP to incorporate required coordination into the contract documents.

Task 26. – Impacts to Hub Project by SPI Commercial:

SPI has required several specific changes to address Hub design and operational considerations for Towers #2 and #3. DDP assessed each issue, determined its impact, and developed a plan to accommodate each drawing upon approval of the plan. These changes include the following:

- Tower #2 west lobby @ Elevation 295'3"
- Tower #2 east lobby @ Elevation 306'
- Program shifts by SPI
- Tower #3 Fuel Cell Room

Deliverable: DDP to incorporate these changes in the contract documents.

Task 27. – Tower 2 Vertical Circulation Options [VCE] Options:

Based on a commitment made by the Port Authority, a design change is required to incorporate one pair of non-APTA switch escalators, as indicated from the “kit of parts”, i.e., a list of possible vertical circulation elements that can be used to achieve the functional requirements of the vertical circulation, in Tower 2. Indicate the required support space around the escalator reconfiguration (e.g., service corridors, etc.) DDP is to conduct a study and present 3 alternative methods to recapture some of the retail space lost by this reconfiguration.

Deliverable: Report on 3 alternative methods to recapture retail space

Task 28. – Fire Alarm Coordination and Integration with Adjacent Stakeholders

Under the current egress plan, various Stakeholders use a shared path of egress to evacuate below grade program space. These paths of egress have been identified and agreed upon as the Hub’s responsibility. For this reason all affected stakeholders sharing this path of egress need to be notified of all fire alarms in any other impacted stakeholder space so that the necessary evacuation notification can occur. This shall require revision to the current notification strategy and an enhancement to the information exchanges with the adjacent facilities. This change shall provide proper NYFD response to the effected underground parcel. As such further investigation and design is required to resolve Fire Alarm design in shared corridors and stairwells and how Fire Alarm notification occurs between adjacent stakeholders under specific conditions. The latter requires more detailed information exchange than initially envisioned.

Expanding the current limited alarm interfaces will provide a clearer response plan both internally and for external responses.

Deliverable: Revised notification strategy and revised design to address requirements.

Task 29. – Readjustment to the Master Power Distribution System

As the site stakeholders are completing design, their power requirements are changing by demand (KW) and/or the point of delivery. The relocation of WTC Facility program space with high electrical demand per square-foot to the southwest corner of the west bathtub required an electrical feed from the nearest Spot Network SN-PS. This creates a domino effect of moving loads from Spot Networks SN-PS to SN-PN and SN-PN to SN-NW to equally distribute loads among the spot networks and MV feeders. This shall be further complicated by undefined load requirements from the PA Parking and Bus Parking spaces. Re-circuiting and rerouting of power feeders will be required.

Deliverable: Adjusted design revising HUB's power distribution.

Task 30. – Design of Retail program within NE quadrant of West Bathtub – Performing Arts Center (PAC) Footprint

WTC Redevelopment has requested the Hub to design its program spaces within the Performing Arts Center footprint and along the eastern end of the West Street Concourse, from Elevation Level +266' through to Elevation Level +285'. Specifications shall be similar to immediately adjacent Retail Program within Tower 1 footprint, along western end of East/West Concourse. The design shall include integration of required Retail egress units into Hub Emergency Egress to grade, through the PAC footprint.

Deliverable: Design contract documents.

Task 31. – PATH Emergency Exhaust Vent at Plaza Southeast Grade – Memorial Plaza South East:

The National September 11 Memorial and Museum at the WTC has requested that the PATH emergency exhaust vent at Plaza southeast grade at Elevation Level 312' [approximate] be reconfigured to an 8' x100' opening, without changing the framing plan at Elevation Level 307'. This can be accomplished if the September 11 Memorial and Museum provide a workable design for a corresponding change in free opening in grade level grating. The purpose is to enable dimensions of the Vent grating to work with the width of the Plaza pavement banding and groundcover beds.

Deliverable: Revise design contract documents.

Task 32. – GSA & PA Car Parking Facilities – West Bathtub/Tower 1 Quadrants:

DDP is being requested to provide design services for GSA & PA Car Parking Facilities. They are to preparing Final Design documents for the car parking Facilities and related Infrastructure in the West Bathtub & Tower 1 Quadrants, complying with the

requirements of WTC Site Master Plan, WTC Site Commercial Design Guidelines, and all other applicable codes and standards. The project scope includes the design of an access ramp off the West Bathtub Vehicular Access, connecting the helix to the parking facility. This task reflects advancement of Final Design from the Extended Preliminary Engineering Level completed under separate Task Order.

Deliverable: Design documents for Car Parking Facilities in the West Bathtub & Tower 1 Quadrants.

Task 33. – MEP coordination drawings for Freedom Tower, Silverstein and WTCRD:

MEP installation work scope is being transferred from Hub to Freedom Tower, Silverstein and WTCRD contractors. In support of this, DDP is being requested to provide marked up drawings for transferring Hub installation scope of work to Freedom Tower, Silverstein, or WTCRD contractors.

Deliverable: Marked up drawings for transferring Hub installation scope of work to Freedom Tower, Silverstein, or WTCRD contractors.

Task 34. – Package 5.c Freedom Tower Shear Wall Design (INOC 323):

The Freedom Tower shear wall was originally designed by the Tower 1 team, and was later removed from the Tower 1 documents after its foundation was built. DDP is being requested to add the design of shear wall between Tower 1 grid line H to grid line G up to level 266 to Package 5.c. to their scope.

Deliverable: Design documents for the shear wall.

Task 35. – Revisions to Package 5.c (INOC 340):

DDP is being requested to update the signed and sealed documents for the north/south shear wall (Package 5.c) and issue an addendum to reflect the reframing of Memorial and Memorial Pavilion structures onto the north/south shear wall. DDP shall also complete revisions to PATH Hall mezzanine roof to support reconfigurations of Memorial trees as requested by the Memorial.

Deliverable: Package 5.c Addendum documents

Task 36. – Feasibility Study of NYTP Room Relocation to Incorporate Retail Family Room Level +296' (Tower 2) (INOC 342):

Retail has expressed the desire to provide improved patron amenities through creation of a "Family Room" suite adjacent to the Retail Toilets. DDP was requested to examine the feasibility of relocating the NYTP Room (UT 400) to allow for the creation of this "Family Room" suite adjacent to the retail toilet rooms.

Deliverable: Feasibility Report

Task 37. – Package 1.k Addendum#1 Four Retail Elevator Cabs in Towers 2, 3 and 4 (INOC 350):

DDP is being requested to address the finalization of SPI cab platform sizes, layouts and details which were completed after the Package 1.k Final Submission on 11/02/2007. DDP is to develop an addendum for Package 1.k to incorporate the final design for four Retail Elevators in Tower 2 (ELEV 23), Tower 3 (ELEV 19 and ELEV 20), and Tower 4 (ELEV 22). Addendum is to include specifications.

Deliverable: Package 1.k Addendum contract documents

~~Task 38. – Study of North Projection Pier (INOC 349):~~

~~Package 18.b was scheduled to construct a 4x4 Pier prior to T1 construction. Early construction by T1 is in conflict with existing Package 18.b contract plans. There is a need to identify a solution for the construction of the North Projection pier according to a schedule that supports both the T1 Plaza schedule and the HUB Package 18.b Schedules. DDP is to evaluate alternatives and various temporary support systems and construction methods to determine a recommended course of action. Per PA request, work removed from this task order.~~

~~**Deliverables:**~~ Schematic sketches, details and comparison matrix as well as DDP recommendation on alternatives.

Task 39. – Fire Load Test – PA-4/5 PATH Car (INOC 347):

Using a proposal received from Hughes Associates for the PA-4/5 Modeling and Analysis, DDP will be directed to develop a proposal for the following:

- Determine the minimum amount of flammable liquid required to cause flashover in a PA-4 car;
- Determine the heat release rate history for a PA-4/5 car that reaches flashover; and
- Using the same amount of flammable liquid, determine the heat release rate history (whether or not it reaches flashover) for a PA-5 car.

Deliverable: Technical memorandum of fire load test review.

Task 40. – Stakeholder Coordination in HUB Design

All stakeholders involved in the project site are not at the same stage of development as the Hub project. To facilitate completion of the Hub design DDP has made several assumptions regarding interfaces with stakeholders outside the Hub project in order to

progress the package to signed and sealed documents. Variances in DDPs assumptions vs. final conditions and designs of the other stakeholders, which are not covered elsewhere in this document, will need to be reconciled and incorporated into the Hub final design. DDP is to proceed with necessary revisions upon concurrence with PA Hub Project Management on direction.

The proposed budget is an allowance. Charges shall be incurred up to the proposed budget for this task, as directed by the PA. Work for this task shall be performed only when and as directed by the PA Project Manager or his designee, in writing.

Deliverables: Contract documents and addenda

Task 41. – Project Management (7/1/07 – 5/31/08):

DDP's Final Design proposal, dated May 2, 2005, identified Management Services for Final Design to end on June 30, 2007. Management services are a time-phased effort. Therefore, an extension in Final Design beyond June 30, 2007 requires additional funds to continue to provide Management Services. Continued Management Services from July 1, 2007 through May 31, 2008. Management Services include the following:

- Project Management
- Project Controls
- Design Management
- Quality Assurance/Quality Control
- Environmental/External Interface

Task 42. – Other Direct Costs (ODC's) (7/1/07 – 5/31/08):

DDP's Final Design proposal, dated May 2, 2005, identified Office Costs paid by the Port Authority for Final Design to end on June 30, 2007. An extension in Final Design beyond June 30, 2007 requires additional funds for Office Costs. Office Costs incurred by the DDP, for occupied space from July 1, 2007 through May 31, 2008. These Office Costs include the following:

- rent plus associated utilities
- office maintenance
- build-out costs
- telecom
- telephone equipment
- equipment rental
- office/computer supplies
- computer equipment
- computer software
- data storage

Task 43. – Project Management (6/1/08 – 9/30/08):

DDP's Final Design proposal, dated May 2, 2005, identified Management Services for Final Design to end on June 30, 2007. Management services are a time-phased effort. Therefore, an extension in Final Design beyond June 30, 2007 requires additional funds to continue to provide Management Services. Continued Management Services from June 1, 2008 through September 30, 2008. Management Services include the following:

- Project Management
- Project Controls
- Design Management
- Quality Assurance/Quality Control
- Environmental/External Interface

Task 44. – Other Direct Costs (ODC's) (6/1/08 – 9/30/08):

DDP's Final Design proposal, dated May 2, 2005, identified Office Costs paid by the Port Authority for Final Design to end on June 30, 2007. An extension in Final Design beyond June 30, 2007 requires additional funds for Office Costs. Office Costs incurred by the DDP, for occupied space from June 1, 2008 through September 30, 2008. These Office Costs include the following:

- rent plus associated utilities
- office maintenance
- build-out costs
- telecom
- telephone equipment
- equipment rental
- office/computer supplies
- computer equipment
- computer software
- data storage

Task 45. – Alternative Analysis for the Merrill Lynch Proposal at 175 Greenwich Street (WTC 3):

Background:

Merrill Lynch (ML) established a programmatic need for trading floor type space on each floor, with a planned occupancy that could begin in January 2013. This would allow for 12,000 ML employees to be housed at WTC Tower 3, consolidating their staff at one building location. The intent is to realize efficient floor plans and improved functionality of the building. This shall include the following approximate space:

- 42,538 SF of executive floor space
- 1,282,624 SF of general office floor space
- 293,100 SF of trading floor space
- 49,100 SF of lobby/mezzanine space
- 164,169 SF of podium amenities
- 45,538 SF of conference client center space
- 65,985 SF of below grade space

- 57,562 SF of MEP space

The purpose of this scope of work is to develop an understanding of what can and cannot be accommodated without significant degradation of the Authority sub-grade requirements for the WTC Transportation Hub. DDP shall analyze impacts to:

- MEP shafts
- MEP fan plant(s)
- Spot net work configurations
- Column Layouts
- Hub service space
- Relocation of Hub mechanical space within WTC Tower 3
- Reconfiguration of mechanical louvers at podium level
- Revised egress requirements
- Revised hardening security requirements
- T3 coordination with MTA Capital Construction (MTACC) on Cortlandt 1 Station
- Impacts to public space circulation

DDP shall review the April 15, 2008 proposal and work weekly with Silverstein Properties (SPI) and ML staff to address issues, as well as WTC Retail Team, and others as needed. Impacts shall be posted as drawing overlays on a weekly basis to share information, as the development of the effort is iterative with the SPI/ML team. This effort impacts all disciplines on the Hub Design Team. It is anticipated that DDP shall meet weekly and continue analysis between May 2008 and September 2008.

Deliverable:

1. Meeting minutes
2. Weekly issues/action report (10 copies black/white)
3. Weekly meeting agenda
4. Weekly drawing posting of impacts and proposed resolution of impacts
- ~~5. Estimate of 50% drawings posted weekly~~
6. Draft report of impacts to the Hub Packaging (including what needs to be revised, number and type of sheets impacts and timeline proposed, cost to implement changes, relative impacts to construction, and related impacts to construction cost (10 copies)
7. Final Report (20 copies)
8. Draft report - anticipate preparation by August 30, 2008
9. Final Report - anticipate preparation by September 30, 2008



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	Hours	\$
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	Hours	\$
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	Hours	\$

1. TASK 1 - Coordination Efforts

-	\$0	-	\$0	1,000	\$202,796	1,000	\$154,102	1,000	\$108,896	500	\$37,209	-	\$0	-	\$0	3,600	\$503,003
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Note: Cost for this task to be treated as an allowance.

Fee 10% (On all Labor, excluding Principals):	\$50,300
Labor Subtotal (Incl. Overhead & Fee):	\$553,303
Other Direct Costs:	\$0
Total Task 1:	\$553,303

2. TASK 2 - Design of First Responder and O&M Radio Systems

-	\$0	-	\$0	88	\$17,846	1,766	\$272,145	200	\$21,779	672	\$50,009	660	\$43,515	72	\$3,890	3,458	\$409,184
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Fee 10% (On all Labor, excluding Principals):	\$40,918
Labor Subtotal (Incl. Overhead & Fee):	\$450,103
Other Direct Costs:	\$0
Total Task 2:	\$450,103

3. TASK 3 - Expansion of Hub Security Monitoring and Access Control Systems to include Retail Space

-	\$0	-	\$0	-	\$0	730	\$112,495	390	\$42,469	-	\$0	437	\$28,812	-	\$0	1,557	\$183,776
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Fee 10% (On all Labor, excluding Principals):	\$18,378
Labor Subtotal (Incl. Overhead & Fee):	\$202,154
Other Direct Costs:	\$0
Total Task 3:	\$202,154

4. TASK 4 - Exp. of Hub Security Monitoring and Access Control Sys. to the Vehicle Security Center (VSC) and Central Chiller and Refrig. Plant (CCRP)

-	\$0	-	\$0	-	\$0	1,600	\$246,564	885	\$96,373	-	\$0	953	\$62,834	-	\$0	3,438	\$405,770
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Fee 10% (On all Labor, excluding Principals):	\$40,577
Labor Subtotal (Incl. Overhead & Fee):	\$446,347
Other Direct Costs:	\$0
Total Task 4:	\$446,347



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

5. TASK 5 - RWDI Wind Engineering Services for West Vent Structure, WTC Memorial and Museum	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
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Note: PA Specialty Subconsultant Services - Design Estimate based on RWDI Proposal, dated 8/23/07.

Fee 10% (On all Labor, excluding Principals):	\$0
Labor Subtotal (Incl. Overhead & Fee):	\$0
Other Direct Costs:	\$62,500
Total Task 5:	\$52,500

6. TASK 6 - Revise Sprinkler and Fire Stand Pipe Loops Design to meet NYCBC 2008 Code	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
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Note: Per PA request, Task 6 - Revise Sprinkler and Fire Stand Pipe Loops Design to Meet NYCBC 2008 Code included in CO#08-002 - Task 16.

Fee 10% (On all Labor, excluding Principals):	\$0
Labor Subtotal (Incl. Overhead & Fee):	\$0
Other Direct Costs:	\$0
Total Task 6:	\$0

7. TASK 7 - Expansion of the Hub Fire Alarm System to Retail Spaces	-	\$0	-	\$0	200	\$40,559	190	\$29,279	150	\$16,334	240	\$17,860	200	\$13,186	20	\$1,081	1,000	\$118,300
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Fee 10% (On all Labor, excluding Principals):	\$11,830
Labor Subtotal (Incl. Overhead & Fee):	\$130,130
Other Direct Costs:	\$0
Total Task 7:	\$130,130

8. TASK 8 - Transfer Structure Re-design	-	\$0	-	\$0	820	\$166,292	840	\$129,446	930	\$101,273	840	\$62,511	860	\$56,702	176	\$9,510	4,466	\$525,734
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Fee 10% (On all Labor, excluding Principals):	\$52,573
Labor Subtotal (Incl. Overhead & Fee):	\$578,307
Other Direct Costs:	\$0
Total Task 8:	\$578,307



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical/Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

9. TASK 9 - Memorial Retail Restaurant Design Reimbursement	-	\$0	-	\$0	150	\$30,419	100	\$15,410	-	\$0	-	\$0	-	\$0	-	\$0	250	\$45,830
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Fee 10% (On all Labor, excluding Principals): **\$4,583**
 Labor Subtotal (Incl. Overhead & Fee): **\$50,413**
 Other Direct Costs: **\$0**
Total Task 9: \$50,413

10. TASK 10 - Tunnel Lighting and Ventilation for the Memorial/Freedom Tower	-	\$0	-	\$0	297	\$60,230	245	\$37,755	820	\$89,294	120	\$8,930	1,015	\$66,921	70	\$3,782	2,567	\$266,914
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Fee 10% (On all Labor, excluding Principals): **\$26,691**
 Labor Subtotal (Incl. Overhead & Fee): **\$293,605**
 Other Direct Costs: **\$0**
Total Task 10: \$293,605

11. TASK 11 - Re-coordination with Memorial and Memorial Museum WP #5C	-	\$0	-	\$0	144	\$29,203	268	\$41,299	204	\$22,215	96	\$7,144	200	\$13,186	-	\$0	912	\$113,047
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Fee 10% (On all Labor, excluding Principals): **\$11,305**
 Labor Subtotal (Incl. Overhead & Fee): **\$124,352**
 Other Direct Costs: **\$0**
Total Task 11: \$124,352

12. TASK 12 - WP #6C.1 and 10.2 Bulletin# 2 - Revision of Package 6C.1 and 10.2 Bulletin #2	-	\$0	-	\$0	810	\$164,265	900	\$138,692	1,140	\$124,141	1,530	\$113,859	1,530	\$100,877	736	\$39,769	6,646	\$681,602
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Fee 10% (On all Labor, excluding Principals): **\$68,160**
 Labor Subtotal (Incl. Overhead & Fee): **\$749,762**
 Other Direct Costs: **\$0**
Total Task 12: \$749,762



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	GRAND TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	Hours	\$
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

13. TASK 13 - NYCT 1 Line North of the WTC Hub Underpass	-	\$0	-	\$0	160	\$32,447	355	\$54,706	330	\$35,936	70	\$5,209	350	\$23,076	86	\$4,647	1,351	\$156,022
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Note: Per negotiations, Grand Total for Task 13 has been revised to include \$200,000 transferred to CO-08-006 - Continued Package 9.X.

Fee 10% (On all Labor, excluding Principals):	\$16,602
Labor Subtotal (Incl. Overhead & Fee):	\$171,624
Other Direct Costs:	\$0
(REVISED) Total Task 13:	\$171,624

14. TASK 14 - Temporary Bracing – Package 4C	-	\$0	-	\$0	100	\$20,280	220	\$33,903	-	\$0	220	\$16,372	240	\$15,824	-	\$0	780	\$86,378
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Fee 10% (On all Labor, excluding Principals):	\$8,638
Labor Subtotal (Incl. Overhead & Fee):	\$95,016
Other Direct Costs:	\$0
Total Task 14:	\$95,016

15. TASK 15 - WTC Memorial Tree Pits	-	\$0	-	\$0	80	\$16,224	80	\$12,328	90	\$9,801	10	\$744	160	\$10,549	-	\$0	420	\$49,646
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Fee 10% (On all Labor, excluding Principals):	\$4,965
Labor Subtotal (Incl. Overhead & Fee):	\$54,610
Other Direct Costs:	\$20,000
Total Task 15:	\$74,610

16. TASK 16 - Greenwich/Fulton Streets Intersection elevation	-	\$0	-	\$0	1,300	\$263,634	2,000	\$308,205	1,800	\$196,012	2,650	\$197,207	1,750	\$115,382	500	\$27,017	10,000	\$1,107,457
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Note: Cost for this task to be treated as an allowance.

Fee 10% (On all Labor, excluding Principals):	\$110,746
Labor Subtotal (Incl. Overhead & Fee):	\$1,218,202
Other Direct Costs:	\$0
Total Task 16:	\$1,218,202



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$26.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	Hours	\$
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

17. TASK 17 - Silverstein Properties Sub-grade Car Parking	-	\$0	-	\$0	58	\$11,762	108	\$16,643	168	\$18,294	-	\$0	120	\$7,912	40	\$2,161	494	\$56,773
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Fee 10% (On all Labor, excluding Principals): **\$5,677**
 Labor Subtotal (Incl. Overhead & Fee): **\$62,450**
 Other Direct Costs: **\$0**
Total Task 17: \$62,450

18. TASK 18 - Tower 3 Bottom of Footing	-	\$0	-	\$0	68	\$13,790	172	\$26,506	84	\$9,147	-	\$0	216	\$14,241	54	\$2,918	594	\$66,602
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Fee 10% (On all Labor, excluding Principals): **\$6,660**
 Labor Subtotal (Incl. Overhead & Fee): **\$73,262**
 Other Direct Costs: **\$0**
Total Task 18: \$73,262

19. TASK 19 - East Bathtub Sub Drainage Systems	-	\$0	-	\$0	48	\$9,734	108	\$16,643	104	\$11,325	20	\$1,488	124	\$8,176	32	\$1,729	436	\$49,095
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Fee 10% (On all Labor, excluding Principals): **\$4,910**
 Labor Subtotal (Incl. Overhead & Fee): **\$54,005**
 Other Direct Costs: **\$0**
Total Task 19: \$54,005

20. TASK 20 - WTC Streets	-	\$0	-	\$0	118	\$23,930	270	\$41,608	348	\$37,896	80	\$5,953	282	\$18,593	70	\$3,782	1,168	\$131,762
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Fee 10% (On all Labor, excluding Principals): **\$13,176**
 Labor Subtotal (Incl. Overhead & Fee): **\$144,938**
 Other Direct Costs: **\$0**
Total Task 20: \$144,938



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical/Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

25. TASK 25 - Impacts to Hub Project by Memorial/VOEC Design Changes	-	\$0	-	\$0	720	\$146,013	980	\$151,020	850	\$92,561	540	\$40,186	1,120	\$73,844	115	\$6,214	4,325	\$509,838
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Note: Cost for this effort does not include design changes to the spatial program.

Fee 10% (On all Labor, excluding Principals):	\$50,984
Labor Subtotal (Incl. Overhead & Fee):	\$560,822
Other Direct Costs:	\$0
Total Task 25:	\$560,822

26. TASK 26 - Impacts to Hub Project by SPI Commercial	-	\$0	-	\$0	154	\$31,231	360	\$55,477	180	\$19,601	400	\$29,767	220	\$14,505	65	\$3,512	1,379	\$154,098
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Fee 10% (On all Labor, excluding Principals):	\$15,409
Labor Subtotal (Incl. Overhead & Fee):	\$169,502
Other Direct Costs:	\$0
Total Task 26:	\$169,502

27. TASK 27 - Tower 2 Vertical Circulation Options [VCE Options]	-	\$0	-	\$0	-	\$0	80	\$12,328	80	\$8,712	-	\$0	-	\$0	-	\$0	160	\$21,040
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Fee 10% (On all Labor, excluding Principals):	\$2,104
Labor Subtotal (Incl. Overhead & Fee):	\$23,144
Other Direct Costs:	\$0
Total Task 27:	\$23,144

28. TASK 28 - Fire Alarm Coordination and Integration with Adjacent Stakeholders	-	\$0	-	\$0	100	\$20,280	90	\$13,869	80	\$8,712	110	\$8,186	120	\$7,912	-	\$0	500	\$58,958
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Fee 10% (On all Labor, excluding Principals):	\$5,896
Labor Subtotal (Incl. Overhead & Fee):	\$64,854
Other Direct Costs:	\$0
Total Task 28:	\$64,854



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

29. TASK 29 - Readjustment to the Master Power Distribution System	-	\$0	-	\$0	120	\$24,335	320	\$49,313	-	\$0	-	\$0	600	\$39,559	60	\$3,242	1,100	\$116,450
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Fee 10% (On all Labor, excluding Principals): **\$11,645**
 Labor Subtotal (Incl. Overhead & Fee): **\$128,095**
 Other Direct Costs: **\$0**
Total Task 29: \$128,095

30. TASK 30 - Design of Retail program within NE quadrant of West Bathtub - Performing Arts Center (PAC) Footprint	-	\$0	-	\$0	318	\$64,489	288	\$44,381	684	\$74,485	456	\$33,934	684	\$45,098	30	\$1,621	2,460	\$264,008
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Fee 10% (On all Labor, excluding Principals): **\$26,401**
 Labor Subtotal (Incl. Overhead & Fee): **\$290,409**
 Other Direct Costs: **\$0**
Total Task 30: \$290,409

31. TASK 31 - PATH Emergency Exhaust Vent at Plaza Southeast Grade - Memorial Plaza South East	-	\$0	-	\$0	80	\$16,224	80	\$12,328	-	\$0	-	\$0	200	\$13,186	-	\$0	360	\$41,738
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Fee 10% (On all Labor, excluding Principals): **\$4,174**
 Labor Subtotal (Incl. Overhead & Fee): **\$45,912**
 Other Direct Costs: **\$0**
Total Task 31: \$45,912

32. TASK 32 - GSA & PA Car Parking Facilities - West Bathtub/Tower 1 Quadrants	-	\$0	-	\$0	750	\$152,097	1,300	\$200,333	1,500	\$163,344	650	\$48,372	1,000	\$65,932	300	\$16,210	5,500	\$646,287
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Fee 10% (On all Labor, excluding Principals): **\$64,629**
 Labor Subtotal (Incl. Overhead & Fee): **\$710,916**
 Other Direct Costs: **\$0**
Total Task32: \$710,916



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical/Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

33. TASK 33 - MEP coordination drawings for Freedom Tower, Silverstein and WTCRD

-	\$0	-	\$0	35	\$7,098	240	\$36,985	345	\$37,569	340	\$25,302	295	\$19,450	70	\$3,782	1,325	\$130,186
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Fee 10% (On all Labor, excluding Principals): **\$13,019**
 Labor Subtotal (Incl. Overhead & Fee): **\$143,204**
 Other Direct Costs: **\$0**
Total Task 33: \$143,204

34. TASK 34 - Package 5.c Freedom Tower Shear Wall Design

-	\$0	-	\$0	80	\$16,224	156	\$24,040	150	\$16,334	102	\$7,591	128	\$8,439	-	\$0	616	\$72,628
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Fee 10% (On all Labor, excluding Principals): **\$7,263**
 Labor Subtotal (Incl. Overhead & Fee): **\$79,891**
 Other Direct Costs: **\$0**
Total Task 34: \$79,891

35. TASK 35 - Revisions to Package 5.c

-	\$0	-	\$0	100	\$20,280	190	\$29,279	200	\$21,779	130	\$9,674	160	\$10,549	-	\$0	780	\$91,562
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Fee 10% (On all Labor, excluding Principals): **\$9,156**
 Labor Subtotal (Incl. Overhead & Fee): **\$100,718**
 Other Direct Costs: **\$0**
Total Task 35: \$100,718

36. TASK 36 - Feasibility Study of NYTP Room Relocation to Incorporate Retail Family Room Level +296' (Tower 2)

-	\$0	-	\$0	74	\$15,007	122	\$18,800	90	\$9,801	40	\$2,977	104	\$6,857	42	\$2,269	472	\$55,711
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Fee 10% (On all Labor, excluding Principals): **\$5,571**
 Labor Subtotal (Incl. Overhead & Fee): **\$61,282**
 Other Direct Costs: **\$0**
Total Task 36: \$61,282



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	Hours	\$
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

37. TASK 37 - Package 1.k Addendum#1 Four Retail Elevator Cabs in Towers 2, 3 and 4

-	\$0	-	\$0	-	\$0	60	\$9,246	104	\$11,325	-	\$0	80	\$5,275	-	\$0	244	\$25,846
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Fee 10% (On all Labor, excluding Principals): **\$2,585**
 Labor Subtotal (Incl. Overhead & Fee): **\$28,430**
 Other Direct Costs: **\$21,500**
Total Task 37: \$49,930

38. TASK 38 - Study of North Projection Pier

-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
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Note: Per PA request, TASK 38 - WTC Site Security removed from this proposal.

Fee 10% (On all Labor, excluding Principals): **\$0**
 Labor Subtotal (Incl. Overhead & Fee): **\$0**
 Other Direct Costs: **\$0**
Total Task 38: \$0

39. TASK 39 - Fire Load Test - PA-4/5 PATH Car

-	\$0	-	\$0	24	\$4,867	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	24	\$4,867
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Notes: Design estimate includes \$21,000 for Hughes Associates, Inc. (ODC).

Fee 10% (On all Labor, excluding Principals): **\$487**
 Labor Subtotal (Incl. Overhead & Fee): **\$5,354**
 Other Direct Costs: **\$21,000**
Total Task 39: \$26,354

40. TASK 40 - Stakeholder Coordination in HUB Design

-	\$0	-	\$0	5,500	\$1,115,376	8,200	\$1,263,639	8,300	\$903,834	7,700	\$573,017	9,300	\$613,171	1,000	\$54,033	40,000	\$4,523,070
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Note: Cost for this task to be treated as an allowance.

Fee 10% (On all Labor, excluding Principals): **\$462,307**
 Labor Subtotal (Incl. Overhead & Fee): **\$4,975,377**
 Other Direct Costs: **\$0**
Total Task 40: \$4,975,377



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Santiago Calatrava	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical/Assistant	TOTALS	
\$413.36	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
1.0	2.7	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	Hours	\$
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

41. TASK 41 - Proj. Management, Proj. Controls, QA/QC (7/1/07 - 6/31/08)	-	\$0	780	\$564,787	3,000	\$608,387	3,000	\$462,307	4,600	\$500,920	2,700	\$200,928	-	\$0	10,340	\$558,705	24,420	\$2,896,034
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Fee 10% (On all Labor, excluding Principals): **\$289,603**
 Labor Subtotal (Incl. Overhead & Fee): **\$3,185,637**
 Other Direct Costs: **\$0**
Total Task 41: \$3,185,637

42. TASK 42 - ODC's (7/1/07 - 6/31/08)	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
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Fee 10% (On all Labor, excluding Principals): **\$0**
 Labor Subtotal (Incl. Overhead & Fee): **\$0**
 Other Direct Costs: **\$2,500,176**
Total Task 42: \$2,500,176

43. TASK 43 - Proj. Management, Proj. Controls, QA/QC (6/1/08 - 9/30/08)	-	\$0	270	\$195,503	1,100	\$223,075	1,200	\$184,923	1,920	\$209,080	1,820	\$135,440	-	\$0	3,200	\$172,907	9,510	\$1,120,928
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Fee 10% (On all Labor, excluding Principals): **\$112,093**
 Labor Subtotal (Incl. Overhead & Fee): **\$1,233,021**
 Other Direct Costs: **\$0**
Total Task 43: \$1,233,021

44. TASK 44 - ODC's (6/1/08 - 9/30/08)	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
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Fee 10% (On all Labor, excluding Principals): **\$0**
 Labor Subtotal (Incl. Overhead & Fee): **\$0**
 Other Direct Costs: **\$979,754**
Total Task 44: \$979,754



**GRAND SUMMARY
PROFESSIONAL SERVICES
SUPPLEMENTAL AGREEMENT
(REVISED) TASK ORDER #08-002**

Average Rate
Average Overhead
Average Rate with Overhead

Principal		Santiago Calatrava		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch ID		CADD		Technical Assistant	
\$413.36		\$270.00		\$86.95		\$66.08		\$46.69		\$31.91		\$28.27		\$23.17	
1.0		2.7		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322	
\$413.36		\$724.09		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03	
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	-	\$0	200	\$40,559	590	\$90,920	520	\$56,626	300	\$22,325	200	\$13,186	80	\$4,323

TOTALS	
Hours	\$
1,890	\$227,940

45. TASK 45 - Alternative Anslsyis for the Merrill Lynch Proposal at 175 Greewich Street (WTC Tower 3)

Fee 10% (On all Labor, excluding Principals):	\$22,794
Labor Subtotal (Incl. Overhead & Fee):	\$250,734
Other Direct Costs:	\$0
Total Task 45:	\$250,734

TOTAL PA TO #08-002

-	\$0	1,050	\$760,290	18,044	\$3,659,245	28,508	\$4,933,143	28,796	\$3,135,761	22,850	\$1,700,446	23,408	\$1,643,345	17,246	\$931,859
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139,902	\$16,124,094
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Fee 10% (On all Labor, excluding Principals):	\$1,612,409
Subtotal Labor (Incl. Overhead & Fee):	\$17,736,503
Subtotal Other Direct Costs :	\$3,594,930
(REVISED) Grand Total PA TO #08-002 :	\$21,331,433

Period Covering
7/1/07 to 5/31/08

Proposal Cost Breakdown

TO-08-002
Task 42

Reproduction	\$461,500
Mailing, Delivery & Phone Calls	\$19,500
Per Diem Subconsultants	\$487,500
Travel and Lodging	\$481,000
Presentation and Graphics	\$13,000
Office Costs	\$1,037,676
	\$2,500,176

Period Covering
6/1/08 to 9/30/08

Proposal Cost Breakdown

TO-08-002
Task 44

Reproduction	\$182,000
Mailing, Delivery & Phone Calls	\$7,000
Per Diem Subconsultants	\$189,000
Travel and Lodging	\$168,000
Presentation and Graphics	\$7,000
Office Costs	\$426,754
	\$979,754

Totals ODCs - TO-08-002 :

\$3,479,930

Task 1
Breakdown by Staff Classification

I. Task 1

A. Meetings

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	1	x	0.0	x	0	=	0
Arch/Eng A	4	x	10.4	x	24	=	1,000
Arch/Eng B	4	x	10.4	x	24	=	1,000
Arch/Eng C	1	x	41.7	x	24	=	1,000
Arch/Eng D	1	x	20.8	x	24	=	500
CADD	1	x	0.0	x	24	=	0
Technical Assistant	1	x	0.0	x	24	=	0
							3,500

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 2 - Design of First Responder and O&M Radio Systems**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL								
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$						
A.	-	\$0	88	\$17,846	1,766	\$272,145	200	\$21,779	672	\$50,009	660	\$43,515	72	\$3,890	3,458	\$409,184
Labor & Overhead:	-	\$0	88	\$17,846	1,766	\$272,145	200	\$21,779	672	\$50,009	660	\$43,515	72	\$3,890	3,458	\$409,184

Fee 10% (On all Labor, excluding Principals): \$40,918

Total Labor Cost: \$450,103

Other Direct Costs:

Grand Total Task 2: \$450,103

Task 2
Breakdown by Staff Classification

I. Task 2

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	3.7	x	24	=	88
Arch/Eng B	3	x	24.5	x	24	=	1,766
Arch/Eng C	1	x	8.3	x	24	=	200
Arch/Eng D	2	x	14.0	x	24	=	672
CADD	2	x	13.8	x	24	=	660
Technical Assistant	1	x	3.0	x	24	=	72
							3,458

Task 3
Breakdown by Staff Classification

I. Task 3

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	0.0	x	16	=	0
Arch/Eng B	3	x	15.2	x	16	=	730
Arch/Eng C	1	x	24.4	x	16	=	390
Arch/Eng D	1	x	0.0	x	16	=	0
CADD	2	x	13.7	x	16	=	437
Technical Assistant	1	x	0.0	x	16	=	0
							1,557

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 4 - Exp. of Hub Security Monitoring and Access Control Sys. to the
Vehicle Security Center (VSC) and Central Chiller and Refrig. Plant (CCRP)**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17			
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	-	\$0	1,600	\$246,564	885	\$96,373	-	\$0
Labor & Overhead:	-	\$0	-	\$0	1,600	\$246,564	885	\$96,373	-	\$0

Fee 10% (On all Labor, excluding Principals): \$40,577

Total Labor Cost: \$446,347

Other Direct Costs:

Grand Total Task 4: \$446,347

Task 4
Breakdown by Staff Classification

I. Task 4

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	4	x	0.0	x	24	=	0
Arch/Eng B	1	x	66.7	x	24	=	1,600
Arch/Eng C	1	x	36.9	x	24	=	885
Arch/Eng D	1	x	0.0	x	24	=	0
CADD	2	x	19.9	x	24	=	953
Technical Assistant	1	x	0.0	x	24	=	0
							3,438

SUPPLEMENTAL AGREEMENT

TASK ORDER # 08-002

TASK 5 - RWDI Wind Engineering Services for West Vent Structure, WTC Memorial and Museum

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL												
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17													
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322													
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03													
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$		
A.	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
Labor & Overhead:	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0

Fee 10% (On all Labor, excluding Principals):	\$0
Total Labor Cost:	\$0
Other Direct Costs:	\$52,500
Grand Total Task 5:	\$52,500

Note: PA Specialty Subconsultant Services - Design Estimate based on RWDI's Proposal, dated 8/23/07, with an escalation of 5% for 2008.

Task 5
Breakdown by Staff Classification

I. Task 5

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	0	x	0.0	x	0	=	0
Arch/Eng B	0	x	0.0	x	0	=	0
Arch/Eng C	0	x	0.0	x	0	=	0
Arch/Eng D	0	x	0.0	x	0	=	0
CADD	0	x	0.0	x	0	=	0
Technical Assistant	0	x	0.0	x	0	=	0
							0

Note: PA Specialty Subconsultant Services - Design Estimate based on RWDI Proposal ,dated 8/23/07.

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002**

TASK 6 - Revise Sprinkler and Fire Stand Pipe Loops Design to meet NYCBC 2008 Code

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL	
Average Rate	\$413.38	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
Average Rate with Overhead	\$413.38	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
A.	-	-	-	-	-	-	-	-	-
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Labor & Overhead:	-	-	-	-	-	-	-	-	-
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Fee 10% (On all Labor, excluding Principals):

Total Labor Cost:

Other Direct Costs:

Grand Total Task 6:

Note: Per PA request, Task 6 - Revise Sprinkler and Fire Stand Pipe Loops Design to Meet NYCBC 2008 Code included in CO#08-002.

Task 6
Breakdown by Staff Classification

I. Task 6

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	0	x	0.0	x	0	=	0
Arch/Eng B	0	x	0.0	x	0	=	0
Arch/Eng C	0	x	0.0	x	0	=	0
Arch/Eng D	0	x	0.0	x	0	=	0
CADD	0	x	0.0	x	0	=	0
Technical Assistant	0	x	0.0	x	0	=	0
							0

Note: Per PA request, Task 6 - Revise Sprinkler and Fire Stand Pipe Loops Design to Meet NYCBC 2008 Code included in CO#08-002.

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 7 - Expansion of the Hub Fire Alarm System to Retail Spaces**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL								
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$				
A.	-	\$0	200	\$40,559	190	\$29,279	150	\$16,334	240	\$17,860	200	\$13,186	20	\$1,081	1,000	\$118,300
Labor & Overhead:	-	\$0	200	\$40,559	190	\$29,279	150	\$16,334	240	\$17,860	200	\$13,186	20	\$1,081	1,000	\$118,300

Fee 10% (On all Labor, excluding Principals): \$11,830

Total Labor Cost: \$130,130

Other Direct Costs:

Grand Total Task 7: \$130,130

Task 7
Breakdown by Staff Classification

I. Task 7

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	4	x	2.1	x	24	=	200
Arch/Eng B	1	x	7.9	x	24	=	190
Arch/Eng C	5	x	1.3	x	24	=	150
Arch/Eng D	1	x	10.0	x	24	=	240
CADD	3	x	2.8	x	24	=	200
Technical Assistant	1	x	0.8	x	24	=	20
							1,000

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 8 - Transfer Structure Re-design**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	820	\$166,292	840	\$129,446	930	\$101,273	840	\$62,511
								860	\$56,702
								176	\$9,510
								4,466	\$525,734
Labor & Overhead:									
-	\$0	820	\$166,292	840	\$129,446	930	\$101,273	840	\$62,511
								860	\$56,702
								176	\$9,510
								4,466	\$525,734

I. TASK 8

A.

Fee 10% (On all Labor, excluding Principals): \$52,573

Total Labor Cost: \$578,307

Other Direct Costs:

Grand Total Task 8: \$578,307

Task 8
Breakdown by Staff Classification

I. Task 8

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	3	x	22.8	x	12	=	820
Arch/Eng B	3	x	23.3	x	12	=	840
Arch/Eng C	3	x	25.8	x	12	=	930
Arch/Eng D	3	x	23.3	x	12	=	840
CADD	3	x	23.9	x	12	=	860
Technical Assistant	1	x	14.7	x	12	=	176
							4,466

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 9 - Memorial Retail Restaurant Design Reimbursement**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 9

A.

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	150	\$30,419	100	\$15,410	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	250	\$45,830
-	\$0	150	\$30,419	100	\$15,410	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	250	\$45,830

Labor & Overhead:

Fee 10% (On all Labor, excluding Principals): **\$4,583**

Total Labor Cost: **\$50,413**

Other Direct Costs:

Grand Total Task 9: **\$50,413**

Task 9
Breakdown by Staff Classification

I. Task 9

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	2	x	12.5	x	6	=	150
Arch/Eng B	1	x	16.7	x	6	=	100
Arch/Eng C	1	x	0.0	x	6	=	0
Arch/Eng D	1	x	0.0	x	6	=	0
CADD	1	x	0.0	x	6	=	0
Technical Assistant	1	x	0.0	x	6	=	0
							250

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 10 - Tunnel Lighting and Ventilation for the Memorial/Freedom Tower**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL						
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17							
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322							
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.80	\$74.42	\$65.93	\$54.03							
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	297	\$60,230	245	\$37,755	820	\$89,294	120	\$8,930	1,015	\$66,921	70	\$3,782
Labor & Overhead:	-	\$0	297	\$60,230	245	\$37,755	820	\$89,294	120	\$8,930	1,015	\$66,921	70	\$3,782

Fee 10% (On all Labor, excluding Principals): \$26,691

Total Labor Cost: \$293,605

Other Direct Costs:

Grand Total Task 10: \$293,605

Task 10
Breakdown by Staff Classification

I. Task 10

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	14.9	x	20	=	297
Arch/Eng B	1	x	12.3	x	20	=	245
Arch/Eng C	2	x	20.5	x	20	=	820
Arch/Eng D	1	x	6.0	x	20	=	120
CADD	2	x	25.4	x	20	=	1,015
Technical Assistant	1	x	3.5	x	20	=	70
							2,567

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 11 - Re-coordination with Memorial and Memorial Museum WP #5C**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL								
Average Rate	\$413.36	\$88.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$				
A.	-	\$0	144	\$29,203	268	\$41,299	204	\$22,215	96	\$7,144	200	\$13,186	-	\$0	912	\$113,047
Labor & Overhead:	-	\$0	144	\$29,203	268	\$41,299	204	\$22,215	96	\$7,144	200	\$13,186	-	\$0	912	\$113,047

Fee 10% (On all Labor, excluding Principals): \$11,305

Total Labor Cost: \$124,352

Other Direct Costs:

Grand Total Task 11: \$124,352

Task 11
Breakdown by Staff Classification

I. Task 11

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	18.0	x	8	=	144
Arch/Eng B	2	x	16.8	x	8	=	268
Arch/Eng C	2	x	12.8	x	8	=	204
Arch/Eng D	1	x	12.0	x	8	=	96
CADD	2	x	12.5	x	8	=	200
Technical Assistant	1	x	0.0	x	8	=	0
							912

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 12 - WP #6C.1 and 10.2 Bulletin# 2 – Revision of Package 6C.1 and 10.2 Bulletin #2**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL								
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$						
A.	-	\$0	810	\$164,265	900	\$138,692	1,140	\$124,141	1,530	\$113,859	1,530	\$100,877	736	\$39,769	6,646	\$681,602
Labor & Overhead:	-	\$0	810	\$164,265	900	\$138,692	1,140	\$124,141	1,530	\$113,859	1,530	\$100,877	736	\$39,769	6,646	\$681,602

Fee 10% (On all Labor, excluding Principals): \$68,160

Total Labor Cost: \$749,762

Other Direct Costs:

Grand Total Task 12: \$749,762

Note: Scope and design fee included per PA request.

Task 12
Breakdown by Staff Classification

I. Task 12

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	3	x	13.5	x	20	=	810
Arch/Eng B	3	x	15.0	x	20	=	900
Arch/Eng C	4	x	14.3	x	20	=	1,140
Arch/Eng D	4	x	19.1	x	20	=	1,530
CADD	4	x	19.1	x	20	=	1,530
Technical Assistant	3	x	12.3	x	20	=	736
							6,646

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
(REVISED) TASK 13 - NYCT 1 Line North of the WTC Hub Underpass**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL								
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$				
A.	-	\$0	160	\$32,447	355	\$54,706	330	\$35,936	70	\$5,209	350	\$23,076	86	\$4,647	1,351	\$156,022
Labor & Overhead:	-	\$0	160	\$32,447	355	\$54,706	330	\$35,936	70	\$5,209	350	\$23,076	86	\$4,647	1,351	\$156,022

Fee 10% (On all Labor, excluding Principals): **\$15,602**

Total Labor Cost: **\$171,624**

Other Direct Costs:

(REVISED) Grand Total Task 13: **\$171,624**

Note:

Per negotiations, Grand Total for Task 13 has been revised to include \$200,000 transferred to CO-08-006 - Continued Package 9.X.

Task 13
Breakdown by Staff Classification

I. Task 13

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	6.7	x	24	=	160
Arch/Eng B	2	x	7.4	x	24	=	355
Arch/Eng C	2	x	6.9	x	24	=	330
Arch/Eng D	1	x	2.9	x	24	=	70
CADD	2	x	7.3	x	24	=	350
Technical Assistant	1	x	3.6	x	24	=	86
							1,351

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 14 - Temporary Bracing – Package 4C**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 14

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	100	\$20,280	220	\$33,903	-	\$0	220	\$16,372	240	\$15,824	-	\$0	780	\$86,378
Labor & Overhead:	-	\$0	100	\$20,280	220	\$33,903	-	\$0	220	\$16,372	240	\$15,824	-	\$0	780	\$86,378

Fee 10% (On all Labor, excluding Principals): \$8,638

Total Labor Cost: \$95,016

Other Direct Costs:

Grand Total Task 14: \$95,016

Task 14
Breakdown by Staff Classification

I. Task 14

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	8.3	x	12	=	100
Arch/Eng B	2	x	9.2	x	12	=	220
Arch/Eng C	1	x	0.0	x	12	=	0
Arch/Eng D	2	x	9.2	x	12	=	220
CADD	2	x	10.0	x	12	=	240
Technical Assistant	1	x	0.0	x	12	=	0
							780

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 15 - WTC Memorial Tree Pits**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
Average Rate	\$413.36	\$86.95	\$66.08	\$46.89	\$31.91	\$28.27	\$23.17	
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	
	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
	\$	\$	\$	\$	\$	\$	\$	\$
I. TASK 15								
A.	-	80	80	90	10	160	-	420
	\$0	\$16,224	\$12,328	\$9,801	\$744	\$10,549	\$0	\$49,646
Labor & Overhead:	-	80	80	90	10	160	-	420
	\$0	\$16,224	\$12,328	\$9,801	\$744	\$10,549	\$0	\$49,646

Fee 10% (On all Labor, excluding Principals): \$4,965

Total Labor Cost: \$54,610

Other Direct Costs: \$20,000

Grand Total Task 15: \$74,610

Notes:

Design cost includes \$20,000 for waterproofing subconsultant (per diem).

Task 15
Breakdown by Staff Classification

I. Task 15

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	10.0	x	8	=	80
Arch/Eng B	2	x	5.0	x	8	=	80
Arch/Eng C	1	x	11.3	x	8	=	90
Arch/Eng D	1	x	1.3	x	8	=	10
CADD	1	x	20.0	x	8	=	160
Technical Assistant	1	x	0.0	x	8	=	0
							420

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 16 - Greenwich/Fulton Streets Intersection elevation**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 16

A.

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	1,300	\$263,634	2,000	\$308,205	1,800	\$196,012	2,650	\$197,207	1,750	\$115,382	500	\$27,017	10,000	\$1,107,457		

Labor & Overhead:

-	\$0	1,300	\$263,634	2,000	\$308,205	1,800	\$196,012	2,650	\$197,207	1,750	\$115,382	500	\$27,017	10,000	\$1,107,457		
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Fee 10% (On all Labor, excluding Principals): \$110,746

Total Labor Cost: \$1,218,202

Other Direct Costs:

Grand Total Task 16: \$1,218,202

Note: Cost for this task to be treated as an allowance.

Task 16
Breakdown by Staff Classification

I. Task 16

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	3	x	18.1	x	24	=	1,300
Arch/Eng B	5	x	16.7	x	24	=	2,000
Arch/Eng C	4	x	18.8	x	24	=	1,800
Arch/Eng D	6	x	18.4	x	24	=	2,650
CADD	4	x	18.2	x	24	=	1,750
Technical Assistant	2	x	10.4	x	24	=	500
							10,000

Note: Cost for this task to be treated as an allowance.

Task 17
Breakdown by Staff Classification

I. Task 17

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	3.6	x	16	=	58
Arch/Eng B	1	x	6.8	x	16	=	108
Arch/Eng C	1	x	10.5	x	16	=	168
Arch/Eng D	1	x	0.0	x	16	=	0
CADD	1	x	7.5	x	16	=	120
Technical Assistant	1	x	2.5	x	16	=	40
							494

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 18 - Tower 3 Bottom of Footing**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 18

A.

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	68	\$13,790	172	\$26,506	84	\$9,147	-	\$0	216	\$14,241	54	\$2,918	594	\$66,602
-	\$0	68	\$13,790	172	\$26,506	84	\$9,147	-	\$0	216	\$14,241	54	\$2,918	594	\$66,602

Labor & Overhead:

Fee 10% (On all Labor, excluding Principals): \$6,660

Total Labor Cost: \$73,262

Other Direct Costs:

Grand Total Task 18: \$73,262

Task 18
Breakdown by Staff Classification

I. Task 18

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	8.5	x	8	=	68
Arch/Eng B	2	x	10.8	x	8	=	172
Arch/Eng C	1	x	10.5	x	8	=	84
Arch/Eng D	1	x	0.0	x	8	=	0
CADD	2	x	13.5	x	8	=	216
Technical Assistant	1	x	6.8	x	8	=	54
							594

Task 19
Breakdown by Staff Classification

I. Task 19

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	4.8	x	10	=	48
Arch/Eng B	1	x	10.8	x	10	=	108
Arch/Eng C	1	x	10.4	x	10	=	104
Arch/Eng D	1	x	2.0	x	10	=	20
CADD	1	x	12.4	x	10	=	124
Technical Assistant	1	x	3.2	x	10	=	32
							436

Task 20
Breakdown by Staff Classification

I. Task 20

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	11.8	x	10	=	118
Arch/Eng B	2	x	13.5	x	10	=	270
Arch/Eng C	3	x	11.6	x	10	=	348
Arch/Eng D	1	x	8.0	x	10	=	80
CADD	2	x	14.1	x	10	=	282
Technical Assistant	1	x	7.0	x	10	=	70
							1,168

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 21 - WTC Site Security**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 21

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
Labor & Overhead:	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0

Fee 10% (On all Labor, excluding Principals):

Total Labor Cost:

Other Direct Costs:

Grand Total Task 21:

Note: Per PA request, TASK 21 - WTC Site Security removed from this proposal.

Task 21
Breakdown by Staff Classification
(Per PA Request, Removed from this Proposal)

I. Task 21

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	0	x	0.0	x	0	=	0
Arch/Eng B	0	x	0.0	x	0	=	0
Arch/Eng C	0	x	0.0	x	0	=	0
Arch/Eng D	0	x	0.0	x	0	=	0
CADD	0	x	0.0	x	0	=	0
Technical Assistant	0	x	0.0	x	0	=	0
							0

Note: Per PA request, TASK 21 - WTC Site Security removed from this proposal.

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 22 - Impacts to the Hub Project due to 1 Cortlandt Station Project**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 22	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
Labor & Overhead:	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0

Fee 10% (On all Labor, excluding Principals): \$0

Total Labor Cost: \$0

Note: Proposed Design Fee for this task is included in Task 13 - NYCT 1 Line North of the WTC Hub Underpass.

Other Direct Costs:

Grand Total Task 22 (Design Cost Included in Task 13 of this Proposal) : \$0

Task 22
Breakdown by Staff Classification
(Design Cost Included in Task 13 of this Proposal)

I. Task 15

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	0	x	0	x	0	=	0
Arch/Eng B	0	x	0	x	0	=	0
Arch/Eng C	0	x	0	x	0	=	0
Arch/Eng D	0	x	0	x	0	=	0
CADD	0	x	0	x	0	=	0
Technical Assistant	0	x	0	x	0	=	0
							0

Note: Proposed Design Fee for this task is included in Task 13 - NYCT 1 Line North of the WTC Hub Underpass.

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002**

TASK 23 - Impacts to the Hub Project due to R/W Cortlandt Station's Southeast Entrance

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	
	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
	\$	\$	\$	\$	\$	\$	\$	\$
I. TASK 23								
A.	-	148	200	260	214	100	48	970
	\$0	\$30,014	\$30,820	\$28,313	\$15,925	\$6,593	\$2,594	\$114,259
Labor & Overhead:	-	148	200	260	214	100	48	970
	\$0	\$30,014	\$30,820	\$28,313	\$15,925	\$6,593	\$2,594	\$114,259

Fee 10% (On all Labor, excluding Principals):	\$11,426
Total Labor Cost:	\$125,685
Other Direct Costs:	
Grand Total Task 23:	\$125,685

Task 23
Breakdown by Staff Classification

I. Task 23

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	12.3	x	12	=	148
Arch/Eng B	2	x	8.3	x	12	=	200
Arch/Eng C	2	x	10.8	x	12	=	260
Arch/Eng D	2	x	8.9	x	12	=	214
CADD	1	x	8.3	x	12	=	100
Technical Assistant	1	x	4.0	x	12	=	48
							970

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 24 - Impacts to the Hub Project due to PAC/Helix Coordination**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 24

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	100	\$20,280	100	\$15,410	290	\$31,580	300	\$22,325	-	\$0	40	\$2,161	830	\$91,756
Labor & Overhead:	-	\$0	100	\$20,280	100	\$15,410	290	\$31,580	300	\$22,325	-	\$0	40	\$2,161	830	\$91,756

Fee 10% (On all Labor, excluding Principals): \$9,176

Total Labor Cost: \$100,932

Other Direct Costs:

Grand Total Task 24: \$100,932

Task 24
Breakdown by Staff Classification

I. Task 24

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	2	x	1.9	x	26	=	100
Arch/Eng B	0	x	0.0	x	0	=	100
Arch/Eng C	0	x	0.0	x	0	=	290
Arch/Eng D	0	x	0.0	x	0	=	300
CADD	0	x	0.0	x	0	=	0
Technical Assistant	0	x	0.0	x	0	=	40
							830

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 25 - Impacts to Hub Project by Memorial/VOEC Design Changes**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 25

	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	TOTAL	
A.	-	\$0	720	\$146,013	980	\$151,020	850	\$92,561	540	\$40,186	1,120	\$73,844	115	\$6,214	4,325	\$509,838
Labor & Overhead:	-	\$0	720	\$146,013	980	\$151,020	850	\$92,561	540	\$40,186	1,120	\$73,844	115	\$6,214	4,325	\$509,838

Fee 10% (On all Labor, excluding Principals): \$50,984
Total Labor Cost: \$560,822
Other Direct Costs:
Grand Total Task 25: \$560,822

Task 25
Breakdown by Staff Classification

I. Task 25

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	2	x	13.8	x	26	=	720
Arch/Eng B	3	x	12.6	x	26	=	980
Arch/Eng C	3	x	10.9	x	26	=	850
Arch/Eng D	1	x	20.8	x	26	=	540
CADD	3	x	14.4	x	26	=	1,120
Technical Assistant	1	x	4.4	x	26	=	115
							4,325

Task 26
Breakdown by Staff Classification

I. Task 26

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	12.8	x	12	=	154
Arch/Eng B	2	x	15.0	x	12	=	360
Arch/Eng C	1	x	15.0	x	12	=	180
Arch/Eng D	2	x	16.7	x	12	=	400
CADD	1	x	18.3	x	12	=	220
Technical Assistant	1	x	5.4	x	12	=	65
							1,379

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 27 - Tower 2 Vertical Circulation Options [VCE Options]**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 27

A.	Hours		\$		Hours		\$		Hours		\$		Hours		\$		Hours		\$		Hours		\$	
	-	\$0	-	\$0	80	\$12,328	80	\$8,712	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	160	\$21,040		
Labor & Overhead:	-	\$0	-	\$0	80	\$12,328	80	\$8,712	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	160	\$21,040		

Fee 10% (On all Labor, excluding Principals): \$2,104

Total Labor Cost: \$23,144

Other Direct Costs:

Grand Total Task 27: \$23,144

Task 27
Breakdown by Staff Classification

I. Task 27

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	0.0	x	6	=	0
Arch/Eng B	1	x	13.3	x	6	=	80
Arch/Eng C	1	x	13.3	x	6	=	80
Arch/Eng D	1	x	0.0	x	6	=	0
CADD	1	x	0.0	x	6	=	0
Technical Assistant	1	x	0.0	x	6	=	0
							160

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 28 - Fire Alarm Coordination and Integration with Adjacent Stakeholders**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL								
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$						
A.	-	\$0	100	\$20,280	90	\$13,869	80	\$8,712	110	\$8,186	120	\$7,912	-	\$0	500	\$58,958
Labor & Overhead:	-	\$0	100	\$20,280	90	\$13,869	80	\$8,712	110	\$8,186	120	\$7,912	-	\$0	500	\$58,958

Fee 10% (On all Labor, excluding Principals): \$5,896
Total Labor Cost: \$64,854
Other Direct Costs:
Grand Total Task 28: \$64,854

I. TASK 28

A.	

Task 28
Breakdown by Staff Classification

I. Task 28

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	3	x	4.2	x	8	=	100
Arch/Eng B	1	x	11.3	x	8	=	90
Arch/Eng C	1	x	10.0	x	8	=	80
Arch/Eng D	1	x	13.8	x	8	=	110
CADD	1	x	15.0	x	8	=	120
Technical Assistant	1	x	0.0	x	8	=	0
							500

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 29 - Readjustment to the Master Power Distribution System**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD E	Technical Assistant	TOTAL									
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$							
A.	-	\$0	120	\$24,335	320	\$49,313	-	\$0	-	\$0	600	\$39,559	60	\$3,242	1,100	\$116,450
Labor & Overhead:	-	\$0	120	\$24,335	320	\$49,313	-	\$0	-	\$0	600	\$39,559	60	\$3,242	1,100	\$116,450

Fee 10% (On all Labor, excluding Principals): \$11,645

Total Labor Cost: \$128,095

Other Direct Costs:

Grand Total Task 29: \$128,095

Task 29
Breakdown by Staff Classification

I. Task 29

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	10.0	x	12	=	120
Arch/Eng B	1	x	26.7	x	12	=	320
Arch/Eng C	1	x	0.0	x	12	=	0
Arch/Eng D	1	x	0.0	x	12	=	0
CADD	2	x	25.0	x	12	=	600
Technical Assistant	1	x	5.0	x	12	=	60
							1,100

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002**

TASK 30 - Design of Retail Program within NE Quadrant of West Bath tub – Performing Arts Center (PAC) Footprint

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 30

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	318	\$64,489	288	\$44,381	684	\$74,485	456	\$33,934	684	\$45,098	30	\$1,621	2,460	\$264,008
Labor & Overhead:	-	\$0	318	\$64,489	288	\$44,381	684	\$74,485	456	\$33,934	684	\$45,098	30	\$1,621	2,460	\$264,008

Fee 10% (On all Labor, excluding Principals): \$26,401

Total Labor Cost: \$290,409

Other Direct Costs:

Grand Total Task 30: \$290,409

Task 30
Breakdown by Staff Classification

I. Task 30

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	2	x	13.3	x	12	=	318
Arch/Eng B	3	x	8.0	x	12	=	288
Arch/Eng C	4	x	14.3	x	12	=	684
Arch/Eng D	3	x	12.7	x	12	=	456
CADD	3	x	19.0	x	12	=	684
Technical Assistant	1	x	2.5	x	12	=	30
							2,460

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002**

TASK 31 - PATH Emergency Exhaust Vent at Plaza Southeast Grade – Memorial Plaza South East

	Principal	Eng/Arch (A)	Eng/Arch (B)	Eng/Arch (C)	Eng/Arch (D)	CADD	Technical Assistant									
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17									
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322									
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03									
								TOTAL								
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$						
A.	-	\$0	80	\$16,224	80	\$12,328	-	\$0	-	\$0	200	\$13,186	-	\$0	360	\$41,738
Labor & Overhead:	-	\$0	80	\$16,224	80	\$12,328	-	\$0	-	\$0	200	\$13,186	-	\$0	360	\$41,738

I. TASK 31

Fee 10% (On all Labor, excluding Principals):	\$4,174
Total Labor Cost:	\$45,912
Other Direct Costs:	
Grand Total Task 31:	\$45,912

Task 31
Breakdown by Staff Classification

I. Task 31

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	13.3	x	6	=	80
Arch/Eng B	1	x	13.3	x	6	=	80
Arch/Eng C	1	x	0.0	x	6	=	0
Arch/Eng D	1	x	0.0	x	6	=	0
CADD	2	x	16.7	x	6	=	200
Technical Assistant	1	x	0.0	x	6	=	0
							360

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 32 - GSA & PA Car Parking Facilities – West Bathtub/Tower 1 Quadrants**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL						
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17							
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322							
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03							
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	750	\$152,097	1,300	\$200,333	1,500	\$163,344	650	\$48,372	1,000	\$65,932	300	\$16,210
Labor & Overhead:	-	\$0	750	\$152,097	1,300	\$200,333	1,500	\$163,344	650	\$48,372	1,000	\$65,932	300	\$16,210

Fee 10% (On all Labor, excluding Principals): \$64,629

Total Labor Cost: \$710,916

Other Direct Costs:

Grand Total Task 32: \$710,916

Task 32
Breakdown by Staff Classification

I. Task 32

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	3	x	8.9	x	28	=	750
Arch/Eng B	10	x	4.6	x	28	=	1,300
Arch/Eng C	4	x	13.4	x	28	=	1,500
Arch/Eng D	1	x	23.2	x	28	=	650
CADD	2	x	17.9	x	28	=	1,000
Technical Assistant	2	x	5.4	x	28	=	300
							5,500

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 33 - MEP Coordination Drawings for Freedom Tower, Silverstein and WTCRD**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	
								TOTALS

I. TASK 15

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTALS	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	35	\$7,098	240	\$36,985	345	\$37,569	340	\$25,302	295	\$19,450	70	\$3,782	1,325	\$130,186
Labor & Overhead:	-	\$0	35	\$7,098	240	\$36,985	345	\$37,569	340	\$25,302	295	\$19,450	70	\$3,782	1,325	\$130,186

Fee 10% (On all Labor, excluding Principals): \$13,019

Total Labor Cost: \$143,204

Other Direct Costs:

Grand Total Task 15: \$143,204

Task 33
Breakdown by Staff Classification

I. Task 33

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	4.4	x	8	=	35
Arch/Eng B	2	x	15.0	x	8	=	240
Arch/Eng C	3	x	14.4	x	8	=	345
Arch/Eng D	3	x	14.2	x	8	=	340
CADD	3	x	12.3	x	8	=	295
Technical Assistant	1	x	8.8	x	8	=	70
							1,325

Task 34
Breakdown by Staff Classification

I. Task 34

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	10.0	x	8	=	80
Arch/Eng B	1	x	19.5	x	8	=	156
Arch/Eng C	1	x	18.8	x	8	=	150
Arch/Eng D	1	x	12.8	x	8	=	102
CADD	1	x	16.0	x	8	=	128
Technical Assistant	1	x	0.0	x	8	=	0
							616

Task 35
Breakdown by Staff Classification

I. Task 35

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	11.1	x	9	=	100
Arch/Eng B	1	x	21.1	x	9	=	190
Arch/Eng C	1	x	22.2	x	9	=	200
Arch/Eng D	1	x	14.4	x	9	=	130
CADD	1	x	17.8	x	9	=	160
Technical Assistant	0	x	0.0	x	9	=	0
							780

SUPPLEMENTAL AGREEMENT

TASK ORDER # 08-002

TASK 36 - Feasibility Study of NYTP Room Relocation to Incorporate Retail Family Room Level +296' (Tower 2)

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 36

A.

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	74	\$15,007	122	\$18,800	90	\$9,801	40	\$2,977	104	\$6,857	42	\$2,269	472	\$55,711
-	\$0	74	\$15,007	122	\$18,800	90	\$9,801	40	\$2,977	104	\$6,857	42	\$2,269	472	\$55,711

Labor & Overhead:

Fee 10% (On all Labor, excluding Principals):

\$5,571

Total Labor Cost:

\$61,282

Other Direct Costs:

Grand Total Task 36:

\$61,282

Task 36
Breakdown by Staff Classification

I. Task 36

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	9.3	x	8	=	74
Arch/Eng B	2	x	7.6	x	8	=	122
Arch/Eng C	1	x	11.3	x	8	=	90
Arch/Eng D	1	x	5.0	x	8	=	40
CADD	2	x	6.5	x	8	=	104
Technical Assistant	1	x	5.3	x	8	=	42
							472

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002**

TASK 37 - Package 1.k Addendum#1 Four Retail Elevator Cabs in Towers 2, 3 and 4

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 37

A.

Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
-	\$0	-	\$0	60	\$9,246	104	\$11,325	-	\$0	80	\$5,275	-	\$0	244	\$25,846
-	\$0	-	\$0	60	\$9,246	104	\$11,325	-	\$0	80	\$5,275	-	\$0	244	\$25,846

Labor & Overhead:

Fee 10% (On all Labor, excluding Principals):	\$2,585
Total Labor Cost:	\$28,430
Other Direct Costs:	\$21,500
Grand Total Task 37:	\$49,930

Task 37
Breakdown by Staff Classification

I. Task 37

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	0.0	x	8	=	0
Arch/Eng B	1	x	7.5	x	8	=	60
Arch/Eng C	1	x	13.0	x	8	=	104
Arch/Eng D	1	x	0.0	x	8	=	0
CADD	1	x	10.0	x	8	=	80
Technical Assistant	1	x	0.0	x	8	=	0
							244

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 38 - Study of North Projection Pier**

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL	
\$413.36	\$86.95	\$66.08	\$46.89	\$31.91	\$28.27	\$23.17		
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
-	-	-	-	-	-	-	-	-
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
-	-	-	-	-	-	-	-	-
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

I. TASK 38

A.

Labor & Overhead:

Fee 10% (On all Labor, excluding Principals):

Total Labor Cost:

Other Direct Costs:

Grand Total Task 38:

Note: Additional Work Removed per PA Request.

Task 38
Breakdown by Staff Classification

I. Task 38

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	0.0	x	8	=	0
Arch/Eng B	1	x	0.0	x	8	=	0
Arch/Eng C	1	x	0.0	x	8	=	0
Arch/Eng D	1	x	0.0	x	8	=	0
CADD	1	x	0.0	x	8	=	0
Technical Assistant	1	x	0.0	x	8	=	0
							0

Note: Additional Work Removed per PA Request.

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 39 - Fire Load Test – PA-4/5 PATH Car**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	TOTAL
	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
A.	-	24	-	-	-	-	-	24
	\$0	\$4,867	\$0	\$0	\$0	\$0	\$0	\$4,867
Labor & Overhead:	-	24	-	\$0	\$0	\$0	\$0	24
	\$0	\$4,867	\$0	\$0	\$0	\$0	\$0	\$4,867

Fee 10% (On all Labor, excluding Principals): **\$487**

Total Labor Cost: **\$5,354**

Other Direct Costs: **\$21,000**

Grand Total Task 39: **\$26,354**

Notes: Design estimate includes \$21,000 for Hughes Associates, Inc. (ODC).

Task 39
Breakdown by Staff Classification

I. Task 39

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	6.0	x	4	=	24
Arch/Eng B	0	x	0.0	x	0	=	0
Arch/Eng C	0	x	0.0	x	0	=	0
Arch/Eng D	0	x	0.0	x	0	=	0
CADD	0	x	0.0	x	0	=	0
Technical Assistant	0	x	0.0	x	0	=	0
							24

Task 40
Breakdown by Staff Classification

I. Task 40

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	14	x	15.1	x	26	=	5,500
Arch/Eng B	20	x	15.8	x	26	=	8,200
Arch/Eng C	20	x	16.0	x	26	=	8,300
Arch/Eng D	20	x	14.8	x	26	=	7,700
CADD	20	x	17.9	x	26	=	9,300
Technical Assistant	5	x	7.7	x	26	=	1,000
							40,000

Note: Cost for this task to be treated as an allowance.

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 41 - Project Management, Project Controls, QA/QC (7/1/07 - 5/31/08)**

Average Rate	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
Average Overhead	2.6818	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 41

	Santiago Calatrava		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	780	\$564,787	3,000	\$608,387	3,000	\$462,307	4,600	\$500,920	2,700	\$200,928	-	\$0	10,340	\$558,705	24,420	\$2,896,034
Labor & Overhead:	780	\$564,787	3,000	\$608,387	3,000	\$462,307	4,600	\$500,920	2,700	\$200,928	-	\$0	10,340	\$558,705	24,420	\$2,896,034

Fee 10%: **\$289,603**

Total Labor Cost: **\$3,185,637**

Other Direct Costs:

Grand Total Task 41: **\$3,185,637**

Task 41
Breakdown by Staff Classification

I. Task 41

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Santiago Calatrava	1	x	16.6	x	47	=	780
Arch/Eng A	4	x	16.0	x	47	=	3,000
Arch/Eng B	3	x	21.3	x	47	=	3,000
Arch/Eng C	7	x	14.0	x	47	=	4,600
Arch/Eng D	3	x	19.1	x	47	=	2,700
CADD	1	x	0.0	x	47	=	0
Technical Assistant	6	x	36.7	x	47	=	10,340
							24,420

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 42 - ODC's (7/1/07 - 5/31/08)**

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03

I. TASK 42

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0
Labor & Overhead:	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0	-	\$0

Fee 10% (On all Labor, excluding Principals):

Total Labor Cost:

Other Direct Costs:

Grand Total Task 42:

Task 42
Breakdown by Staff Classification

I. Task 42 (No Labor - ODC's)

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	0	x	0.0	x	0	=	0
Arch/Eng B	0	x	0.0	x	0	=	0
Arch/Eng C	0	x	0.0	x	0	=	0
Arch/Eng D	0	x	0.0	x	0	=	0
CADD	0	x	0.0	x	0	=	0
Technical Assistant	0	x	0.0	x	0	=	0
							0

SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 43 - Project Management, Project Controls, QA/QC (6/1/08 - 9/30/08)

	Santiago Calatrava	Eng/Arch AVZ	Eng/Arch 96	Eng/Arch RC	Eng/Arch RD	CADD	Technical Assistant	
Average Rate	\$270.00	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
Average Overhead	2.6818	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$724.09	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	TOTAL

I. TASK 43

	Hours	\$	Hours	\$	Hours	\$	Hours	\$								
A.	270	\$195,505	1,100	\$223,075	1,200	\$184,923	1,920	\$209,080	1,820	\$135,440	-	\$0	3,200	\$172,907	9,510	\$1,120,929
Labor & Overhead:	270	\$195,505	1,100	\$223,075	1,200	\$184,923	1,920	\$209,080	1,820	\$135,440	-	\$0	3,200	\$172,907	9,510	\$1,120,929

Fee 10%: **\$112,093**

Total Labor Cost: **\$1,233,022**

Other Direct Costs:

Grand Total Task 43: **\$1,233,022**

Task 43
Breakdown by Staff Classification

I. Task 43

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Santiago Calatrava	1	x	15.0	x	18	=	270
Arch/Eng A	4	x	15.3	x	18	=	1,100
Arch/Eng B	3	x	22.2	x	18	=	1,200
Arch/Eng C	7	x	15.2	x	18	=	1,920
Arch/Eng D	3	x	33.7	x	18	=	1,820
CADD	1	x	0.0	x	18	=	0
Technical Assistant	6	x	29.6	x	18	=	3,200
							9,510

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002
TASK 44 - ODC's (6/1/08 - 9/30/08)**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
Average Rate	\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17	
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	
	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours
A.	-	-	-	-	-	-	-	-
Labor & Overhead:	-	-	-	-	-	-	-	-

Fee 10% (On all Labor, excluding Principals):	\$0
Total Labor Cost:	\$0
Other Direct Costs:	\$979,754
Grand Total Task 44:	\$979,754

Task 44
Breakdown by Staff Classification

I. Task 44 (No Labor - ODC's)

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	0	x	0.0	x	0	=	0
Arch/Eng B	0	x	0.0	x	0	=	0
Arch/Eng C	0	x	0.0	x	0	=	0
Arch/Eng D	0	x	0.0	x	0	=	0
CADD	0	x	0.0	x	0	=	0
Technical Assistant	0	x	0.0	x	0	=	0
							0

**SUPPLEMENTAL AGREEMENT
TASK ORDER # 08-002**

TASK 45 - Alternative Analysis for the Merrill Lynch Proposal at 175 Greenwich Street (WTC Tower 3)

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL
\$413.36	\$86.95	\$66.08	\$46.89	\$31.91	\$28.27	\$23.17	
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322	
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03	

I. TASK 45

	Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
A.	-	\$0	200	\$40,559	590	\$90,920	520	\$56,626	300	\$22,325	200	\$13,186	80	\$4,323	1,890	\$227,940
Labor & Overhead:	-	\$0	200	\$40,559	590	\$90,920	520	\$56,626	300	\$22,325	200	\$13,186	80	\$4,323	1,890	\$227,940

Fee 10% (On all Labor, excluding Principals): \$22,794

Total Labor Cost: \$250,734

Other Direct Costs:

Grand Total Task 45: \$250,734

Task 45
Breakdown by Staff Classification

I. Task 45

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	3	x	3.7	x	18	=	200
Arch/Eng B	3	x	10.9	x	18	=	590
Arch/Eng C	4	x	7.2	x	18	=	520
Arch/Eng D	2	x	8.3	x	18	=	300
CADD	2	x	5.6	x	18	=	200
Technical Assistant	1	x	4.4	x	18	=	80
							1,890



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

November 4, 2009

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Inc
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE, President, AECOM, Inc.

SUBJECT:

**PROFESSIONAL SERVICES CHANGE ORDER #CO-09-006 (A) –
DESIGN CONTRACT CHANGE [DCC] #494 -
SERVICES DURING CONSTRUCTION**

Ref.: (1) PERFORMANCE OF EXPERT ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL ON A TASK ORDER BASIS P.A. Agreement No.407-03-013; as
amended
(2) Port Authority of NY & NJ Request for Proposal letter dated 6/10/09
(3) DDP Proposal letter dated 7/24/09
(4) DDP Revised Proposal letter dated 11/3/09

Dear Mr. Levy:

This letter acknowledges that you performed additional expert professional architectural and engineering services as set forth in the referenced DDP Proposal dated 11/3/09, the attached Scope of Work and as directed by The Port Authority of NY & NJ (Authority) as additional work items under the referenced Agreement, for the WTC Transportation Hub.

Total compensation for the performance of the abovementioned services during the period of July 1, 2008 – December 31, 2009 shall not exceed the amount of **\$17,877,025.00**. The upcoming Stage IV Services for the period of January 1, 2010 – December 31, 2014 will be authorized at a later date.

Therefore, the previously authorized total amount for the referenced agreement is increased from \$198,414,112 to \$216,291,137.00

115 Broadway, 7th Floor
New York, NY 10006



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

The Consultant shall employ, to every extent possible, the most cost-effective methods of performing the scope of services noted above. This includes, but is not limited to, utilizing appropriate staff as needed (i.e. combining management and technical efforts) and tracking hours of technical staff. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to-exceed total amount noted above. The Consultant shall continue to render the additional services to completion after the point when the Consultant's compensation reaches 100% of such amount for each change order.

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

Please return two original signed copies of this letter to the attention of **Richard Perez, Contract Specialist, Procurement Department, 115 Broadway, 19th floor, New York, NY 10006**. Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

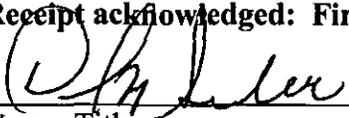
If you have any questions relating to the performance of the subject services, please do not hesitate to contact me at 212-435-5565.

Sincerely,

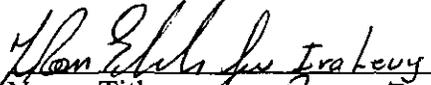
Shawn T. Lenahan, A.I.A.
Senior Program Manager
WTC Construction Department

Attachment.

Receipt acknowledged: Firm Name: Downtown Design Partnership


Name, Title _____ Date Nov. 5, 2009

Dominick M. Servedio, Chairman, CEO


Name, Title _____ Date _____
NE Region Executive



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

CC: C. DeGraffe, E. Dejak, F. Gallo, T. Grassi, J. Hickey, S. Lenahan, S. Leone, N. Lombardi,
K. Matthews, M. Pagliettini, R. Petrides, R. Perez, N. Ranalli, C. Russell, M. Socrates,
WTCC Document Control

**FOR EXPERT PROFESSIONAL ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL WITH DOWNTOWN DESIGN PARTNERSHIP (DDP),
A JOINT VENTURE OF DMJM+HARRIS, INC. AND STV, INC.**

**PA AGREEMENT #407-03-013
Purchase Order #4900000675
SCOPE OF WORK DESCRIPTION**

**Revised – Change Order (CO) # 09-006-A
Design Contract Change (DCC) 494
Services During Construction**

The following is a proposal to provide additional architectural and engineering services as an additional work item. Unless stated otherwise, all scope of work and associated design costs are related to Services During Construction efforts. All Work agreed upon by all parties shall be authorized under the referenced DCC. The scope of services for this proposal includes the following:

Scope

The attached cost proposal for CO#09-006-A is for services from 7/1/08 through 12/31/09. All work shall be performed in accordance with the Scope of Services outlined in the referenced Agreement and as detailed below.

I. SCOPE OF WORK DESCRIPTION

The services of the Downtown Design Partnership (DDP) shall consist of performing Construction Support Services (**Stage IV**) for all remaining work of the World Trade Center (WTC) Hub and Non-Hub segments of the overall P.A. Agreement and related documents listed below:

- Work Package No. 20, Station Construction and Transit Hall, Structures to Grade, Fit-Out, and MEP - Contract No. 214.546
- Work Package No.20, Greenwich Street Corridor Construction - Contract 224.545
- Work Package No. 20, Transit Hall Above Grade, Contract No. TBD
- Work Package No. TBD, Cortlandt Street Station, Contract No. TBD
- Work Package Nos. #3E, #5C, #6C, #6C.1, #10.2 and #10.3 - Contract 284.548

DDP shall provide Miscellaneous Stage IV Construction Phase Services Limited to the scope of work delineated in following Ongoing Work Packages:

- #1H
- #2
- #4B and #4C

- #6B
- #6X
- #8
- #9
- #12
- #17
- #17A, 18B and 18B.1
- #20 BCD.1
- #20.20

All applicable documents forming the basis of design and DDP designed contract documents for the Work Packages listed above are included by reference herein.

Work also includes Project Management services during Stage IV and associated Other Direct Costs (ODC's) from July 1, 2009 through December 31, 2013.

DDP's services and associated designs shall comply with all Federal, State and Local codes that would apply if the Authority were a private corporation and with all industry standards including, but not limited to those identified herein.

DDP shall be responsible for staffing of all involved disciplines, which may be assigned to perform Work under this Change Order.

All submittals shall be returned to the contractor within 10 working days of receipt.

DDP shall serve as Engineer of Record as provided herein. See attached Schedule E for assumptions.

The DDP's Services During Construction shall include, but not be limited to, the following tasks:

TASK 1: General

Task 1.1 Submit a Quality Control/Quality Assurance (QA/QC) Program for the professional services to be undertaken in connection with the performance of Post Award Duties specified herein. The QA/QC program shall be submitted within 10 days of approval of this work.

Task 1.2 Maintain clear, dated records of all documents submitted to DDP, including but not limited to, transmittals, submittals and associated reviews, Requests for Information/Requests for Clarification (RFIs/RFCs) and responses, meeting minutes, submittals and their markups, as well as designs, calculations or drawings prepared during the construction phase. These documents shall be made available to WTCC per the deliverable section below and/or upon request. Upon project completion, or request by WTCC, all these documents shall be listed, filed and submitted to WTCC.

Task 1.3 Coordinate with the designated WTCC individual(s) on a continuous basis to respond to any technical issues that may arise during the bidding phase or construction. The DDP and WTCC designee(s) shall co-reside with WTCC person and be capable to review and respond immediately to technical issues that develop (Note this service overlaps with other services and as listed in Tasks 2 and 3 and accordingly should only be considered at 50% of a Full Time Employee and only during the first 2 years of construction).

TASK 2: Service During Bidding Phase

Task 2.1 Attend pre-bid meetings (Assume 10 meetings are required).

Task 2.2 Respond to RFCs relating to the bid documents (Assume 500 such RFCs are required).

Task 2.3 Prepare a "Conformed" set of contract drawings incorporating all Addenda, sketches issued to the contractor as information, etc. that may have been in response to questions specifically raised by Contractor. Specific approval and budget from WTCC is required prior to performing any work under this task. Conformed set shall be delivered within 20 business days from such approvals.

Task 2.4 Attend meetings between Contractor and WTCC as requested. Prepare minutes of pre-bid meeting within 5 business days and submit final version within 8 business days of each meeting (Assume 100 such meetings for this Task).

TASK 3: Service During Construction Phase

Task 3.1 Attend field meetings as requested by WTCC in coordination with the Resident Engineer (Assume 4 meeting a week on average for 54 months). Any response to questions or requests that might arise from such meeting shall be considered part of Task 3.6 below. Attendance to these meeting shall be limited.

Task 3.2 Provide a full time technical expeditor/field engineer during the 54-month construct period to coordinate with the Resident Engineer, and expedite responses from the designers to any field questions that may arise. Any response to questions and/or requests that might arise shall be considered as part of Task 3.6 below. The proposed individual shall be identified and his or her resume shall be submitted for consideration and approval by the PA within 5 business days.

Task 3.3 At the request of WTCC, coordinate with and attend meetings with third parties, other agencies and stakeholders to coordinate technical issues that may arise (Assume 250 such meetings are required and shall include preparation time).

Task 3.4 Perform Engineering Services related to issues between that develop due to third parties, such as MTA, Memorial, Retail, SPI, etc. Specific direction from WTCC will be required prior to performing any such service.

NOTE: An allowance will be negotiated for this task to prepare drawings, sketches or technical memorandums. Specific approval and budget through the DCC process is required prior to performing any work under this task

Task 3.5 Prepare supplemental documents for Post Award Contract Changes (PACCs) and provide cost estimates associated with the changes. In general, PACCs shall be initiated by either WTCC or the contractor to address field conditions or proposed means and methods. All direction to the DDP shall be from WTCC.

NOTE: An allowance will be negotiated for this task. Specific approval and budget through the Design Contract Change (DCC) process is required prior to performing any work under this task.

Task 3.6 Respond to Contractor- submitted RFIs. Prepare appropriate sketches, drawings, etc., to help clarify any such contractor's requests (Assume 5000 RFIs submittals.) WTCC will categorize RFIs in groupings including: Design Change, Design Error & Omission, Contractor's Request, WTCC Request, or others groups that may be appropriate.

Task 3.7 Review and comment on Contractor's submittals, including shop drawings, calculations, catalog cuts, temporary structures/MEP systems submittals, Contractor's erection drawings/procedures/manuals, samples, certificates, test reports, etc. A submittal shall be considered as an individual shop drawing, catalog cut or set of calculations (Assume a total of 15,000 individual drawings/calculations and 8,000 catalog cuts).

Task 3.8 Review and comment on Contractor prepared operational manuals required for operating and servicing installed equipment, systems and machinery. Assume 25 manuals will require review. Specific approval and budget from WTCC is required prior to performing any work under this task.

Task 3.9 Prepare "Record" drawings upon completion of construction. WTCC to furnish "as built" information that is to be incorporated. Assume 1,500 contract drawings will need to be modified. Marked-up drawings showing actually installed items will be provided by WTCC's Resident Engineer. This will be performed electronically using the conformed set of documents. Specific approval and budget through the DCC process is required prior to performing any work under this task.

Task 3.10 At the specific written request of WTCC, review contractor's proposed design changes and comment upon their impacts from technical, schedule and cost perspectives. This shall include evaluating alternative construction details and materials, as requested by WTCC (Assume 75 such proposed design changes).

Task 3.11 Review Contractor's claims and/or proposed Change Orders, commenting upon their appropriateness based upon DDP's design intent.

NOTE: An allowance of will be negotiated for this task. Specific approval and budget through the DCC process is required prior to performing any work under this task.

Task 3.12 Prepare and submit at the first pre-construction meeting an outline listing of required contractor's submittals.

Task 3.13 Attend meetings and supply appropriate information to support WTCC's Risk Management Group in their development and ongoing maintenance of a Risk Register.

Task 3.14 Perform presently unspecified Engineering Services that may be required to support ongoing construction.

NOTE: An allowance will be negotiated for this Task. Specific approval and budget through the DCC process is required prior to performing any work under this task.

TASK 4: Commissioning Services

Task 4.1 Assist WTCC in commissioning, testing, balancing and quality assessment efforts prior to turnover and acceptance of all systems of Package 20.

NOTE: An allowance of will be negotiated for this Task. Specific approval and budget through the DCC process is required prior to performing any work under this task.

Task 4.2 Assist WTCC in the Sustainable Design Guidelines Commissioning process.

NOTE: An allowance will be negotiated for this Task. Specific approval and budget through the DCC process is required prior to performing any work under this task.

TASK 5: Project Management During Phase IV Services

Provide Project Management Services from 7/1/2009 through 12/31/2009. Project Management services are a time phased effort and will cover DDP's Project Management during this period for both design and construction efforts. Services during this period shall include, but not be limited to the following:

- Project Management
- Project Controls and Reporting
- Design Management During Construction
- Quality Assurance/Quality Control
- Environmental/External Interface

TASK 6: Other Direct Costs During Phase IV Services

Other Direct Costs (ODC) that WTCC will directly reimburse to DDP for the period between 7/1/2009 through 12/31/2009, include but are not limited to the following:

- Office Maintenance
- Build Out Costs
- Office Telephone Service
- Office Telephone Equipment
- Office Equipment Rentals
- Office Supplies
- Computer Equipment
- Computer Software
- Data Storage
- Reproduction costs associated with printing, including but not limited to drawing, calculations, specifications, estimates, contractor submittals, etc. required in the design project management of the project and by WTCC for review or distribution.
- Short-term travel costs for visitors to DDP's or WTCC's offices. The intent of short-term travel is for reasonable non-reoccurring travel expenses associated with bringing specialists to the project. Approval by the PA shall be obtained prior to incurring such expense and shall be in accordance with the guidelines for travel and lodging expenses previously provided to the DDP.
- Short-term Room and Board for visitors to DDP's or WTCC's offices. The intent of short term Room and Board is for reasonable non-reoccurring travel expenses associated with bringing specialists to the project. Approval by the PA shall be obtained prior to incurring such expense and shall be in accordance with the guidelines for travel and lodging expenses previously provided to the DDP.
- Mailings, Shipping and Delivery Services
- Miscellaneous costs agreed to by the WTCC that does not fall into the above categories.
- Payments to approved Specialty DDPs for their Services within established budgets.

Each item shall be tracked and billed separately and within the limits negotiated for that specific item. The negotiated amount shall not be considered as a lump sum.

Deliverables:

The DDP shall provide all deliverables in accordance with Section F (Services During the Construction) as outlined below.

- Quality Control/Quality Assurance (QA/QC) Program 20 days from NTP.

- Requests for Information/ Requests for Clarification (RFIs/ RFCs) and responses, meeting minutes, submittals and their markups shall be submitted within 5 working days.
- "Conformed" set of contract drawings within 20 days from PA approval. Prepare Post Award Contract Changes (PACCs) and provide cost estimates no later than 5 working days from notice to prepare such PACC.
- Comment on Contractor's submittals, including shop drawings, calculations, catalog cuts, temporary structures/MEP systems submittals, Contractor's erection drawings/procedures/manuals, samples, certificates, test reports, etc. shall be submitted no later than 10 days from receipt by the Authority.
- Prepare and submit "as built" drawings no later than 120 day upon completion of construction.
- Comments on contractor's proposed design changes shall be submitted to the PA no later than 5 working days.

Contract No. 407-03-013
 Change Order (CO) #09-006-A
 Design Contract Change (DCC) 494

**Professional Services Change Order
 Revised - Cost Proposal**

Schedule A

Stage VI - Services During Construction (July 2008 - December 31, 2009)		
1	JV Direct Labor (Hourly Rates x Hours)	\$3,910,813.74
2	JV Fee/Profit	\$871,044.88
3	JV Total Labor (Direct Labor x Negotiated Multiplier)	\$9,581,493.67
4	Sum of Subconsultants Total Labor	\$6,864,077.14
5	Other Direct Costs (Out-of-Pocket Expenses - Task 6)	\$1,431,454.00
Total Change Order Price (Items 3 + 4 + 5)		\$17,877,024.82

Notes:

JV Negotiated Billing Multiplier = 2.45

Revised Change Order# 09-006-A
 Design Contract Change 494 - Services During Construction

Revised Summary - Cost Estimate Analysis (7/1/08 - 12/31/09)

Task 1: General	Hours	\$
Task 1.1 - Submit QC/QA Program	100	\$17,205
Task 1.2 - Maintain Records	10,920	\$893,346
Task 1.3 - Coordinate with WTC Staff (Procurement Support)	7,280	\$1,269,304
Total - Task 1 :	18,300	\$2,179,855

Task 2: Services During Bidding Phase	Hours	\$
Task 2.1 - Pre-Bid Meetings	62	\$14,888
Task 2.2 - Respond to RFCs	3,255	\$611,427
Task 2.3 - Prepare Conformed Set	0	\$0
Task 2.4 - Meetings with Contractor and WTCC	501	\$98,172
Total - Task 2 :	3,819	\$724,487

Task 3: Services During Construction Phase	Hours	\$
Task 3.1 - Field Meetings	2,496	\$487,303
Task 3.2 - Technical Expeditor/Field Engineer	1,040	\$168,372
Task 3.3 - Third Party Meetings	270	\$53,216
Task 3.4 - Engineering Services Related to 3rd Party (MTA, Retail, SPI, etc.) - ALLOWANCE	0	\$0
Task 3.5 - Post Award Contract Changes - ALLOWANCE	0	\$0
Task 3.6 - Respond to RFI, Prepare Sketches	16,608	\$2,594,160
Task 3.7 - Review and Comment on Shop Drawings, Calculations, Catalog Cut, etc.	41,434	\$6,738,529
Task 3.8 - Review and Comment on Operational Manual	0	\$0
Task 3.9 - Prepare Record Drawings	0	\$0
Task 3.10 - Review Contractor's Prop. Design Changes/Comment (PA Direction - ALLOWANCE)	672	\$112,014
Task 3.11 - Review Contractor's Claim - ALLOWANCE	0	\$0
Task 3.12 - Outline Listing of Required Contractor's Submittal (Per PA Deleted)	0	\$0
Task 3.13 - Risk Management Group Meetings	47	\$9,172
Task 3.14 - Unspecified Engineering Services - ALLOWANCE	16,588	\$2,195,839
Total - Task 3 :	79,155	\$12,358,605

Task 4: Commissioning Services	Hours	\$
Task 4.1 - Assist WTCC in Commissioning - ALLOWANCE	0	\$0
Task 4.2 - Assist WTCC in Sustainable Design Guidelines - ALLOWANCE	0	\$0
Total - Task 4 :	0	\$0

Task 5: Project Management (7/1/2009 - 12/31/2009)	Hours	\$
Task 5 - Project Management (7/1/09 - 12/31/2009)	7,280	\$1,182,624
Total - Task 5 :	7,280	\$1,182,624

TOTAL LABOR (DCC 494 Services During Construction) : 108,554 \$16,445,571

Task 6: Other Direct Costs (7/1/2009 - 12/31/2009)	Hours	\$
Task 6 - ODCs (7/1/09 - 12/31/2009)		\$1,431,454
Total - Task 6 :		\$1,431,454

GRAND TOTAL CO#09-006 (DCC 494 Services During Construction) : \$17,877,025

Professional Services Change Order
Revised - Cost Proposal
Revised - Schedule C
Task 1.1 - QC/QA Program

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/09 - 8/31/09			7/1/09 - 12/31/09			Total FTE	Total Hours	Total Labor (\$)		
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE				Hours (Hrs)	Total Labor (\$)
Edwards, R	AECOM	2.45	A					\$108.53		0.0	\$0.00	0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A					\$102.97		0.0	\$0.00	0.0	0.0	\$0.00
Garz, M	STV	2.45	A					\$116.88		0.0	\$0.00	0.0	0.0	\$0.00
Calatrava, S	SCSA	2.95	A					\$270.00		0.0	\$0.00	0.0	0.0	\$0.00
Son, J	STV	2.45	B					\$81.07		0.0	\$0.00	0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C					\$44.96		0.0	\$0.00	0.0	0.0	\$0.00
Felca, D	PMA	2.5	TA					\$35.00		0.0	\$0.00	0.0	0.0	\$0.00
Quinones, P	STV	2.45	C					\$45.36		0.0	\$0.00	0.0	0.0	\$0.00
Basta, A	STV	2.45	A					\$88.33		0.0	\$0.00	0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA					\$20.40		0.0	\$0.00	0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A					\$81.04		0.0	\$0.00	0.0	0.0	\$0.00
Rocapiglione, A	AECOM	2.45	C					\$52.31		0.0	\$0.00	0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA					\$29.79		0.0	\$0.00	0.0	0.0	\$0.00
Tofig, E	Stellar	2.45	C					\$45.67		0.0	\$0.00	0.0	0.0	\$0.00
Abbate, D	STV	2.45	D					\$27.88		0.0	\$0.00	0.0	0.0	\$0.00
Debnis, Y	STV	2.45	TA					\$31.16		0.0	\$0.00	0.0	0.0	\$0.00
Karboj, M	AECOM	2.45	B					\$69.56		0.0	\$0.00	0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C					\$43.27		0.0	\$0.00	0.0	0.0	\$0.00
Pagan, S	PMA	2.5	C					\$53.50		0.0	\$0.00	0.0	0.0	\$0.00
Finkstein, M	STV	2.45	C					\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Nervins, G	STV	2.45	C					\$48.99		0.0	\$0.00	0.0	0.0	\$0.00
Sofano, J	STV	2.45	C					\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Zelner, P	STV	2.45	B					\$70.19	0.10	100.0	\$17,204.80	0.0	100.0	\$17,204.80
Hand, J	AECOM	2.45	B					\$70.61		0.0	\$0.00	0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C					\$40.89		0.0	\$0.00	0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D					\$38.75		0.0	\$0.00	0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C					\$52.15		0.0	\$0.00	0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B					\$70.13		0.0	\$0.00	0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A					\$118.32		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$66.08		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
Bracco, S	STV	2.45	C					\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C					\$48.69		0.0	\$0.00	0.0	0.0	\$0.00
Lem, R	STV	2.45	B					\$61.36		0.0	\$0.00	0.0	0.0	\$0.00
London, L	STV	2.45	D					\$31.27		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D					\$31.91		0.0	\$0.00	0.0	0.0	\$0.00
Aveltan, J	WNBA	2.78	B					\$52.16		0.0	\$0.00	0.0	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad					\$24.76		0.0	\$0.00	0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.76	C					\$45.19		0.0	\$0.00	0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A					\$100.72		0.0	\$0.00	0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B					\$72.73		0.0	\$0.00	0.0	0.0	\$0.00
Lutler, M	Parsons	2.45	C					\$54.56		0.0	\$0.00	0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C					\$31.09		0.0	\$0.00	0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B					\$68.30		0.0	\$0.00	0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B					\$56.48		0.0	\$0.00	0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A					\$73.81		0.0	\$0.00	0.0	0.0	\$0.00
Koumjian, G	STV	2.45	A					\$85.58		0.0	\$0.00	0.0	0.0	\$0.00
Schuller, P	STV	2.45	A					\$90.24		0.0	\$0.00	0.0	0.0	\$0.00
Zheng, H	STV	2.45	B					\$63.07		0.0	\$0.00	0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A					\$93.27		0.0	\$0.00	0.0	0.0	\$0.00
Prmes, J	AECOM	2.45	A					\$78.44		0.0	\$0.00	0.0	0.0	\$0.00
Aitabbs, B	Parsons	2.45	A					\$73.69		0.0	\$0.00	0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A					\$73.56		0.0	\$0.00	0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C					\$42.32		0.0	\$0.00	0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C					\$44.29		0.0	\$0.00	0.0	0.0	\$0.00
Levitov, B	AECOM	2.45	B					\$66.02		0.0	\$0.00	0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B					\$61.22		0.0	\$0.00	0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C					\$44.97		0.0	\$0.00	0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B					\$57.57		0.0	\$0.00	0.0	0.0	\$0.00
Kourkoulis, V	Hirani	2.54	C					\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad					\$25.44		0.0	\$0.00	0.0	0.0	\$0.00
Khail, M	Parsons	2.45	B					\$64.33		0.0	\$0.00	0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C					\$53.74		0.0	\$0.00	0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad					\$34.07		0.0	\$0.00	0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C					\$45.65		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A					\$79.71		0.0	\$0.00	0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A					\$125.06		0.0	\$0.00	0.0	0.0	\$0.00
Doshi, K	STV	2.45	A					\$88.72		0.0	\$0.00	0.0	0.0	\$0.00
Cregger, D	AECOM	2.45	B					\$68.47		0.0	\$0.00	0.0	0.0	\$0.00
Baker, U	Weidinger	2.6	D					\$36.55		0.0	\$0.00	0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A					\$90.87		0.0	\$0.00	0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B					\$65.00		0.0	\$0.00	0.0	0.0	\$0.00
Kopkail, H	YAS	2.51	B					\$67.00		0.0	\$0.00	0.0	0.0	\$0.00
Fearon, D	PACO	2.62	TA					\$27.79		0.0	\$0.00	0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.69	P					\$144.00		0.0	\$0.00	0.0	0.0	\$0.00
Totals:					0.00	0.0	\$0.00		0.1	100.0	\$17,204.80	0.0	100.0	\$17,204.80

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 1.2 - Maintain Records

Staffing Name	Company	Multiplier (CH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09			7/1/09 - 12/31/09			Total FTE	Total Hours	Total Labor (\$)		
				Hourly Rate	FTE	Hours	Total Labor (\$)	Hourly Rate	FTE				Hours	Total Labor (\$)
Edwards, R	AECOM	2.45	A	\$108.53		0.0	\$0.00	\$108.53		0.0	\$0.00	0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A	\$102.97		0.0	\$0.00	\$102.97		0.0	\$0.00	0.0	0.0	\$0.00
Garz, M	STV	2.45	A	\$118.88		0.0	\$0.00	\$118.88		0.0	\$0.00	0.0	0.0	\$0.00
Catalrava, S	SCSA	2.95	A	\$270.00		0.0	\$0.00	\$270.00		0.0	\$0.00	0.0	0.0	\$0.00
Son, J	STV	2.45	B	\$61.07		0.0	\$0.00	\$61.07		0.0	\$0.00	0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C	\$44.96		0.0	\$0.00	\$44.96		0.0	\$0.00	0.0	0.0	\$0.00
Felce, D	PMA	2.5	TA	\$35.00		0.0	\$0.00	\$35.00		0.0	\$0.00	0.0	0.0	\$0.00
Quinones, P	STV	2.45	C	\$45.36		0.0	\$0.00	\$45.36		0.0	\$0.00	0.0	0.0	\$0.00
Basta, A	STV	2.45	A	\$88.33	0.10	208.0	\$45,012.97	\$88.33	0.10	104.0	\$22,506.48	0.2	312.0	\$67,519.45
Jang, H	AECOM	2.45	TA	\$20.40		0.0	\$0.00	\$20.40	1.00	1,040.0	\$51,979.20	0.5	1,040.0	\$51,979.20
McDermott, C	AECOM	2.45	A	\$81.04		0.0	\$0.00	\$81.04		0.0	\$0.00	0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C	\$52.31	0.10	208.0	\$26,857.18	\$52.31		0.0	\$0.00	0.1	208.0	\$26,857.18
Powell, D	ISR	2.332	TA	\$29.79	1.00	2,080.0	\$144,498.18	\$29.79	1.00	1,040.0	\$72,249.09	1.5	3,120.0	\$216,747.27
Tong, E	Stellar	2.45	C	\$45.67		0.0	\$0.00	\$45.67		0.0	\$0.00	0.0	0.0	\$0.00
Abbate, D	STV	2.45	D	\$27.68	1.00	2,080.0	\$142,076.48	\$27.68	1.00	1,040.0	\$71,038.24	1.5	3,120.0	\$213,114.72
Dennis, Y	STV	2.45	TA	\$31.16		0.0	\$0.00	\$31.16	1.00	1,040.0	\$79,395.68	0.5	1,040.0	\$79,395.68
PTG Eng/Arch C	PTG TBD	2.45	C	\$48.89	1.00	2,080.0	\$237,932.24	\$48.89		0.0	\$0.00	1.0	2,080.0	\$237,932.24
PTG Eng/Arch D	PTG TBD	2.45	D	\$31.91		0.0	\$0.00	\$31.91		0.0	\$0.00	0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D	\$31.91		0.0	\$0.00	\$31.91		0.0	\$0.00	0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Nervina, G	STV	2.45	C	\$48.99		0.0	\$0.00	\$48.99		0.0	\$0.00	0.0	0.0	\$0.00
Solano, J	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Zelner, P	STV	2.45	B	\$70.19		0.0	\$0.00	\$70.19		0.0	\$0.00	0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B	\$70.81		0.0	\$0.00	\$70.81		0.0	\$0.00	0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C	\$40.89		0.0	\$0.00	\$40.89		0.0	\$0.00	0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D	\$38.75		0.0	\$0.00	\$38.75		0.0	\$0.00	0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C	\$52.15		0.0	\$0.00	\$52.15		0.0	\$0.00	0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B	\$70.13		0.0	\$0.00	\$70.13		0.0	\$0.00	0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A	\$118.32		0.0	\$0.00	\$118.32		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B	\$68.08		0.0	\$0.00	\$68.08		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95		0.0	\$0.00	\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95		0.0	\$0.00	\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
Bracco, S	STV	2.45	C	\$48.08		0.0	\$0.00	\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C	\$48.89		0.0	\$0.00	\$48.89		0.0	\$0.00	0.0	0.0	\$0.00
Lem, R	STV	2.45	B	\$61.36		0.0	\$0.00	\$61.36		0.0	\$0.00	0.0	0.0	\$0.00
London, L	STV	2.45	D	\$31.27		0.0	\$0.00	\$31.27		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D	\$31.91		0.0	\$0.00	\$31.91		0.0	\$0.00	0.0	0.0	\$0.00
Avellan, J	WNBA	2.78	B	\$52.18		0.0	\$0.00	\$52.18		0.0	\$0.00	0.0	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad	\$24.76		0.0	\$0.00	\$24.76		0.0	\$0.00	0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.78	C	\$45.19		0.0	\$0.00	\$45.19		0.0	\$0.00	0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A	\$100.72		0.0	\$0.00	\$100.72		0.0	\$0.00	0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B	\$72.73		0.0	\$0.00	\$72.73		0.0	\$0.00	0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C	\$54.56		0.0	\$0.00	\$54.56		0.0	\$0.00	0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C	\$51.09		0.0	\$0.00	\$51.09		0.0	\$0.00	0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B	\$68.30		0.0	\$0.00	\$68.30		0.0	\$0.00	0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B	\$56.49		0.0	\$0.00	\$56.49		0.0	\$0.00	0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A	\$73.81		0.0	\$0.00	\$73.81		0.0	\$0.00	0.0	0.0	\$0.00
Koumjian, G	STV	2.45	A	\$85.58		0.0	\$0.00	\$85.58		0.0	\$0.00	0.0	0.0	\$0.00
Schuller, P	STV	2.45	A	\$90.24		0.0	\$0.00	\$90.24		0.0	\$0.00	0.0	0.0	\$0.00
Zheng, H	STV	2.45	B	\$63.07		0.0	\$0.00	\$63.07		0.0	\$0.00	0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A	\$93.27		0.0	\$0.00	\$93.27		0.0	\$0.00	0.0	0.0	\$0.00
Pames, J	AECOM	2.45	A	\$78.44		0.0	\$0.00	\$78.44		0.0	\$0.00	0.0	0.0	\$0.00
Attabba, B	Parsons	2.45	A	\$73.69		0.0	\$0.00	\$73.69		0.0	\$0.00	0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A	\$73.58		0.0	\$0.00	\$73.58		0.0	\$0.00	0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C	\$42.32		0.0	\$0.00	\$42.32		0.0	\$0.00	0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C	\$44.29		0.0	\$0.00	\$44.29		0.0	\$0.00	0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B	\$66.02		0.0	\$0.00	\$66.02		0.0	\$0.00	0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B	\$61.22		0.0	\$0.00	\$61.22		0.0	\$0.00	0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C	\$44.97		0.0	\$0.00	\$44.97		0.0	\$0.00	0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B	\$57.57		0.0	\$0.00	\$57.57		0.0	\$0.00	0.0	0.0	\$0.00
Kourkouvelis, V	Hiran	2.54	C	\$48.08		0.0	\$0.00	\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad	\$25.44		0.0	\$0.00	\$25.44		0.0	\$0.00	0.0	0.0	\$0.00
Khail, M	Parsons	2.45	B	\$64.33		0.0	\$0.00	\$64.33		0.0	\$0.00	0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C	\$53.74		0.0	\$0.00	\$53.74		0.0	\$0.00	0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad	\$34.07		0.0	\$0.00	\$34.07		0.0	\$0.00	0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C	\$45.85		0.0	\$0.00	\$45.85		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95		0.0	\$0.00	\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A	\$79.71		0.0	\$0.00	\$79.71		0.0	\$0.00	0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A	\$125.08		0.0	\$0.00	\$125.08		0.0	\$0.00	0.0	0.0	\$0.00
Doshi, K	STV	2.45	A	\$98.72		0.0	\$0.00	\$98.72		0.0	\$0.00	0.0	0.0	\$0.00
Cregger, D	AECOM	2.45	B	\$58.47		0.0	\$0.00	\$58.47		0.0	\$0.00	0.0	0.0	\$0.00
Baker, U	Weidinger	2.8	D	\$36.55		0.0	\$0.00	\$36.55		0.0	\$0.00	0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A	\$90.87		0.0	\$0.00	\$90.87		0.0	\$0.00	0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B	\$65.00		0.0	\$0.00	\$65.00		0.0	\$0.00	0.0	0.0	\$0.00
Kopkall, H	YAS	2.51	B	\$67.00		0.0	\$0.00	\$67.00		0.0	\$0.00	0.0	0.0	\$0.00
Fearon, D	PACO	2.62	TA	\$27.76		0.0	\$0.00	\$27.76		0.0	\$0.00	0.0	0.0	\$0.00
Nikotakakos, S	Russell	2.68	P	\$144.00		0.0	\$0.00	\$144.00		0.0	\$0.00	0.0	0.0	\$0.00
Totals:					3.20	6,656.0	\$596,177.05		4.10	4,264.0	\$297,168.70	5.3	10,920.0	\$893,345.74

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 1.3 - Coordinate with WTC Staff (Procurement Support)

Staffing Name	Company	Multiplier (OH+Fes)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)	
				Hourly Rate	FTE	Hours	Total Labor (\$)	Hourly Rate	FTE	Hours	Total Labor (\$)				
Edwards, R	AECOM	2.45	A	\$108.53		0.0	\$0.00	\$108.53		0.0	\$0.00	0.0	0.0	\$0.00	
McIntyre, S	STV	2.45	A	\$102.97		0.0	\$0.00	\$102.97		0.0	\$0.00	0.0	0.0	\$0.00	
Garz, M	STV	2.45	A	\$116.88		0.0	\$0.00	\$116.88		0.0	\$0.00	0.0	0.0	\$0.00	
Calatrava, S	SCSA	2.95	A	\$270.00		0.0	\$0.00	\$270.00		0.0	\$0.00	0.0	0.0	\$0.00	
Son, J	STV	2.45	B	\$61.07		0.0	\$0.00	\$61.07		0.0	\$0.00	0.0	0.0	\$0.00	
Harris, K	AECOM	2.45	C	\$44.96		0.0	\$0.00	\$44.96		0.0	\$0.00	0.0	0.0	\$0.00	
Felice, D	PMA	2.5	TA	\$35.00		0.0	\$0.00	\$35.00		0.0	\$0.00	0.0	0.0	\$0.00	
Quinones, P	STV	2.45	C	\$45.36		0.0	\$0.00	\$45.36		0.0	\$0.00	0.0	0.0	\$0.00	
JV Eng/Arch A	JV TBD	2.45	A	\$66.95		0.0	\$0.00	\$66.95	0.40	416.0	\$88,619.44	0.2	416.0	\$66,619.44	
JV Eng/Arch B	JV TBD	2.45	B	\$66.08		0.0	\$0.00	\$66.08	0.50	520.0	\$84,185.92	0.3	520.0	\$84,185.92	
JV Eng/Arch B	JV TBD	2.45	B	\$66.08	0.15	312.0	\$60,511.55	\$66.08	0.50	520.0	\$84,185.92	0.4	832.0	\$134,697.47	
PTG Eng/Arch B	PTG TBD	2.45	B	\$66.08		0.0	\$0.00	\$66.08	0.50	520.0	\$84,185.92	0.3	520.0	\$84,185.92	
PTG Eng/Arch B	PTG TBD	2.45	B	\$66.08		0.0	\$0.00	\$66.08	0.50	520.0	\$84,185.92	0.3	520.0	\$84,185.92	
Tong, E	Stellar	2.45	C	\$45.67		0.0	\$0.00	\$45.67		0.0	\$0.00	0.0	0.0	\$0.00	
Abbate, D	STV	2.45	D	\$27.88		0.0	\$0.00	\$27.88		0.0	\$0.00	0.0	0.0	\$0.00	
Dennis, Y	STV	2.45	TA	\$31.16		0.0	\$0.00	\$31.16		0.0	\$0.00	0.0	0.0	\$0.00	
Kamboj, M	AECOM	2.45	B	\$69.56	0.15	312.0	\$53,171.66	\$69.56	0.30	312.0	\$53,171.66	0.3	624.0	\$108,343.33	
Gallagher, T	Parsons	2.45	C	\$43.27		0.0	\$0.00	\$43.27	0.30	312.0	\$33,075.59	0.2	312.0	\$33,075.59	
Pegani, S	PMA	2.5	C	\$53.50		0.0	\$0.00	\$53.50	0.20	208.0	\$27,820.00	0.1	208.0	\$27,820.00	
Finkelstein, M	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00	0.20	208.0	\$27,008.80	0.1	208.0	\$27,008.80	
Nervina, G	STV	2.45	C	\$48.99		0.0	\$0.00	\$48.99	0.10	104.0	\$12,482.65	0.1	104.0	\$12,482.65	
Solano, J	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00	0.10	104.0	\$13,504.40	0.1	104.0	\$13,504.40	
Zellner, P	STV	2.45	B	\$70.19		0.0	\$0.00	\$70.19		0.0	\$0.00	0.0	0.0	\$0.00	
Hand, J	AECOM	2.45	B	\$70.61		0.0	\$0.00	\$70.61		0.0	\$0.00	0.0	0.0	\$0.00	
Chong, S	AECOM	2.45	C	\$40.89		0.0	\$0.00	\$40.89		0.0	\$0.00	0.0	0.0	\$0.00	
Patel, K	AECOM	2.45	D	\$38.75		0.0	\$0.00	\$38.75		0.0	\$0.00	0.0	0.0	\$0.00	
Schiff, M	AECOM	2.45	C	\$52.15	0.15	312.0	\$39,863.48	\$52.15	0.0	0.0	\$0.00	0.2	312.0	\$39,863.48	
Woo, T	AECOM	2.45	B	\$70.13		0.0	\$0.00	\$70.13		0.0	\$0.00	0.0	0.0	\$0.00	
Diamond, R	SCSA	2.95	A	\$118.32		0.0	\$0.00	\$118.32		0.0	\$0.00	0.0	0.0	\$0.00	
SCSA Eng/Arch B	SCSA TBD	2.95	B	\$66.08		0.0	\$0.00	\$66.08		0.0	\$0.00	0.0	0.0	\$0.00	
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$66.95		0.0	\$0.00	\$66.95		0.0	\$0.00	0.0	0.0	\$0.00	
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$66.95		0.0	\$0.00	\$66.95		0.0	\$0.00	0.0	0.0	\$0.00	
Bracco, S	STV	2.45	C	\$48.08		0.0	\$0.00	\$48.08		0.0	\$0.00	0.0	0.0	\$0.00	
PTG Eng/Arch C	PTG TBD	2.45	C	\$48.69		0.0	\$0.00	\$48.69		0.0	\$0.00	0.0	0.0	\$0.00	
Lem, R	STV	2.45	B	\$61.38	0.15	312.0	\$48,903.58	\$61.38		0.0	\$0.00	0.2	312.0	\$48,903.58	
London, L	STV	2.45	D	\$31.27		0.0	\$0.00	\$31.27		0.0	\$0.00	0.0	0.0	\$0.00	
PTG Eng/Arch D	PTG TBD	2.45	D	\$31.91		0.0	\$0.00	\$31.91		0.0	\$0.00	0.0	0.0	\$0.00	
Avelian, J	WNBA	2.78	B	\$52.16		0.0	\$0.00	\$52.16		0.0	\$0.00	0.0	0.0	\$0.00	
Govekar, S	WNBA	2.78	Cad	\$24.76		0.0	\$0.00	\$24.76		0.0	\$0.00	0.0	0.0	\$0.00	
Kasakyen, A	WNBA	2.78	C	\$45.19		0.0	\$0.00	\$45.19		0.0	\$0.00	0.0	0.0	\$0.00	
Brodsky, V	STV	2.45	A	\$100.72		0.0	\$0.00	\$100.72		0.0	\$0.00	0.0	0.0	\$0.00	
Ghaly, N	Parsons	2.45	B	\$72.73		0.0	\$0.00	\$72.73		0.0	\$0.00	0.0	0.0	\$0.00	
Letler, M	Parsons	2.45	C	\$54.56		0.0	\$0.00	\$54.56		0.0	\$0.00	0.0	0.0	\$0.00	
Clarson, M	RCC	2.917	C	\$51.09		0.0	\$0.00	\$51.09		0.0	\$0.00	0.0	0.0	\$0.00	
Abdullah, M	STV	2.45	B	\$68.30		0.0	\$0.00	\$68.30		0.0	\$0.00	0.0	0.0	\$0.00	
Cobuzzi, A	STV	2.45	B	\$58.49		0.0	\$0.00	\$58.49		0.0	\$0.00	0.0	0.0	\$0.00	
Giboa, J	STV	2.45	A	\$73.81	0.15	312.0	\$56,420.38	\$73.81		0.0	\$0.00	0.2	312.0	\$56,420.38	
Koumjan, G	STV	2.45	A	\$65.58		0.0	\$0.00	\$65.58		0.0	\$0.00	0.0	0.0	\$0.00	
Schuller, P	STV	2.45	A	\$90.24	0.15	312.0	\$68,979.48	\$90.24		0.0	\$0.00	0.2	312.0	\$68,979.48	
Zheng, H	STV	2.45	B	\$63.07		0.0	\$0.00	\$63.07		0.0	\$0.00	0.0	0.0	\$0.00	
Charalambous, J	Parsons	2.45	A	\$93.27	0.15	312.0	\$71,295.59	\$93.27	0.10	104.0	\$23,785.20	0.2	416.0	\$95,080.78	
Parnes, J	AECOM	2.45	A	\$78.44		0.0	\$0.00	\$78.44		0.0	\$0.00	0.0	0.0	\$0.00	
Ajagba, B	Parsons	2.45	A	\$73.69	0.15	312.0	\$56,328.84	\$73.69		0.0	\$0.00	0.2	312.0	\$56,328.84	
Mauritz, P	AECOM	2.45	A	\$73.58	0.15	312.0	\$56,244.55	\$73.58		0.0	\$0.00	0.2	312.0	\$56,244.55	
Baxter, D	AECOM	2.45	C	\$42.32		0.0	\$0.00	\$42.32		0.0	\$0.00	0.0	0.0	\$0.00	
Jimenez, D	AECOM	2.45	C	\$44.29		0.0	\$0.00	\$44.29		0.0	\$0.00	0.0	0.0	\$0.00	
Layntov, B	AECOM	2.45	B	\$66.02		0.0	\$0.00	\$66.02		0.0	\$0.00	0.0	0.0	\$0.00	
Mazumdar, A	AECOM	2.45	B	\$61.22		0.0	\$0.00	\$61.22		0.0	\$0.00	0.0	0.0	\$0.00	
Sherzer, M	AECOM	2.45	C	\$44.97		0.0	\$0.00	\$44.97		0.0	\$0.00	0.0	0.0	\$0.00	
Teodor, L	AECOM	2.45	B	\$57.57		0.0	\$0.00	\$57.57		0.0	\$0.00	0.0	0.0	\$0.00	
Kourkoumelis, V	Hirani	2.54	C	\$48.08		0.0	\$0.00	\$48.08		0.0	\$0.00	0.0	0.0	\$0.00	
Ingram, G	Parsons	2.45	Cad	\$25.44		0.0	\$0.00	\$25.44		0.0	\$0.00	0.0	0.0	\$0.00	
Khalil, M	Parsons	2.45	B	\$64.33		0.0	\$0.00	\$64.33		0.0	\$0.00	0.0	0.0	\$0.00	
Patel, A	Parsons	2.45	C	\$53.74		0.0	\$0.00	\$53.74		0.0	\$0.00	0.0	0.0	\$0.00	
Sousa, M	Parsons	2.45	Cad	\$34.07		0.0	\$0.00	\$34.07		0.0	\$0.00	0.0	0.0	\$0.00	
Wisniewski, B	Parsons	2.45	C	\$45.65		0.0	\$0.00	\$45.65		0.0	\$0.00	0.0	0.0	\$0.00	
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$66.95		0.0	\$0.00	\$66.95	0.30	312.0	\$80,028.78	0.2	312.0	\$80,028.78	
Lomax, S	SCSA	2.95	A	\$79.71	0.15	312.0	\$73,365.08	\$79.71		0.0	\$0.00	0.2	312.0	\$73,365.08	
Rando, M	SCSA	2.95	A	\$125.06		0.0	\$0.00	\$125.06		0.0	\$0.00	0.0	0.0	\$0.00	
Doshi, K	STV	2.45	A	\$68.72		0.0	\$0.00	\$68.72		0.0	\$0.00	0.0	0.0	\$0.00	
Cregger, D	AECOM	2.45	B	\$58.47		0.0	\$0.00	\$58.47		0.0	\$0.00	0.0	0.0	\$0.00	
Baker, U	Weidinger	2.8	D	\$36.55		0.0	\$0.00	\$36.55		0.0	\$0.00	0.0	0.0	\$0.00	
Mirzakashani, M	AECOM	2.45	A	\$90.87		0.0	\$0.00	\$90.87		0.0	\$0.00	0.0	0.0	\$0.00	
Wang, H	AECOM	2.45	B	\$65.00		0.0	\$0.00	\$65.00		0.0	\$0.00	0.0	0.0	\$0.00	
Kopkall, H	YAS	2.51	B	\$67.00		0.0	\$0.00	\$67.00		0.0	\$0.00	0.0	0.0	\$0.00	
Fearon, D	PACO	2.62	TA	\$27.78		0.0	\$0.00	\$27.78		0.0	\$0.00	0.0	0.0	\$0.00	
Nikolakakos, S	Russell	2.86	P	\$144.00		0.0	\$0.00	\$144.00		0.0	\$0.00	0.0	0.0	\$0.00	
Totals Task 1.3:						1.50	3,120.0	\$573,083.94	5,107.9	4.00	4,160.0	\$696,220.20	3.5	7,280.0	\$1,269,304.14

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 2.1 - Pre-Bid Meetings

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)	
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)				
Edwards, R	AECOM	2.45	A					\$108.53			0.0	\$0.00	0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A					\$102.97			0.0	\$0.00	0.0	0.0	\$0.00
Garz, M	STV	2.45	A					\$116.88	0.02	20.8	\$5,956.20	0.0	20.8	\$5,956.20	
Galatrava, S	SCSA	2.95	A					\$270.00			0.0	\$0.00	0.0	0.0	\$0.00
Son, J	STV	2.45	B					\$61.07			0.0	\$0.00	0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C					\$44.96			0.0	\$0.00	0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA					\$35.00			0.0	\$0.00	0.0	0.0	\$0.00
JV TA	JV TBD	2.45	TA					\$23.17			0.0	\$0.00	0.0	0.0	\$0.00
Basta, A	STV	2.45	A					\$88.33	0.02	20.8	\$4,501.30	0.0	20.8	\$4,501.30	
PTG Eng/Arch A	PTG TBD	2.45	A					\$86.95	0.02	20.8	\$4,430.97	0.0	20.8	\$4,430.97	
PTG Eng/Arch A	PTG TBD	2.45	A					\$86.95			0.0	\$0.00	0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C					\$52.31			0.0	\$0.00	0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA					\$29.79			0.0	\$0.00	0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C					\$45.67			0.0	\$0.00	0.0	0.0	\$0.00
Abbate, D	STV	2.45	D					\$27.86			0.0	\$0.00	0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA					\$31.16			0.0	\$0.00	0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B					\$69.56			0.0	\$0.00	0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C					\$43.27			0.0	\$0.00	0.0	0.0	\$0.00
Pagani, S	PMA	2.5	C					\$53.50			0.0	\$0.00	0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C					\$53.00			0.0	\$0.00	0.0	0.0	\$0.00
Nervina, G	STV	2.45	C					\$46.99			0.0	\$0.00	0.0	0.0	\$0.00
Solano, J	STV	2.45	C					\$53.00			0.0	\$0.00	0.0	0.0	\$0.00
Zelner, P	STV	2.45	B					\$70.19			0.0	\$0.00	0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B					\$70.81			0.0	\$0.00	0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C					\$40.89			0.0	\$0.00	0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D					\$38.75			0.0	\$0.00	0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C					\$52.15			0.0	\$0.00	0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B					\$70.13			0.0	\$0.00	0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A					\$118.32			0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$66.06			0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$66.95			0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$66.95			0.0	\$0.00	0.0	0.0	\$0.00
Bracco, S	STV	2.45	C					\$48.06			0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C					\$46.69			0.0	\$0.00	0.0	0.0	\$0.00
Lem, R	STV	2.45	B					\$61.36			0.0	\$0.00	0.0	0.0	\$0.00
London, L	STV	2.45	D					\$31.27			0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D					\$31.91			0.0	\$0.00	0.0	0.0	\$0.00
Avellan, J	WNBA	2.76	B					\$52.16			0.0	\$0.00	0.0	0.0	\$0.00
Govekar, S	WNBA	2.76	Cad					\$24.76			0.0	\$0.00	0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.76	C					\$45.19			0.0	\$0.00	0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A					\$100.72			0.0	\$0.00	0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B					\$72.73			0.0	\$0.00	0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C					\$54.56			0.0	\$0.00	0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C					\$51.09			0.0	\$0.00	0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B					\$68.30			0.0	\$0.00	0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B					\$56.49			0.0	\$0.00	0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A					\$73.81			0.0	\$0.00	0.0	0.0	\$0.00
Kourmjian, G	STV	2.45	A					\$65.56			0.0	\$0.00	0.0	0.0	\$0.00
Schuller, P	STV	2.45	A					\$90.24			0.0	\$0.00	0.0	0.0	\$0.00
Zheng, H	STV	2.45	B					\$63.07			0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch A	PTG TBD	2.45	A					\$66.95			0.0	\$0.00	0.0	0.0	\$0.00
Pernes, J	AECOM	2.45	A					\$78.44			0.0	\$0.00	0.0	0.0	\$0.00
Altabbe, B	Parsons	2.45	A					\$73.69			0.0	\$0.00	0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A					\$73.56			0.0	\$0.00	0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C					\$42.32			0.0	\$0.00	0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C					\$44.29			0.0	\$0.00	0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B					\$66.02			0.0	\$0.00	0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B					\$61.22			0.0	\$0.00	0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C					\$44.97			0.0	\$0.00	0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B					\$57.57			0.0	\$0.00	0.0	0.0	\$0.00
Kourkourmels, V	Hirani	2.54	C					\$48.08			0.0	\$0.00	0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad					\$25.44			0.0	\$0.00	0.0	0.0	\$0.00
Khatil, M	Parsons	2.45	B					\$64.33			0.0	\$0.00	0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C					\$53.74			0.0	\$0.00	0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad					\$34.07			0.0	\$0.00	0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C					\$45.65			0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$66.95			0.0	\$0.00	0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A					\$79.71			0.0	\$0.00	0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A					\$125.06			0.0	\$0.00	0.0	0.0	\$0.00
Doshi, K	STV	2.45	A					\$68.72			0.0	\$0.00	0.0	0.0	\$0.00
Cragger, D	AECOM	2.45	B					\$58.47			0.0	\$0.00	0.0	0.0	\$0.00
Baker, U	Wedlinger	2.6	D					\$36.55			0.0	\$0.00	0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A					\$60.87			0.0	\$0.00	0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B					\$65.00			0.0	\$0.00	0.0	0.0	\$0.00
Kopkalli, H	YAS	2.51	B					\$67.00			0.0	\$0.00	0.0	0.0	\$0.00
Fearon, D	PACO	2.82	TA					\$27.76			0.0	\$0.00	0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.66	P					\$144.00			0.0	\$0.00	0.0	0.0	\$0.00
Totals:										0.06	62.4	\$14,886.47	0.0	62.4	\$14,886.47

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 2.2 - Respond to RFC's

Staffing Name	Company	Multiplier (OH+F&E)	Eng/Arch Category	7/1/09 - 8/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)	
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)				
Edwards, R	AECOM	2.45	A	\$108.53		0.0	\$0.00	\$108.53		0.0	\$0.00	0.0	0.0	\$0.00	
McIntyre, S	STV	2.45	A	\$102.97		0.0	\$0.00	\$102.97		0.0	\$0.00	0.0	0.0	\$0.00	
Garz, M	STV	2.45	A	\$118.88		0.0	\$0.00	\$118.88	0.15	156.0	\$44,871.54	0.1	156.0	\$44,871.54	
Calatrava, S	SCSA	2.95	A	\$270.00		0.0	\$0.00	\$270.00		0.0	\$0.00	0.0	0.0	\$0.00	
Son, J	STV	2.45	B	\$61.07		0.0	\$0.00	\$61.07		0.0	\$0.00	0.0	0.0	\$0.00	
Harris, K	AECOM	2.45	C	\$44.96		0.0	\$0.00	\$44.96		0.0	\$0.00	0.0	0.0	\$0.00	
Felice, D	PMA	2.5	TA	\$35.00		0.0	\$0.00	\$35.00		0.0	\$0.00	0.0	0.0	\$0.00	
Quinones, P	STV	2.45	C	\$45.36		0.0	\$0.00	\$45.36		0.0	\$0.00	0.0	0.0	\$0.00	
Basta, A	STV	2.45	A	\$88.33		0.0	\$0.00	\$88.33		0.0	\$0.00	0.0	0.0	\$0.00	
Jang, H	AECOM	2.45	TA	\$20.40		0.0	\$0.00	\$20.40		0.0	\$0.00	0.0	0.0	\$0.00	
PTG Eng/Arch B	PTG TBD	2.45	B	\$68.08	0.10	208.0	\$33,674.37	\$68.08		0.0	\$0.00	0.1	208.0	\$33,674.37	
Rosciglione, A	AECOM	2.45	C	\$52.31		0.0	\$0.00	\$52.31		0.0	\$0.00	0.0	0.0	\$0.00	
Powell, D	ISR	2.332	TA	\$20.79		0.0	\$0.00	\$20.79		0.0	\$0.00	0.0	0.0	\$0.00	
Tong, E	Stellar	2.45	C	\$45.87		0.0	\$0.00	\$45.87		0.0	\$0.00	0.0	0.0	\$0.00	
Abbate, D	STV	2.45	D	\$27.88		0.0	\$0.00	\$27.88		0.0	\$0.00	0.0	0.0	\$0.00	
Dennis, Y	STV	2.45	TA	\$31.16		0.0	\$0.00	\$31.16		0.0	\$0.00	0.0	0.0	\$0.00	
Kamboj, M	AECOM	2.45	B	\$69.56	0.10	208.0	\$35,447.78	\$69.56		0.0	\$0.00	0.1	208.0	\$35,447.78	
Gallagher, T	Parsons	2.45	C	\$43.27		0.0	\$0.00	\$43.27		0.0	\$0.00	0.0	0.0	\$0.00	
Pagan, S	PMA	2.5	C	\$53.50		0.0	\$0.00	\$53.50		0.0	\$0.00	0.0	0.0	\$0.00	
Finkelstein, M	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00	
Nervine, G	STV	2.45	C	\$48.99		0.0	\$0.00	\$48.99		0.0	\$0.00	0.0	0.0	\$0.00	
Solano, J	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00	
Zellner, P	STV	2.45	B	\$70.19		0.0	\$0.00	\$70.19		0.0	\$0.00	0.0	0.0	\$0.00	
Hand, J	AECOM	2.45	B	\$70.81		0.0	\$0.00	\$70.81	0.15	156.0	\$26,987.14	0.1	156.0	\$26,987.14	
Chong, S	AECOM	2.45	C	\$40.89		0.0	\$0.00	\$40.89		0.0	\$0.00	0.0	0.0	\$0.00	
Patel, K	AECOM	2.45	D	\$38.75		0.0	\$0.00	\$38.75		0.0	\$0.00	0.0	0.0	\$0.00	
Schiff, M	AECOM	2.45	C	\$52.15	0.10	208.0	\$26,575.84	\$52.15		0.0	\$0.00	0.1	208.0	\$26,575.84	
Woo, T	AECOM	2.45	B	\$70.13		0.0	\$0.00	\$70.13		0.0	\$0.00	0.0	0.0	\$0.00	
Diamond, R	SCSA	2.95	A	\$116.32		0.0	\$0.00	\$116.32		0.0	\$0.00	0.0	0.0	\$0.00	
PTG Eng/Arch B	PTG TBD	2.45	B	\$68.08		0.0	\$0.00	\$68.08	0.11	114.4	\$18,520.90	0.1	114.4	\$18,520.90	
PTG Eng/Arch B	PTG TBD	2.45	B	\$68.08		0.0	\$0.00	\$68.08	0.11	114.4	\$18,520.90	0.1	114.4	\$18,520.90	
PTG Eng/Arch B	PTG TBD	2.45	B	\$68.08		0.0	\$0.00	\$68.08	0.11	114.4	\$18,520.90	0.1	114.4	\$18,520.90	
PTG Eng/Arch B	PTG TBD	2.45	B	\$68.08		0.0	\$0.00	\$68.08	0.10	104.0	\$16,837.18	0.1	104.0	\$16,837.18	
PTG Eng/Arch B	PTG TBD	2.45	B	\$68.08		0.0	\$0.00	\$68.08	0.10	104.0	\$16,837.18	0.1	104.0	\$16,837.18	
Lem, R	STV	2.45	B	\$61.36	0.10	208.0	\$31,269.08	\$61.36		0.0	\$0.00	0.1	208.0	\$31,269.08	
London, L	STV	2.45	D	\$31.27		0.0	\$0.00	\$31.27		0.0	\$0.00	0.0	0.0	\$0.00	
PTG Eng/Arch D	PTG TBD	2.45	D	\$31.91		0.0	\$0.00	\$31.91		0.0	\$0.00	0.0	0.0	\$0.00	
Avellan, J	WNBA	2.78	B	\$52.18		0.0	\$0.00	\$52.18		0.0	\$0.00	0.0	0.0	\$0.00	
Govekar, S	WNBA	2.78	Cad	\$24.76		0.0	\$0.00	\$24.76		0.0	\$0.00	0.0	0.0	\$0.00	
Kasakyan, A	WNBA	2.78	C	\$45.19		0.0	\$0.00	\$45.19		0.0	\$0.00	0.0	0.0	\$0.00	
Brodsky, V	STV	2.45	A	\$100.72		0.0	\$0.00	\$100.72	0.15	156.0	\$38,495.18	0.1	156.0	\$38,495.18	
Ghaly, N	Parsons	2.45	B	\$72.73		0.0	\$0.00	\$72.73		0.0	\$0.00	0.0	0.0	\$0.00	
Littler, M	Parsons	2.45	C	\$54.56		0.0	\$0.00	\$54.56		0.0	\$0.00	0.0	0.0	\$0.00	
Clarson, M	RCC	2.917	C	\$51.09		0.0	\$0.00	\$51.09		0.0	\$0.00	0.0	0.0	\$0.00	
Abdullah, M	STV	2.45	B	\$68.30		0.0	\$0.00	\$68.30		0.0	\$0.00	0.0	0.0	\$0.00	
Cobuzzi, A	STV	2.45	B	\$56.49		0.0	\$0.00	\$56.49		0.0	\$0.00	0.0	0.0	\$0.00	
Gilboa, J	STV	2.45	A	\$73.81	0.10	208.0	\$37,613.58	\$73.81		0.0	\$0.00	0.1	208.0	\$37,613.58	
Koumjian, G	STV	2.45	A	\$85.58		0.0	\$0.00	\$85.58		0.0	\$0.00	0.0	0.0	\$0.00	
Schuller, P	STV	2.45	A	\$90.24	0.10	208.0	\$45,986.30	\$90.24		0.0	\$0.00	0.1	208.0	\$45,986.30	
PTG Eng/Arch C	PTG TBD	2.45	C	\$46.69		0.0	\$0.00	\$46.69		0.0	\$0.00	0.0	0.0	\$0.00	
Charalambous, J	Parsons	2.45	A	\$93.27	0.10	208.0	\$47,530.39	\$93.27		0.0	\$0.00	0.1	208.0	\$47,530.39	
Parnes, J	AECOM	2.45	A	\$78.44		0.0	\$0.00	\$78.44	0.15	156.0	\$29,979.77	0.1	156.0	\$29,979.77	
Aitebba, B	Parsons	2.45	A	\$73.69	0.10	208.0	\$37,552.42	\$73.69		0.0	\$0.00	0.1	208.0	\$37,552.42	
Mauriz, P	AECOM	2.45	A	\$73.58	0.10	208.0	\$37,496.37	\$73.58		0.0	\$0.00	0.1	208.0	\$37,496.37	
Baxter, D	AECOM	2.45	C	\$42.32		0.0	\$0.00	\$42.32		0.0	\$0.00	0.0	0.0	\$0.00	
Jimenez, D	AECOM	2.45	C	\$44.29		0.0	\$0.00	\$44.29		0.0	\$0.00	0.0	0.0	\$0.00	
Levintov, B	AECOM	2.45	B	\$68.02		0.0	\$0.00	\$68.02		0.0	\$0.00	0.0	0.0	\$0.00	
Mazumdar, A	AECOM	2.45	B	\$81.22		0.0	\$0.00	\$81.22		0.0	\$0.00	0.0	0.0	\$0.00	
Sherzer, M	AECOM	2.45	C	\$44.97		0.0	\$0.00	\$44.97		0.0	\$0.00	0.0	0.0	\$0.00	
Teodor, L	AECOM	2.45	B	\$57.57		0.0	\$0.00	\$57.57		0.0	\$0.00	0.0	0.0	\$0.00	
Kourkoumelis, V	Hirani	2.54	C	\$48.08		0.0	\$0.00	\$48.08		0.0	\$0.00	0.0	0.0	\$0.00	
Ingram, G	Parsons	2.45	Cad	\$25.44		0.0	\$0.00	\$25.44		0.0	\$0.00	0.0	0.0	\$0.00	
Khalil, M	Parsons	2.45	B	\$64.33		0.0	\$0.00	\$64.33		0.0	\$0.00	0.0	0.0	\$0.00	
Patel, A	Parsons	2.45	C	\$53.74		0.0	\$0.00	\$53.74		0.0	\$0.00	0.0	0.0	\$0.00	
Sousa, M	Parsons	2.45	Cad	\$34.07		0.0	\$0.00	\$34.07		0.0	\$0.00	0.0	0.0	\$0.00	
Wisniewski, B	Parsons	2.45	C	\$45.65		0.0	\$0.00	\$45.65		0.0	\$0.00	0.0	0.0	\$0.00	
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$88.95		0.0	\$0.00	\$88.95		0.0	\$0.00	0.0	0.0	\$0.00	
Lomax, S	SCSA	2.95	A	\$79.71	0.10	208.0	\$48,910.08	\$79.71		0.0	\$0.00	0.1	208.0	\$48,910.08	
Rando, M	SCSA	2.95	A	\$125.06		0.0	\$0.00	\$125.06		0.0	\$0.00	0.0	0.0	\$0.00	
Doshi, K	STV	2.45	A	\$98.72		0.0	\$0.00	\$98.72		0.0	\$0.00	0.0	0.0	\$0.00	
Cregger, D	AECOM	2.45	B	\$58.47		0.0	\$0.00	\$58.47		0.0	\$0.00	0.0	0.0	\$0.00	
Baker, U	Weidinger	2.8	D	\$36.55		0.0	\$0.00	\$36.55		0.0	\$0.00	0.0	0.0	\$0.00	
Mirzakashani, M	AECOM	2.45	A	\$90.87		0.0	\$0.00	\$90.87		0.0	\$0.00	0.0	0.0	\$0.00	
Wang, H	AECOM	2.45	B	\$65.00		0.0	\$0.00	\$65.00		0.0	\$0.00	0.0	0.0	\$0.00	
Kopkall, H	YAS	2.51	B	\$67.00		0.0	\$0.00	\$67.00		0.0	\$0.00	0.0	0.0	\$0.00	
Fearon, D	PACO	2.62	TA	\$27.76		0.0	\$0.00	\$27.76		0.0	\$0.00	0.0	0.0	\$0.00	
Nikolakakos, S	Russell	2.68	P	\$144.00		0.0	\$0.00	\$144.00		0.0	\$0.00	0.0	0.0	\$0.00	
Totals:						1.00	2,080.0	\$382,055.96		1.13	1,175.2	\$229,370.71	1.8	3,255.2	\$611,426.67

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 2.3 - Prepare Conformed Set

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)			
Edwards, R	AECOM	2.45	A									0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A									0.0	0.0	\$0.00
Garz, M	STV	2.45	A									0.0	0.0	\$0.00
Calatrava, S	SCSA	2.95	A									0.0	0.0	\$0.00
Son, J	STV	2.45	B									0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C									0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA									0.0	0.0	\$0.00
Quinones, P	STV	2.45	C									0.0	0.0	\$0.00
Basta, A	STV	2.45	A									0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C									0.0	0.0	\$0.00
PTG Eng/Arch B	PTG TBD	2.45	B									0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C									0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA									0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C									0.0	0.0	\$0.00
Abbate, O	STV	2.45	D									0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA									0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A									0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C									0.0	0.0	\$0.00
Pagani, S	PMA	2.5	C									0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C									0.0	0.0	\$0.00
Nervina, G	STV	2.45	C									0.0	0.0	\$0.00
Solano, J	STV	2.45	C									0.0	0.0	\$0.00
Zellner, P	STV	2.45	B									0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B									0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C									0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D									0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C									0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B									0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A									0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Bracco, S	STV	2.45	C									0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C									0.0	0.0	\$0.00
Lem, R	STV	2.45	B									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
Avelan, J	WNBA	2.78	B									0.0	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad									0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.78	C									0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A									0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B									0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C									0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C									0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B									0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B									0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A									0.0	0.0	\$0.00
Kourmijan, G	STV	2.45	A									0.0	0.0	\$0.00
Schuller, P	STV	2.45	A									0.0	0.0	\$0.00
Zheng, H	STV	2.45	B									0.0	0.0	\$0.00
PTG Eng/Arch A	PTG TBD	2.45	A									0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A									0.0	0.0	\$0.00
Atabba, B	Parsons	2.45	A									0.0	0.0	\$0.00
Mauriz, P	AECOM	2.45	A									0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C									0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C									0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B									0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B									0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C									0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B									0.0	0.0	\$0.00
Kourkouvelis, V	Hirani	2.54	C									0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad									0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B									0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C									0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad									0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A									0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A									0.0	0.0	\$0.00
Doshi, K	STV	2.45	A									0.0	0.0	\$0.00
Cregger, D	AECOM	2.45	B									0.0	0.0	\$0.00
Baker, U	Wedlinger	2.6	D									0.0	0.0	\$0.00
Mizakastani, M	AECOM	2.45	A									0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B									0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B									0.0	0.0	\$0.00
Fearon, D	PACO	2.62	TA									0.0	0.0	\$0.00
PTG Cadd Op	PTG TBD	2.45	Cad									0.0	0.0	\$0.00
Totals:					0.00	0.0	\$0.00		0.00	0.0	\$0.00	0.0	0.0	\$0.00

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 2.4 - Meetings with Contractor and WTCC

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)			
Edwards, R	AECOM	2.45	A					\$108.53		0.0	\$0.00	0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A					\$102.97		0.0	\$0.00	0.0	0.0	\$0.00
Garz, M	STV	2.45	A					\$118.88		0.0	\$0.00	0.0	0.0	\$0.00
Calatrava, S	SCSA	2.95	A					\$270.00		0.0	\$0.00	0.0	0.0	\$0.00
Son, J	STV	2.45	B					\$61.07		0.0	\$0.00	0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C					\$44.96		0.0	\$0.00	0.0	0.0	\$0.00
Fesca, D	PMA	2.5	TA					\$35.00		0.0	\$0.00	0.0	0.0	\$0.00
JV TA	JV TBD	2.45	TA					\$23.17		0.0	\$0.00	0.0	0.0	\$0.00
Basta, A	STV	2.45	A					\$88.33		0.0	\$0.00	0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA					\$20.40		0.0	\$0.00	0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A					\$81.04		0.0	\$0.00	0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C					\$52.31		0.0	\$0.00	0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA					\$29.79		0.0	\$0.00	0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C					\$45.87		0.0	\$0.00	0.0	0.0	\$0.00
Abbate, D	STV	2.45	D					\$27.88		0.0	\$0.00	0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA					\$31.16		0.0	\$0.00	0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A					\$88.95	0.16	166.4	\$35,447.78	0.1	166.4	\$35,447.78
PTG Eng/Arch A	PTG TBD	2.45	A					\$88.95	0.16	166.4	\$35,447.78	0.1	166.4	\$35,447.78
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.16	166.5	\$27,276.24	0.1	166.5	\$27,276.24
Finkelstein, M	STV	2.45	C					\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Nervina, G	STV	2.45	C					\$48.89		0.0	\$0.00	0.0	0.0	\$0.00
Solano, J	STV	2.45	C					\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Zellner, P	STV	2.45	B					\$70.19		0.0	\$0.00	0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B					\$70.61		0.0	\$0.00	0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C					\$40.89		0.0	\$0.00	0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D					\$38.75		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch B	PTG TBD	2.45	B					\$68.08		0.0	\$0.00	0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B					\$70.13		0.0	\$0.00	0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A					\$118.32		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$68.08		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$88.95		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$88.95		0.0	\$0.00	0.0	0.0	\$0.00
Bracco, S	STV	2.45	C					\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C					\$48.89		0.0	\$0.00	0.0	0.0	\$0.00
Lem, R	STV	2.45	B					\$61.36		0.0	\$0.00	0.0	0.0	\$0.00
London, L	STV	2.45	D					\$31.27		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D					\$31.91		0.0	\$0.00	0.0	0.0	\$0.00
Avellan, J	WNBA	2.76	B					\$52.16		0.0	\$0.00	0.0	0.0	\$0.00
Govekar, S	WNBA	2.76	Cad					\$24.76		0.0	\$0.00	0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.76	C					\$45.19		0.0	\$0.00	0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A					\$100.72		0.0	\$0.00	0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B					\$72.73		0.0	\$0.00	0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C					\$54.86		0.0	\$0.00	0.0	0.0	\$0.00
Ciarson, M	RCC	2.917	C					\$51.09		0.0	\$0.00	0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B					\$68.30		0.0	\$0.00	0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B					\$56.49		0.0	\$0.00	0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A					\$73.81		0.0	\$0.00	0.0	0.0	\$0.00
Koumjian, G	STV	2.45	A					\$85.58		0.0	\$0.00	0.0	0.0	\$0.00
Schuller, P	STV	2.45	A					\$90.24		0.0	\$0.00	0.0	0.0	\$0.00
Zheng, H	STV	2.45	B					\$63.07		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch A	PTG TBD	2.45	A					\$88.95		0.0	\$0.00	0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A					\$78.44		0.0	\$0.00	0.0	0.0	\$0.00
Allabba, B	Parsons	2.45	A					\$73.89		0.0	\$0.00	0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A					\$88.95		0.0	\$0.00	0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C					\$42.32		0.0	\$0.00	0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C					\$44.29		0.0	\$0.00	0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B					\$68.02		0.0	\$0.00	0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B					\$81.22		0.0	\$0.00	0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C					\$44.97		0.0	\$0.00	0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B					\$57.57		0.0	\$0.00	0.0	0.0	\$0.00
Kourkouvelis, V	Hirani	2.54	C					\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad					\$25.44		0.0	\$0.00	0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B					\$84.33		0.0	\$0.00	0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C					\$53.74		0.0	\$0.00	0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad					\$34.97		0.0	\$0.00	0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C					\$45.85		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$88.95		0.0	\$0.00	0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A					\$79.71		0.0	\$0.00	0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A					\$125.06		0.0	\$0.00	0.0	0.0	\$0.00
Doshi, K	STV	2.45	A					\$88.72		0.0	\$0.00	0.0	0.0	\$0.00
Gregger, D	AECOM	2.45	B					\$58.47		0.0	\$0.00	0.0	0.0	\$0.00
Baker, U	Weidinger	2.0	D					\$36.55		0.0	\$0.00	0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A					\$90.87		0.0	\$0.00	0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B					\$65.00		0.0	\$0.00	0.0	0.0	\$0.00
Kopkall, H	YAS	2.51	B					\$67.00		0.0	\$0.00	0.0	0.0	\$0.00
Fearon, D	PACO	2.62	TA					\$27.76		0.0	\$0.00	0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.66	P					\$144.00		0.0	\$0.00	0.0	0.0	\$0.00
Totals:					0.00	0.0	\$0.00	5,100.9	0.48	501.3	\$98,171.79	0.2	501.3	\$98,171.79

Professional Services Change Order
Revised - Cost Proposal
Revised - Schedule C
Task 3.1 - Field Meetings

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09			7/1/09 - 12/31/09			Total FTE	Total Hours	Total Labor (\$)		
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE				Hours (Hrs)	Total Labor (\$)
Edwards, R	AECOM	2.45	A	\$108.53		0.0	\$0.00	\$108.53		0.0	\$0.00	0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A	\$102.97		0.0	\$0.00	\$102.97		0.0	\$0.00	0.0	0.0	\$0.00
Garz, M	STV	2.45	A	\$116.88		0.0	\$0.00	\$116.88		0.0	\$0.00	0.0	0.0	\$0.00
Calabrava, S	SCSA	2.95	A	\$270.00		0.0	\$0.00	\$270.00		0.0	\$0.00	0.0	0.0	\$0.00
Son, J	STV	2.45	B	\$61.07		0.0	\$0.00	\$61.07		0.0	\$0.00	0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C	\$44.96		0.0	\$0.00	\$44.96		0.0	\$0.00	0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA	\$35.00		0.0	\$0.00	\$35.00		0.0	\$0.00	0.0	0.0	\$0.00
Quinones, P	STV	2.45	C	\$43.36		0.0	\$0.00	\$43.36		0.0	\$0.00	0.0	0.0	\$0.00
Basta, A	STV	2.45	A	\$68.33	0.20	416.0	\$90,025.94	\$68.33	0.20	208.0	\$45,012.97	0.3	624.0	\$135,038.90
Jeng, H	AECOM	2.45	TA	\$20.40		0.0	\$0.00	\$20.40		0.0	\$0.00	0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A	\$68.95		0.0	\$0.00	\$68.95	0.24	249.6	\$53,171.66	0.1	249.6	\$53,171.66
PTG Eng/Arch B	PTG TBD	2.45	B	\$68.08	0.20	416.0	\$87,348.74	\$68.08	0.20	208.0	\$33,874.37	0.3	624.0	\$101,023.10
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95		0.0	\$0.00	\$86.95	0.18	166.4	\$42,882.02	0.1	166.4	\$42,882.02
Tong, E	Stellar	2.45	C	\$45.67		0.0	\$0.00	\$45.67		0.0	\$0.00	0.0	0.0	\$0.00
Abbate, D	STV	2.45	D	\$27.68		0.0	\$0.00	\$27.68		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95		0.0	\$0.00	\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B	\$69.56		0.0	\$0.00	\$69.56		0.0	\$0.00	0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C	\$43.27		0.0	\$0.00	\$43.27		0.0	\$0.00	0.0	0.0	\$0.00
Paganl, S	PMA	2.5	C	\$53.50		0.0	\$0.00	\$53.50		0.0	\$0.00	0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Nervina, G	STV	2.45	C	\$48.99		0.0	\$0.00	\$48.99		0.0	\$0.00	0.0	0.0	\$0.00
Solano, J	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Zellner, P	STV	2.45	B	\$70.19		0.0	\$0.00	\$70.19		0.0	\$0.00	0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B	\$70.81		0.0	\$0.00	\$70.81		0.0	\$0.00	0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C	\$40.89		0.0	\$0.00	\$40.89		0.0	\$0.00	0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D	\$38.75		0.0	\$0.00	\$38.75		0.0	\$0.00	0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C	\$52.15		0.0	\$0.00	\$52.15		0.0	\$0.00	0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B	\$70.13		0.0	\$0.00	\$70.13		0.0	\$0.00	0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A	\$118.32		0.0	\$0.00	\$118.32		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B	\$68.08		0.0	\$0.00	\$68.08		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95		0.0	\$0.00	\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95		0.0	\$0.00	\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
Bracco, S	STV	2.45	C	\$48.08		0.0	\$0.00	\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C	\$46.69		0.0	\$0.00	\$46.69		0.0	\$0.00	0.0	0.0	\$0.00
Lem, R	STV	2.45	B	\$61.36		0.0	\$0.00	\$61.36		0.0	\$0.00	0.0	0.0	\$0.00
London, L	STV	2.45	D	\$31.27		0.0	\$0.00	\$31.27		0.0	\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D	\$31.91		0.0	\$0.00	\$31.91		0.0	\$0.00	0.0	0.0	\$0.00
Avelan, J	WNBA	2.76	B	\$52.16		0.0	\$0.00	\$52.16		0.0	\$0.00	0.0	0.0	\$0.00
Govekar, S	WNBA	2.76	Cad	\$24.76		0.0	\$0.00	\$24.76		0.0	\$0.00	0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.76	C	\$45.18		0.0	\$0.00	\$45.18		0.0	\$0.00	0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A	\$68.95		0.0	\$0.00	\$68.95		0.0	\$0.00	0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B	\$72.73		0.0	\$0.00	\$72.73		0.0	\$0.00	0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C	\$54.56		0.0	\$0.00	\$54.56		0.0	\$0.00	0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C	\$51.09		0.0	\$0.00	\$51.09		0.0	\$0.00	0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B	\$68.30		0.0	\$0.00	\$68.30		0.0	\$0.00	0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B	\$56.49		0.0	\$0.00	\$56.49		0.0	\$0.00	0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A	\$73.81		0.0	\$0.00	\$73.81		0.0	\$0.00	0.0	0.0	\$0.00
Koumjian, G	STV	2.45	A	\$85.58		0.0	\$0.00	\$85.58		0.0	\$0.00	0.0	0.0	\$0.00
Schuller, P	STV	2.45	A	\$90.24		0.0	\$0.00	\$90.24		0.0	\$0.00	0.0	0.0	\$0.00
Zheng, H	STV	2.45	B	\$63.07		0.0	\$0.00	\$63.07		0.0	\$0.00	0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A	\$93.27		0.0	\$0.00	\$93.27		0.0	\$0.00	0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A	\$78.44		0.0	\$0.00	\$78.44		0.0	\$0.00	0.0	0.0	\$0.00
Altabba, B	Parsons	2.45	A	\$73.69		0.0	\$0.00	\$73.69		0.0	\$0.00	0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A	\$73.58		0.0	\$0.00	\$73.58		0.0	\$0.00	0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C	\$42.32		0.0	\$0.00	\$42.32		0.0	\$0.00	0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C	\$44.29		0.0	\$0.00	\$44.29		0.0	\$0.00	0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B	\$66.02		0.0	\$0.00	\$66.02		0.0	\$0.00	0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B	\$61.22		0.0	\$0.00	\$61.22		0.0	\$0.00	0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C	\$44.97		0.0	\$0.00	\$44.97		0.0	\$0.00	0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B	\$57.57		0.0	\$0.00	\$57.57		0.0	\$0.00	0.0	0.0	\$0.00
Kourkoumeis, V	Hirani	2.54	C	\$48.08		0.0	\$0.00	\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad	\$25.44		0.0	\$0.00	\$25.44		0.0	\$0.00	0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B	\$64.33		0.0	\$0.00	\$64.33		0.0	\$0.00	0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C	\$53.74	0.20	416.0	\$54,771.81	\$53.74		0.0	\$0.00	0.2	416.0	\$54,771.81
Souza, M	Parsons	2.45	Cad	\$34.07		0.0	\$0.00	\$34.07		0.0	\$0.00	0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C	\$45.65		0.0	\$0.00	\$45.65		0.0	\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95		0.0	\$0.00	\$86.95		0.0	\$0.00	0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A	\$79.71		0.0	\$0.00	\$79.71		0.0	\$0.00	0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A	\$125.06		0.0	\$0.00	\$125.06		0.0	\$0.00	0.0	0.0	\$0.00
Doshi, K	STV	2.45	A	\$98.72	0.20	416.0	\$100,615.42	\$98.72		0.0	\$0.00	0.2	416.0	\$100,615.42
Cregger, D	AECOM	2.45	B	\$58.47		0.0	\$0.00	\$58.47		0.0	\$0.00	0.0	0.0	\$0.00
Baker, U	Weldinger	2.6	D	\$36.55		0.0	\$0.00	\$36.55		0.0	\$0.00	0.0	0.0	\$0.00
Mrzakashari, M	AECOM	2.45	A	\$90.87		0.0	\$0.00	\$90.87		0.0	\$0.00	0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B	\$65.00		0.0	\$0.00	\$65.00		0.0	\$0.00	0.0	0.0	\$0.00
Kopkoff, H	YAS	2.51	B	\$67.00		0.0	\$0.00	\$67.00		0.0	\$0.00	0.0	0.0	\$0.00
Fearon, D	PACCO	2.62	TA	\$27.76		0.0	\$0.00	\$27.76		0.0	\$0.00	0.0	0.0	\$0.00
Nikolakos, S	Russell	2.66	P	\$144.00		0.0	\$0.00	\$144.00		0.0	\$0.00	0.0	0.0	\$0.00
Totals:					0.80	1,664.0	\$312,761.90		0.80	832.0	\$174,541.02	1.2	2,496.0	\$487,302.92

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.2 - Technical Expeditor/Field Engineer

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/09 - 9/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)	
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)				
Edwards, R	AECOM	2.45	A					\$108.53			0.0	\$0.00	0.0	\$0.00	
McIntyre, S	STV	2.45	A					\$102.97			0.0	\$0.00	0.0	\$0.00	
Garz, M	STV	2.45	A					\$118.88			0.0	\$0.00	0.0	\$0.00	
Catalrava, S	SCSA	2.95	A					\$270.00			0.0	\$0.00	0.0	\$0.00	
Son, J	STV	2.45	B					\$61.07			0.0	\$0.00	0.0	\$0.00	
Harris, K	AECOM	2.45	C					\$44.96			0.0	\$0.00	0.0	\$0.00	
Felice, D	PMA	2.5	TA					\$35.00			0.0	\$0.00	0.0	\$0.00	
PTG Eng/Arch B	PTG TBD	2.45	B					\$66.08	1.00	1,040.0		\$168,371.84	0.3	1,040.0	\$168,371.84
Basta, A	STV	2.45	A					\$68.33			0.0	\$0.00	0.0	\$0.00	
Jang, H	AECOM	2.45	TA					\$20.40			0.0	\$0.00	0.0	\$0.00	
McDermott, C	AECOM	2.45	A					\$61.04			0.0	\$0.00	0.0	\$0.00	
Rosciglione, A	AECOM	2.45	C					\$52.31			0.0	\$0.00	0.0	\$0.00	
Powell, D	ISR	2.332	TA					\$29.79			0.0	\$0.00	0.0	\$0.00	
Tong, E	Stellar	2.45	C					\$45.67			0.0	\$0.00	0.0	\$0.00	
Abbate, D	STV	2.45	D					\$27.88			0.0	\$0.00	0.0	\$0.00	
Dennis, Y	STV	2.45	TA					\$31.16			0.0	\$0.00	0.0	\$0.00	
Kamboj, M	AECOM	2.45	B					\$69.56			0.0	\$0.00	0.0	\$0.00	
Gallagher, T	Parsons	2.45	C					\$43.27			0.0	\$0.00	0.0	\$0.00	
Pagani, S	PMA	2.5	C					\$53.50			0.0	\$0.00	0.0	\$0.00	
Finkenstein, M	STV	2.45	C					\$53.00			0.0	\$0.00	0.0	\$0.00	
Nervina, G	STV	2.45	C					\$48.99			0.0	\$0.00	0.0	\$0.00	
Solano, J	STV	2.45	C					\$53.00			0.0	\$0.00	0.0	\$0.00	
Zelner, P	STV	2.45	B					\$70.19			0.0	\$0.00	0.0	\$0.00	
Hand, J	AECOM	2.45	B					\$70.81			0.0	\$0.00	0.0	\$0.00	
Chong, S	AECOM	2.45	C					\$40.89			0.0	\$0.00	0.0	\$0.00	
Patel, K	AECOM	2.45	D					\$38.75			0.0	\$0.00	0.0	\$0.00	
Schiff, M	AECOM	2.45	C					\$52.15			0.0	\$0.00	0.0	\$0.00	
Woo, T	AECOM	2.45	B					\$70.13			0.0	\$0.00	0.0	\$0.00	
Diamond, R	SCSA	2.95	A					\$118.32			0.0	\$0.00	0.0	\$0.00	
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$68.08			0.0	\$0.00	0.0	\$0.00	
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$68.95			0.0	\$0.00	0.0	\$0.00	
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$68.95			0.0	\$0.00	0.0	\$0.00	
Bracco, S	STV	2.45	C					\$48.08			0.0	\$0.00	0.0	\$0.00	
PTG Eng/Arch C	PTG TBD	2.45	C					\$46.69			0.0	\$0.00	0.0	\$0.00	
Lam, R	STV	2.45	B					\$61.36			0.0	\$0.00	0.0	\$0.00	
London, L	STV	2.45	D					\$31.27			0.0	\$0.00	0.0	\$0.00	
PTG Eng/Arch D	PTG TBD	2.45	D					\$31.91			0.0	\$0.00	0.0	\$0.00	
Avelan, J	WNBA	2.76	B					\$52.16			0.0	\$0.00	0.0	\$0.00	
Govekar, S	WNBA	2.76	Cad					\$24.78			0.0	\$0.00	0.0	\$0.00	
Kasakyan, A	WNBA	2.76	C					\$45.19			0.0	\$0.00	0.0	\$0.00	
Brodsky, V	STV	2.45	A					\$100.72			0.0	\$0.00	0.0	\$0.00	
Ghaly, N	Parsons	2.45	B					\$72.73			0.0	\$0.00	0.0	\$0.00	
Littler, M	Parsons	2.45	C					\$54.58			0.0	\$0.00	0.0	\$0.00	
Clarson, M	RCC	2.917	C					\$51.09			0.0	\$0.00	0.0	\$0.00	
Abdullah, M	STV	2.45	B					\$68.30			0.0	\$0.00	0.0	\$0.00	
Cobuzzi, A	STV	2.45	B					\$58.49			0.0	\$0.00	0.0	\$0.00	
Gilboa, J	STV	2.45	A					\$73.81			0.0	\$0.00	0.0	\$0.00	
Koumjian, G	STV	2.45	A					\$65.58			0.0	\$0.00	0.0	\$0.00	
Schuller, P	STV	2.45	A					\$90.24			0.0	\$0.00	0.0	\$0.00	
Zheng, H	STV	2.45	B					\$63.07			0.0	\$0.00	0.0	\$0.00	
Charalambous, J	Parsons	2.45	A					\$93.27			0.0	\$0.00	0.0	\$0.00	
Parnes, J	AECOM	2.45	A					\$78.44			0.0	\$0.00	0.0	\$0.00	
Altaliba, B	Parsons	2.45	A					\$73.69			0.0	\$0.00	0.0	\$0.00	
Mauritz, P	AECOM	2.45	A					\$73.58			0.0	\$0.00	0.0	\$0.00	
Baxter, D	AECOM	2.45	C					\$42.32			0.0	\$0.00	0.0	\$0.00	
Jimenez, D	AECOM	2.45	C					\$44.29			0.0	\$0.00	0.0	\$0.00	
Levintov, B	AECOM	2.45	B					\$68.02			0.0	\$0.00	0.0	\$0.00	
Mazumdar, A	AECOM	2.45	B					\$61.22			0.0	\$0.00	0.0	\$0.00	
Sherzer, M	AECOM	2.45	C					\$44.97			0.0	\$0.00	0.0	\$0.00	
Teodor, L	AECOM	2.45	B					\$57.57			0.0	\$0.00	0.0	\$0.00	
Kourkournelis, V	Hirani	2.54	C					\$48.08			0.0	\$0.00	0.0	\$0.00	
Ingram, G	Parsons	2.45	Cad					\$25.44			0.0	\$0.00	0.0	\$0.00	
Khalik, M	Parsons	2.45	B					\$64.33			0.0	\$0.00	0.0	\$0.00	
Patel, A	Parsons	2.45	C					\$53.74			0.0	\$0.00	0.0	\$0.00	
Sousa, M	Parsons	2.45	Cad					\$34.07			0.0	\$0.00	0.0	\$0.00	
Wasniewski, B	Parsons	2.45	C					\$45.65			0.0	\$0.00	0.0	\$0.00	
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$66.95			0.0	\$0.00	0.0	\$0.00	
Lomax, S	SCSA	2.95	A					\$78.71			0.0	\$0.00	0.0	\$0.00	
Rando, M	SCSA	2.95	A					\$125.06			0.0	\$0.00	0.0	\$0.00	
Ooshi, K	STV	2.45	A					\$98.72			0.0	\$0.00	0.0	\$0.00	
Cregger, D	AECOM	2.45	B					\$58.47			0.0	\$0.00	0.0	\$0.00	
Baker, U	Weidinger	2.6	D					\$36.55			0.0	\$0.00	0.0	\$0.00	
Mirzakashani, M	AECOM	2.45	A					\$90.67			0.0	\$0.00	0.0	\$0.00	
Wang, H	AECOM	2.45	B					\$65.00			0.0	\$0.00	0.0	\$0.00	
Kopkall, H	YAS	2.51	B					\$67.00			0.0	\$0.00	0.0	\$0.00	
Fearon, D	PACO	2.62	TA					\$27.76			0.0	\$0.00	0.0	\$0.00	
Nikolakakos, S	Russell	2.66	P					\$144.00			0.0	\$0.00	0.0	\$0.00	
Totals:											1.00	1,040.0	0.5	1,040.0	\$168,371.84

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.3 - Third Party Meetings

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)	
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)				
Edwards, R	AECOM	2.45	A					\$108.53			0.0		\$0.00	0.0	\$0.00
McIntyre, S	STV	2.45	A					\$102.97			0.0		\$0.00	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A					\$86.95			0.0		\$0.00	0.0	\$0.00
Calatrava, S	SCSA	2.95	A					\$270.00			0.0		\$0.00	0.0	\$0.00
Son, J	STV	2.45	B					\$61.07			0.0		\$0.00	0.0	\$0.00
Harris, K	AECOM	2.45	C					\$44.96			0.0		\$0.00	0.0	\$0.00
Felice, D	PMA	2.5	TA					\$35.00			0.0		\$0.00	0.0	\$0.00
PTG Eng/Arch B	PTG TBD	2.45	B					\$68.08			0.0		\$0.00	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A					\$86.95	0.09	88.4		\$18,831.83	0.0	88.4	\$18,831.83
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.13	130.0		\$21,048.48	0.1	130.0	\$21,048.48
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$86.95	0.05	52.0		\$13,338.13	0.0	52.0	\$13,338.13
Rosciglione, A	AECOM	2.45	C					\$52.31			0.0		\$0.00	0.0	\$0.00
Powell, D	ISR	2.332	TA					\$29.79			0.0		\$0.00	0.0	\$0.00
Tong, E	Stellar	2.45	C					\$45.87			0.0		\$0.00	0.0	\$0.00
Abbate, D	STV	2.45	D					\$27.88			0.0		\$0.00	0.0	\$0.00
PTG Eng/Arch A	PTG TBD	2.45	A					\$88.95			0.0		\$0.00	0.0	\$0.00
Kamboj, M	AECOM	2.45	B					\$69.56			0.0		\$0.00	0.0	\$0.00
Gallagher, T	Parsons	2.45	C					\$43.27			0.0		\$0.00	0.0	\$0.00
Pagani, S	PMA	2.5	C					\$53.50			0.0		\$0.00	0.0	\$0.00
Finkelstein, M	STV	2.45	C					\$53.00			0.0		\$0.00	0.0	\$0.00
Nervina, G	STV	2.45	C					\$48.99			0.0		\$0.00	0.0	\$0.00
Solano, J	STV	2.45	C					\$53.00			0.0		\$0.00	0.0	\$0.00
Zalner, P	STV	2.45	B					\$70.19			0.0		\$0.00	0.0	\$0.00
Hand, J	AECOM	2.45	B					\$70.81			0.0		\$0.00	0.0	\$0.00
Chong, S	AECOM	2.45	C					\$40.89			0.0		\$0.00	0.0	\$0.00
Patel, K	AECOM	2.45	D					\$38.75			0.0		\$0.00	0.0	\$0.00
Schiff, M	AECOM	2.45	C					\$52.15			0.0		\$0.00	0.0	\$0.00
Woo, T	AECOM	2.45	B					\$70.13			0.0		\$0.00	0.0	\$0.00
Diamond, R	SCSA	2.95	A					\$118.32			0.0		\$0.00	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$68.08			0.0		\$0.00	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$86.95			0.0		\$0.00	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$86.95			0.0		\$0.00	0.0	\$0.00
Bracco, S	STV	2.45	C					\$48.08			0.0		\$0.00	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C					\$48.89			0.0		\$0.00	0.0	\$0.00
Lem, R	STV	2.45	B					\$81.36			0.0		\$0.00	0.0	\$0.00
London, L	STV	2.45	D					\$31.27			0.0		\$0.00	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D					\$31.91			0.0		\$0.00	0.0	\$0.00
Avelan, J	WNBA	2.78	B					\$52.16			0.0		\$0.00	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad					\$24.76			0.0		\$0.00	0.0	\$0.00
Kasakyan, A	WNBA	2.78	C					\$45.19			0.0		\$0.00	0.0	\$0.00
Brodsky, V	STV	2.45	A					\$100.72			0.0		\$0.00	0.0	\$0.00
Ghaly, N	Parsons	2.45	B					\$72.73			0.0		\$0.00	0.0	\$0.00
Littler, M	Parsons	2.45	C					\$54.56			0.0		\$0.00	0.0	\$0.00
Clarson, M	RCC	2.917	C					\$51.09			0.0		\$0.00	0.0	\$0.00
Abdullah, M	STV	2.45	B					\$68.30			0.0		\$0.00	0.0	\$0.00
Cobuzzi, A	STV	2.45	B					\$58.49			0.0		\$0.00	0.0	\$0.00
Gilboa, J	STV	2.45	A					\$73.81			0.0		\$0.00	0.0	\$0.00
Koumjian, G	STV	2.45	A					\$85.58			0.0		\$0.00	0.0	\$0.00
Schuller, P	STV	2.45	A					\$90.24			0.0		\$0.00	0.0	\$0.00
Zheng, H	STV	2.45	B					\$83.07			0.0		\$0.00	0.0	\$0.00
Charalambous, J	Parsons	2.45	A					\$93.27			0.0		\$0.00	0.0	\$0.00
Parnes, J	AECOM	2.45	A					\$78.44			0.0		\$0.00	0.0	\$0.00
Altalba, B	Parsons	2.45	A					\$73.69			0.0		\$0.00	0.0	\$0.00
Mauritz, P	AECOM	2.45	A					\$73.58			0.0		\$0.00	0.0	\$0.00
Baxter, D	AECOM	2.45	C					\$42.32			0.0		\$0.00	0.0	\$0.00
Jimenez, D	AECOM	2.45	C					\$44.28			0.0		\$0.00	0.0	\$0.00
Lavintov, B	AECOM	2.45	B					\$66.02			0.0		\$0.00	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B					\$81.22			0.0		\$0.00	0.0	\$0.00
Sherzer, M	AECOM	2.45	C					\$44.97			0.0		\$0.00	0.0	\$0.00
Teodor, L	AECOM	2.45	B					\$57.57			0.0		\$0.00	0.0	\$0.00
Kourkoumellis, V	Hirani	2.54	C					\$48.08			0.0		\$0.00	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad					\$25.44			0.0		\$0.00	0.0	\$0.00
Khalil, M	Parsons	2.45	B					\$84.33			0.0		\$0.00	0.0	\$0.00
Patel, A	Parsons	2.45	C					\$53.74			0.0		\$0.00	0.0	\$0.00
Souza, M	Parsons	2.45	Cad					\$34.07			0.0		\$0.00	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C					\$45.65			0.0		\$0.00	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A					\$86.95			0.0		\$0.00	0.0	\$0.00
Lomax, S	SCSA	2.95	A					\$79.71			0.0		\$0.00	0.0	\$0.00
Rando, M	SCSA	2.95	A					\$125.08			0.0		\$0.00	0.0	\$0.00
Qoshi, K	STV	2.45	A					\$98.72			0.0		\$0.00	0.0	\$0.00
Cregger, D	AECOM	2.45	B					\$58.47			0.0		\$0.00	0.0	\$0.00
Baker, U	Weidinger	2.6	D					\$36.55			0.0		\$0.00	0.0	\$0.00
Mirzakhani, M	AECOM	2.45	A					\$90.87			0.0		\$0.00	0.0	\$0.00
Wang, H	AECOM	2.45	B					\$65.00			0.0		\$0.00	0.0	\$0.00
Kopkati, H	YAS	2.51	B					\$67.00			0.0		\$0.00	0.0	\$0.00
Fearon, D	PACD	2.62	TA					\$27.76			0.0		\$0.00	0.0	\$0.00
Nikolakakos, S	Russell	2.86	P					\$144.00			0.0		\$0.00	0.0	\$0.00
Totals:					0.00	0.0	\$0.00		0.26	270.4	\$53,216.24	0.1	270.4	\$53,216.24	

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C

Task 3.4 - Engineering Services Related to 3rd Party (Allowance)

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)			
Edwards, R	AECOM	2.45	A									0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A									0.0	0.0	\$0.00
Garz, M	STV	2.45	A									0.0	0.0	\$0.00
Calatrava, S	SCSA	2.95	A									0.0	0.0	\$0.00
Son, J	STV	2.45	B									0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C									0.0	0.0	\$0.00
Falice, D	PMA	2.5	TA									0.0	0.0	\$0.00
Quinones, P	STV	2.45	C									0.0	0.0	\$0.00
Basta, A	STV	2.45	A									0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA									0.0	0.0	\$0.00
McDemott, C	AECOM	2.45	A									0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C									0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA									0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C									0.0	0.0	\$0.00
Abbate, D	STV	2.45	D									0.0	0.0	\$0.00
JV TA	JV TBD	2.45	TA									0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B									0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C									0.0	0.0	\$0.00
Pagan, S	PMA	2.5	C									0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C									0.0	0.0	\$0.00
Nervina, G	STV	2.45	C									0.0	0.0	\$0.00
Solano, J	STV	2.45	C									0.0	0.0	\$0.00
Zellner, P	STV	2.45	B									0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B									0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C									0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D									0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C									0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B									0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A									0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Bracco, S	STV	2.45	C									0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C									0.0	0.0	\$0.00
Lem, R	STV	2.45	B									0.0	0.0	\$0.00
London, L	STV	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
Avellan, J	WNBA	2.76	B									0.0	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad									0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.76	C									0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A									0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B									0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C									0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C									0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B									0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B									0.0	0.0	\$0.00
Gilboe, J	STV	2.45	A									0.0	0.0	\$0.00
Koumjian, G	STV	2.45	A									0.0	0.0	\$0.00
Schuller, P	STV	2.45	A									0.0	0.0	\$0.00
Zheng, H	STV	2.45	B									0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A									0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A									0.0	0.0	\$0.00
Altabba, B	Parsons	2.45	A									0.0	0.0	\$0.00
Maurtz, P	AECOM	2.45	A									0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C									0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C									0.0	0.0	\$0.00
Levitov, B	AECOM	2.45	B									0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B									0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C									0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B									0.0	0.0	\$0.00
Kourkoumelis, V	Hirani	2.54	C									0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad									0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B									0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C									0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad									0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A									0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A									0.0	0.0	\$0.00
Doshi, K	STV	2.45	A									0.0	0.0	\$0.00
Cregger, D	AECOM	2.45	B									0.0	0.0	\$0.00
Baker, U	Weidinger	2.8	D									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B									0.0	0.0	\$0.00
Kopkall, H	YAS	2.51	B									0.0	0.0	\$0.00
Fearon, D	PACO	2.62	TA									0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.86	P									0.0	0.0	\$0.00
Totals:					0.00	0.0	\$0.00		0.00	0.0	\$0.00	0.0	0.0	\$0.00

Professional Services Change Order
Revised - Cost Proposal
Revised - Schedule C
Task 3.5 - Post Award Contract Changes (Allowance)

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)			
Edwards, R	AECOM	2.45	A									0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A									0.0	0.0	\$0.00
Garz, M	STV	2.45	A									0.0	0.0	\$0.00
Calatrava, S	SCSA	2.95	A									0.0	0.0	\$0.00
Son, J	STV	2.45	B									0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C									0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA									0.0	0.0	\$0.00
Quinones, P	STV	2.45	C									0.0	0.0	\$0.00
Basta, A	STV	2.45	A									0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA									0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A									0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C									0.0	0.0	\$0.00
Powe#, D	ISR	2.332	TA									0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C									0.0	0.0	\$0.00
Abbate, D	STV	2.45	D									0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA									0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B									0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C									0.0	0.0	\$0.00
Gallegher, T	Parsons	2.45	C									0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C									0.0	0.0	\$0.00
Nervina, G	STV	2.45	C									0.0	0.0	\$0.00
Solano, J	STV	2.45	C									0.0	0.0	\$0.00
Zetner, P	STV	2.45	B									0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B									0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C									0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D									0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C									0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B									0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A									0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Bracco, S	STV	2.45	C									0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C									0.0	0.0	\$0.00
Lem, R	STV	2.45	B									0.0	0.0	\$0.00
London, L	STV	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
Avellan, J	WNBA	2.76	B									0.0	0.0	\$0.00
Govekar, S	WNBA	2.76	Cad									0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.76	C									0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A									0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B									0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C									0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C									0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B									0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B									0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A									0.0	0.0	\$0.00
Koumjian, G	STV	2.45	A									0.0	0.0	\$0.00
Schuller, P	STV	2.45	A									0.0	0.0	\$0.00
Zheng, H	STV	2.45	B									0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A									0.0	0.0	\$0.00
Pernes, J	AECOM	2.45	A									0.0	0.0	\$0.00
Attaba, B	Parsons	2.45	A									0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A									0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C									0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C									0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B									0.0	0.0	\$0.00
Mezumdar, A	AECOM	2.45	B									0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C									0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B									0.0	0.0	\$0.00
Kourkourmelis, V	Hvaz	2.54	C									0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad									0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B									0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C									0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad									0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A									0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A									0.0	0.0	\$0.00
Doshi, K	STV	2.45	A									0.0	0.0	\$0.00
Cregger, O	AECOM	2.45	B									0.0	0.0	\$0.00
Baker, U	Weidinger	2.8	D									0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A									0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B									0.0	0.0	\$0.00
Kopkalli, H	YAS	2.51	B									0.0	0.0	\$0.00
Fearon, D	PACO	2.62	TA									0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.66	P									0.0	0.0	\$0.00
Totals:					0.00	0.0	\$0.00			0.00	0.0	\$0.00	0.0	\$0.00

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.6 - Respond to RFI, Prepare Sketches

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)			
Edwards, R	AECOM	2.45	A	\$108.53		0.0	\$0.00	\$108.53		0.0	\$0.00	0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A	\$102.97		0.0	\$0.00	\$102.97		0.0	\$0.00	0.0	0.0	\$0.00
Garz, M	STV	2.45	A	\$116.88		0.0	\$0.00	\$116.88	0.07	72.0	\$20,808.47	0.0	72.0	\$20,808.47
Catalrava, S	SCSA	2.95	A	\$270.00		0.0	\$0.00	\$270.00	0.08	83.2	\$68,268.80	0.0	83.2	\$68,268.80
Son, J	STV	2.45	B	\$61.07		0.0	\$0.00	\$61.07		0.0	\$0.00	0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C	\$44.98		0.0	\$0.00	\$44.98		0.0	\$0.00	0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA	\$35.00		0.0	\$0.00	\$35.00		0.0	\$0.00	0.0	0.0	\$0.00
Quinones, P	STV	2.45	C	\$45.38		0.0	\$0.00	\$45.38	0.10	104.0	\$11,557.73	0.1	104.0	\$11,557.73
Basta, A	STV	2.45	A	\$68.33	0.25	520.0	\$112,532.42	\$68.33	0.20	208.0	\$45,012.97	0.4	728.0	\$157,545.39
Jang, H	AECOM	2.45	TA	\$20.40		0.0	\$0.00	\$20.40		0.0	\$0.00	0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A	\$81.04	0.45	936.0	\$185,840.93	\$81.04	0.50	520.0	\$103,244.96	0.7	1,456.0	\$289,085.89
Rosciglione, A	AECOM	2.45	C	\$52.31	0.50	1,040.0	\$133,285.88	\$52.31	0.50	520.0	\$68,642.94	0.8	1,560.0	\$199,928.82
Powell, D	ISR	2.332	TA	\$29.79		0.0	\$0.00	\$29.79		0.0	\$0.00	0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C	\$45.67		0.0	\$0.00	\$45.67		0.0	\$0.00	0.0	0.0	\$0.00
Abbate, D	STV	2.45	D	\$27.88		0.0	\$0.00	\$27.88		0.0	\$0.00	0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA	\$31.16		0.0	\$0.00	\$31.16		0.0	\$0.00	0.0	0.0	\$0.00
Kemboj, M	AECOM	2.45	B	\$69.58		0.0	\$0.00	\$69.58	0.10	104.0	\$17,723.89	0.1	104.0	\$17,723.89
Gallagher, T	Parsons	2.45	C	\$43.27		0.0	\$0.00	\$43.27	0.50	520.0	\$55,125.98	0.3	520.0	\$55,125.98
Paganl, S	PMA	2.5	C	\$53.50		0.0	\$0.00	\$53.50		0.0	\$0.00	0.0	0.0	\$0.00
Finkstein, M	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Nervina, G	STV	2.45	C	\$48.99		0.0	\$0.00	\$48.99		0.0	\$0.00	0.0	0.0	\$0.00
Solano, J	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Zelner, P	STV	2.45	B	\$70.19		0.0	\$0.00	\$70.19		0.0	\$0.00	0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B	\$70.61	0.05	104.0	\$17,991.43	\$70.61	0.08	83.2	\$14,393.14	0.1	187.2	\$32,384.57
Chong, S	AECOM	2.45	C	\$40.89	0.05	104.0	\$10,416.77	\$40.89	0.08	83.2	\$8,335.02	0.1	187.2	\$18,751.79
Patel, K	AECOM	2.45	D	\$38.75	0.05	104.0	\$9,873.50	\$38.75	0.08	83.2	\$7,808.80	0.1	187.2	\$17,772.30
Schiff, M	AECOM	2.45	C	\$52.15	0.05	104.0	\$13,287.82	\$52.15	0.08	83.2	\$10,630.28	0.1	187.2	\$23,918.08
Woo, T	AECOM	2.45	B	\$70.13	0.05	104.0	\$17,869.12	\$70.13	0.08	83.2	\$14,295.30	0.1	187.2	\$32,164.42
Diamond, R	SCSA	2.95	A	\$118.32	0.05	104.0	\$38,300.58	\$118.32	0.08	83.2	\$28,040.48	0.1	187.2	\$66,341.04
SCSA Eng/Arch B	SCSA TBD	2.95	B	\$68.08	0.05	104.0	\$20,273.34	\$68.08	0.08	83.2	\$18,218.68	0.1	187.2	\$38,492.02
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95	0.05	104.0	\$28,878.28	\$86.95	0.08	83.2	\$21,341.01	0.1	187.2	\$48,017.27
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95	0.05	104.0	\$28,878.28	\$86.95	0.08	83.2	\$21,341.01	0.1	187.2	\$48,017.27
Bracco, S	STV	2.45	C	\$48.08	0.50	1,040.0	\$122,507.84	\$48.08	0.50	520.0	\$61,253.92	0.8	1,560.0	\$183,761.76
PTG Eng/Arch C	PTG TBD	2.45	C	\$46.69	0.05	104.0	\$11,896.81	\$46.69		0.0	\$0.00	0.1	104.0	\$11,896.81
Lem, R	STV	2.45	B	\$61.38	0.05	104.0	\$15,834.53	\$61.38	0.08	83.2	\$12,507.62	0.1	187.2	\$28,342.15
London, L	STV	2.45	D	\$31.27	0.05	104.0	\$7,967.80	\$31.27		0.0	\$0.00	0.1	104.0	\$7,967.80
PTG Eng/Arch D	PTG TBD	2.45	D	\$31.91	0.05	104.0	\$8,130.67	\$31.91	0.08	83.2	\$8,504.53	0.1	187.2	\$14,835.20
Avellan, J	WNBA	2.78	B	\$52.18	0.05	104.0	\$14,972.01	\$52.18	0.08	83.2	\$11,977.61	0.1	187.2	\$26,949.61
Govekar, S	WNBA	2.78	Cad	\$24.76	0.05	104.0	\$7,107.11	\$24.76		0.0	\$0.00	0.1	104.0	\$7,107.11
Kasakyan, A	WNBA	2.78	C	\$45.19	0.05	104.0	\$12,971.34	\$45.19		0.0	\$0.00	0.1	104.0	\$12,971.34
Brodsky, V	STV	2.45	A	\$100.72	0.05	104.0	\$25,863.48	\$100.72		0.0	\$0.00	0.1	104.0	\$25,863.48
Ghaly, N	Parsons	2.45	B	\$72.73	0.05	104.0	\$18,531.60	\$72.73	0.08	83.2	\$14,825.28	0.1	187.2	\$33,356.88
Liller, M	Parsons	2.45	C	\$54.58	0.05	104.0	\$13,901.89	\$54.58	0.08	83.2	\$11,121.51	0.1	187.2	\$25,023.40
Clarson, M	RCC	2.917	C	\$51.09	0.05	104.0	\$15,499.07	\$51.09	0.08	83.2	\$12,399.28	0.1	187.2	\$27,898.33
Abdulrah, M	STV	2.45	B	\$68.30	0.05	104.0	\$17,402.84	\$68.30	0.08	83.2	\$13,922.27	0.1	187.2	\$31,325.11
Cobuzzi, A	STV	2.45	B	\$58.49	0.05	104.0	\$14,393.85	\$58.49	0.08	83.2	\$11,514.92	0.1	187.2	\$25,908.77
Gibson, J	STV	2.45	A	\$73.81	0.05	104.0	\$18,808.78	\$73.81	0.08	83.2	\$15,045.43	0.1	187.2	\$33,854.22
Kourmjian, G	STV	2.45	A	\$85.58	0.05	104.0	\$21,805.78	\$85.58	0.08	83.2	\$17,444.63	0.1	187.2	\$39,250.41
Schuffler, P	STV	2.45	A	\$90.24	0.05	104.0	\$22,993.15	\$90.24	0.08	83.2	\$18,394.52	0.1	187.2	\$41,387.67
Zheng, H	STV	2.45	B	\$63.07		0.0	\$0.00	\$63.07		0.0	\$0.00	0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A	\$93.27	0.05	104.0	\$23,785.20	\$93.27	0.08	83.2	\$19,012.18	0.1	187.2	\$42,777.35
Parnes, J	AECOM	2.45	A	\$78.44	0.05	104.0	\$18,988.51	\$78.44	0.08	83.2	\$15,989.21	0.1	187.2	\$33,975.72
Allabba, B	Parsons	2.45	A	\$73.69	0.05	104.0	\$18,778.21	\$73.69	0.08	83.2	\$15,020.97	0.1	187.2	\$33,797.18
Mauntz, P	AECOM	2.45	A	\$73.58	0.05	104.0	\$18,748.18	\$73.58	0.08	83.2	\$14,998.55	0.1	187.2	\$33,746.73
Baxter, D	AECOM	2.45	C	\$42.32	0.05	104.0	\$10,783.14	\$42.32		0.0	\$0.00	0.1	104.0	\$10,783.14
Jimenez, D	AECOM	2.45	C	\$44.29	0.05	104.0	\$11,285.09	\$44.29		0.0	\$0.00	0.1	104.0	\$11,285.09
Levitov, B	AECOM	2.45	B	\$68.02	0.05	104.0	\$18,821.90	\$68.02		0.0	\$0.00	0.1	104.0	\$18,821.90
Mazumdar, A	AECOM	2.45	B	\$61.22	0.05	104.0	\$15,588.86	\$61.22	0.08	83.2	\$12,479.08	0.1	187.2	\$28,077.94
Sherzer, M	AECOM	2.45	C	\$44.97	0.50	1,040.0	\$114,583.58	\$44.97		0.0	\$0.00	0.5	1,040.0	\$114,583.58
Teodor, L	AECOM	2.45	B	\$57.57		0.0	\$0.00	\$57.57		0.0	\$0.00	0.0	0.0	\$0.00
Kourkournelis, V	Hiranl	2.54	C	\$48.08	0.05	104.0	\$12,700.81	\$48.08	0.08	83.2	\$10,180.65	0.1	187.2	\$22,881.46
Ingram, G	Parsons	2.45	Cad	\$25.44		0.0	\$0.00	\$25.44	0.08	83.2	\$5,185.68	0.0	83.2	\$5,185.68
Khalil, M	Parsons	2.45	B	\$64.33	0.50	1,040.0	\$183,912.84	\$64.33	0.08	83.2	\$13,113.03	0.5	1,123.2	\$177,025.87
Patel, A	Parsons	2.45	C	\$53.74		0.0	\$0.00	\$53.74		0.0	\$0.00	0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad	\$34.07		0.0	\$0.00	\$34.07		0.0	\$0.00	0.0	0.0	\$0.00
Wsniewski, B	Parsons	2.45	C	\$45.65	0.05	104.0	\$11,631.82	\$45.65	0.08	83.2	\$9,305.30	0.1	187.2	\$20,936.92
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.85	0.05	104.0	\$28,878.28	\$86.85	0.08	83.2	\$21,341.01	0.1	187.2	\$48,017.27
Lomax, S	SCSA	2.95	A	\$79.71	0.05	104.0	\$24,455.03	\$79.71	0.08	83.2	\$19,564.02	0.1	187.2	\$44,019.05
Rando, M	SCSA	2.95	A	\$125.06	0.05	104.0	\$38,368.41	\$125.06	0.08	83.2	\$30,894.73	0.1	187.2	\$69,063.13
Doshi, K	STV	2.45	A	\$98.72	0.05	104.0	\$25,153.86	\$98.72	0.08	83.2	\$20,123.08	0.1	187.2	\$45,276.94
Gregger, D	AECOM	2.45	B	\$58.47		0.0	\$0.00	\$58.47		0.0	\$0.00	0.0	0.0	\$0.00
Baker, U	Weidinger	2.6	D	\$38.55	0.05	104.0	\$9,883.12	\$38.55	0.08	83.2	\$7,908.50	0.1	187.2	\$17,791.62
Mirzakashani, M	AECOM	2.45	A	\$90.87		0.0	\$0.00	\$90.87		0.0	\$0.00	0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B	\$65.00		0.0	\$0.00	\$65.00		0.0	\$0.00	0.0	0.0	\$0.00
Kopkalli, H	YAS	2.51	B	\$67.00		0.0	\$0.00	\$67.00		0.0	\$0.00	0.0	0.0	\$0.00
Feron, D	PACQ	2.82	TA	\$27.76	0.40	832.0	\$60,512.38	\$27.76	0.50	520.0	\$37,820.22	0.7	1,352.0	\$98,332.58
Nikolakakos, S	Russell	2.66	P	\$144.00		0.0	\$0.00	\$144.00		0.0	\$0.00	0.0	0.0	\$0.00
Totals:					5.10	10,608.0	\$1,604,855.18		5.77	6,000.0	\$989,305.10	8.0	16,608.0	\$2,594,160.28

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.7 - Review and Comment on Shop Drawings, Calculations, Catalog Cuts

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)			
Edwards, R	AECOM	2.45	A	\$108.53		0.0	\$0.00	\$108.53		0.0	\$0.00	0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A	\$102.97		0.0	\$0.00	\$102.97		0.0	\$0.00	0.0	0.0	\$0.00
Garz, M	STV	2.45	A	\$116.88		0.0	\$0.00	\$116.88	0.15	156.0	\$44,671.54	0.1	156.0	\$44,671.54
Calatrava, S	SCSA	2.95	A	\$270.00		0.0	\$0.00	\$270.00	0.15	156.0	\$124,254.00	0.1	156.0	\$124,254.00
Son, J	STV	2.45	B	\$61.07		0.0	\$0.00	\$61.07		0.0	\$0.00	0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C	\$44.96		0.0	\$0.00	\$44.96		0.0	\$0.00	0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA	\$35.00		0.0	\$0.00	\$35.00		0.0	\$0.00	0.0	0.0	\$0.00
Quinones, P	STV	2.45	C	\$45.36		0.0	\$0.00	\$45.36	0.50	520.0	\$57,788.64	0.3	520.0	\$57,788.64
Bastia, A	STV	2.45	A	\$88.33	0.50	1,040.0	\$225,064.84	\$88.33	0.50	520.0	\$112,532.42	0.8	1,560.0	\$337,597.26
Jang, H	AECOM	2.45	TA	\$20.40		0.0	\$0.00	\$20.40		0.0	\$0.00	0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A	\$81.04	0.50	1,040.0	\$208,489.82	\$81.04	0.50	520.0	\$103,244.96	0.8	1,560.0	\$309,734.88
Rosciglione, A	AECOM	2.45	C	\$52.31	0.50	1,040.0	\$133,265.88	\$52.31	0.50	520.0	\$66,842.94	0.8	1,560.0	\$199,928.82
Powell, D	ISR	2.332	TA	\$29.79		0.0	\$0.00	\$29.79		0.0	\$0.00	0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C	\$45.67		0.0	\$0.00	\$45.67		0.0	\$0.00	0.0	0.0	\$0.00
Abbate, D	STV	2.45	D	\$27.88		0.0	\$0.00	\$27.88		0.0	\$0.00	0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA	\$31.16		0.0	\$0.00	\$31.16		0.0	\$0.00	0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B	\$69.56		0.0	\$0.00	\$69.56	0.40	416.0	\$70,895.55	0.2	416.0	\$70,895.55
Gallagher, T	Parsons	2.45	C	\$43.27		0.0	\$0.00	\$43.27	0.50	520.0	\$55,125.98	0.3	520.0	\$55,125.98
Pagani, S	PMA	2.5	C	\$53.50		0.0	\$0.00	\$53.50		0.0	\$0.00	0.0	0.0	\$0.00
Finkstein, M	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Narvina, G	STV	2.45	C	\$48.99		0.0	\$0.00	\$48.99		0.0	\$0.00	0.0	0.0	\$0.00
Solano, J	STV	2.45	C	\$53.00		0.0	\$0.00	\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Zelner, P	STV	2.45	B	\$70.19		0.0	\$0.00	\$70.19		0.0	\$0.00	0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B	\$70.81	0.08	166.4	\$26,786.28	\$70.81	0.25	260.0	\$44,978.57	0.2	426.4	\$73,764.85
Chong, S	AECOM	2.45	C	\$40.89	0.08	166.4	\$16,870.04	\$40.89	0.50	520.0	\$52,093.88	0.3	686.4	\$68,763.90
Patel, K	AECOM	2.45	D	\$38.75		0.0	\$0.00	\$38.75	0.50	520.0	\$49,387.50	0.3	520.0	\$49,387.50
JV Eng/Arch C	JV TBD	2.45	C	\$46.69	0.08	166.4	\$19,034.58	\$46.69	0.15	156.0	\$17,844.92	0.2	322.4	\$36,879.50
Woo, T	AECOM	2.45	B	\$70.13	0.08	166.4	\$28,580.80	\$70.13	0.50	520.0	\$89,345.82	0.3	686.4	\$117,936.22
Diamond, R	SCSA	2.95	A	\$118.32	0.08	166.4	\$58,080.92	\$118.32	0.20	208.0	\$72,601.15	0.2	374.4	\$130,682.07
SCSA Eng/Arch B	SCSA TBD	2.95	B	\$66.08	0.08	166.4	\$32,437.35	\$66.08	0.50	520.0	\$101,366.72	0.3	686.4	\$133,804.07
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95	0.08	166.4	\$42,882.02	\$86.95	0.50	520.0	\$133,381.30	0.3	686.4	\$176,063.32
SCSA Eng/Arch B	SCSA TBD	2.95	B	\$66.08	0.08	166.4	\$32,437.35	\$66.08	0.50	520.0	\$101,366.72	0.3	686.4	\$133,804.07
Bracco, S	STV	2.45	C	\$48.08	0.50	1,040.0	\$122,507.84	\$48.08	0.50	520.0	\$61,253.92	0.8	1,560.0	\$183,761.76
PTG Eng/Arch C	PTG TBD	2.45	C	\$46.69	0.08	166.4	\$19,034.58	\$46.69	0.50	520.0	\$59,483.06	0.3	686.4	\$78,517.64
Lem, R	STV	2.45	B	\$61.36		0.0	\$0.00	\$61.36	0.50	520.0	\$78,172.64	0.3	520.0	\$78,172.64
London, L	STV	2.45	D	\$31.27		0.0	\$0.00	\$31.27	0.50	520.0	\$39,837.96	0.3	520.0	\$39,837.96
PTG Eng/Arch C	PTG TBD	2.45	C	\$46.69	0.08	166.4	\$19,034.58	\$46.69	0.50	520.0	\$59,483.06	0.3	686.4	\$78,517.64
Avellan, J	WNBA	2.76	B	\$52.16	0.08	166.4	\$23,955.21	\$52.16	0.50	520.0	\$74,860.03	0.3	686.4	\$98,815.24
Govekar, S	WNBA	2.76	Cad	\$24.76	0.08	166.4	\$11,371.38	\$24.76	0.50	520.0	\$35,535.55	0.3	686.4	\$46,906.93
Kasakyan, A	WNBA	2.76	C	\$45.19	0.08	166.4	\$20,754.14	\$45.19	0.50	520.0	\$64,856.69	0.3	686.4	\$85,610.83
Brodsky, V	STV	2.45	A	\$100.72	0.08	166.4	\$41,061.53	\$100.72	0.20	208.0	\$51,326.91	0.2	374.4	\$92,388.44
Ghaly, N	Parsons	2.45	B	\$72.73	0.08	166.4	\$29,650.57	\$72.73	0.30	312.0	\$55,594.81	0.2	478.4	\$85,245.38
Littler, M	Parsons	2.45	C	\$54.56	0.08	166.4	\$22,243.02	\$54.56	0.30	312.0	\$41,705.66	0.2	478.4	\$63,948.68
Clarson, M	RCC	2.917	C	\$51.09	0.08	166.4	\$24,796.51	\$51.09	0.50	520.0	\$77,495.38	0.3	686.4	\$102,293.87
Abdullah, M	STV	2.45	B	\$68.30	0.08	166.4	\$27,844.54	\$68.30	0.50	520.0	\$87,014.20	0.3	686.4	\$114,858.74
Cobuzzi, A	STV	2.45	B	\$58.49	0.08	166.4	\$23,029.84	\$58.49	0.50	520.0	\$71,968.26	0.3	686.4	\$94,998.10
Gilboa, J	STV	2.45	A	\$73.81	0.08	166.4	\$30,090.86	\$73.81	0.50	520.0	\$94,033.94	0.3	686.4	\$124,124.80
Koumjian, G	STV	2.45	A	\$85.58	0.08	166.4	\$34,869.25	\$85.58	0.50	520.0	\$109,028.92	0.3	686.4	\$143,918.17
Schuller, P	STV	2.45	A	\$90.24	0.08	166.4	\$36,789.04	\$90.24	0.50	520.0	\$114,965.76	0.3	686.4	\$151,754.80
Zheng, H	STV	2.45	B	\$63.07	0.08	166.4	\$25,712.38	\$63.07	0.50	520.0	\$80,351.18	0.3	686.4	\$106,063.56
Charalambous, J	Parsons	2.45	A	\$93.27	0.08	166.4	\$38,024.31	\$93.27	0.20	208.0	\$47,530.39	0.2	374.4	\$85,554.71
Parnes, J	AECOM	2.45	A	\$76.44	0.08	166.4	\$31,976.42	\$76.44	0.50	520.0	\$99,932.56	0.3	686.4	\$131,910.98
Allabba, B	Parsons	2.45	A	\$73.89	0.08	166.4	\$30,041.94	\$73.89	0.50	520.0	\$93,881.06	0.3	686.4	\$123,923.00
Maurizi, P	AECOM	2.45	A	\$73.58	0.08	166.4	\$29,997.09	\$73.58	0.50	520.0	\$93,740.92	0.3	686.4	\$123,738.01
Baxter, D	AECOM	2.45	C	\$42.32	0.08	166.4	\$17,253.02	\$42.32	0.50	520.0	\$53,915.66	0.3	686.4	\$71,168.70
Jimenez, D	AECOM	2.45	C	\$44.29	0.08	166.4	\$18,058.15	\$44.29	0.50	520.0	\$56,425.46	0.3	686.4	\$74,481.61
Levintov, B	AECOM	2.45	B	\$66.02	0.08	166.4	\$26,915.03	\$66.02	0.50	520.0	\$84,109.48	0.3	686.4	\$111,024.51
Mazumdar, A	AECOM	2.45	B	\$61.22	0.08	166.4	\$24,958.17	\$61.22	0.50	520.0	\$77,994.28	0.3	686.4	\$102,952.45
Sherzer, M	AECOM	2.45	C	\$44.97	0.08	166.4	\$18,333.37	\$44.97	0.50	520.0	\$57,291.78	0.3	686.4	\$75,625.15
Teodor, L	AECOM	2.45	B	\$57.57	0.08	166.4	\$23,470.14	\$57.57	0.50	520.0	\$73,344.16	0.3	686.4	\$96,814.32
Kourkoumelis, V	Hirani	2.54	C	\$48.08	0.08	166.4	\$20,321.30	\$48.08	0.50	520.0	\$63,504.06	0.3	686.4	\$83,825.36
Ingram, G	Parsons	2.45	Cad	\$25.44		0.0	\$0.00	\$25.44	0.00	0.0	\$0.00	0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B	\$64.33	0.50	1,040.0	\$163,912.84	\$64.33	0.50	520.0	\$81,956.42	0.8	1,560.0	\$245,869.26
Patel, A	Parsons	2.45	C	\$53.74	0.08	166.4	\$21,908.72	\$53.74	0.50	520.0	\$66,484.76	0.3	686.4	\$90,373.48
Sousa, M	Parsons	2.45	Cad	\$34.07		0.0	\$0.00	\$34.07	0.50	520.0	\$43,405.18	0.3	520.0	\$43,405.18
Waniewski, B	Parsons	2.45	C	\$45.65	0.08	166.4	\$18,810.59	\$45.65	0.50	520.0	\$56,158.10	0.3	686.4	\$76,768.69
SCSA Eng/Arch A	SCSA TBD	2.95	A	\$86.95	0.08	166.4	\$42,882.02	\$86.95	0.50	520.0	\$133,381.30	0.3	686.4	\$176,063.32
Lomax, S	SCSA	2.95	A	\$79.71	0.08	166.4	\$39,128.04	\$79.71	0.50	520.0	\$122,275.14	0.3	686.4	\$161,403.18
Rando, M	SCSA	2.95	A	\$125.06	0.08	166.4	\$61,389.45	\$125.06	0.50	520.0	\$191,842.04	0.3	686.4	\$253,231.49
Doshi, K	STV	2.45	A	\$98.72	0.08	166.4	\$40,246.17	\$98.72	0.50	520.0	\$125,789.28	0.3	686.4	\$166,015.45
Cregger, D	AECOM	2.45	B	\$58.47	0.08	166.4	\$23,837.05	\$58.47		0.0	\$0.00	0.1	166.4	\$23,837.05
Baker, U	Weidlinger	2.8	D	\$38.55	0.08	166.4	\$15,812.99	\$38.55	0.50	520.0	\$49,415.60	0.3	686.4	\$65,228.59
Mirzakashani, M	AECOM	2.45	A	\$90.87	0.08	166.4	\$37,045.88	\$90.87	0.50	520.0	\$115,768.38	0.3	686.4	\$152,814.26
Wang, H	AECOM	2.45	B	\$65.00		0.0	\$0.00	\$65.00	0.50	520.0	\$82,810.00	0.3	520.0	\$82,810.00
Koptall, H	YAS	2.51	B	\$87.00	0.08	166.4	\$27,883.48	\$87.00	0.50	520.0	\$87,448.40	0.3	686.4	\$115,311.89
Fearon, D	PACO	2.62	TA	\$27.76	0.50	1,040.0	\$75,840.45	\$27.76	0.50	520.0	\$37,820.22	0.8	1,560.0	\$113,460.67
Nikolakakos, S	Russell	2.66	P	\$144.00		0.0	\$0.00	\$144.00		0.0	\$0.00	0.0	0.0	\$0.00
Totals:					6.52	13,561.6	\$2,183,873.69		26.80	27,872.0	\$4,564,655.00	19.9	41,433.6	\$6,738,528.70

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.8 - Review and Comment on Operational Manual

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09			7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)			
Edwards, R	AECOM	2.45	A								0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A								0.0	0.0	\$0.00
Garz, M	STV	2.45	A								0.0	0.0	\$0.00
Calatrava, S	SCSA	2.95	A								0.0	0.0	\$0.00
Son, J	STV	2.45	B								0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C								0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA								0.0	0.0	\$0.00
Quinones, P	STV	2.45	C								0.0	0.0	\$0.00
Basta, A	STV	2.45	A								0.0	0.0	\$0.00
Jiang, H	AECOM	2.45	TA								0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A								0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C								0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA								0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C								0.0	0.0	\$0.00
Abbate, D	STV	2.45	D								0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA								0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B								0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C								0.0	0.0	\$0.00
Pagani, S	PMA	2.5	C								0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C								0.0	0.0	\$0.00
Nervina, G	STV	2.45	C								0.0	0.0	\$0.00
Solano, J	STV	2.45	C								0.0	0.0	\$0.00
Zellner, P	STV	2.45	B								0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B								0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C								0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D								0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C								0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B								0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A								0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B								0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A								0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A								0.0	0.0	\$0.00
Bracco, S	STV	2.45	C								0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C								0.0	0.0	\$0.00
Lem, R	STV	2.45	B								0.0	0.0	\$0.00
London, L	STV	2.45	D								0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D								0.0	0.0	\$0.00
Avellan, J	WNBA	2.78	B								0.0	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad								0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.78	C								0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A								0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B								0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B								0.0	0.0	\$0.00
PTG Eng/Arch A	PTG TBD	2.45	A								0.0	0.0	\$0.00
PTG Eng/Arch B	PTG TBD	2.45	B								0.0	0.0	\$0.00
PTG Eng/Arch B	PTG TBD	2.45	B								0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B								0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B								0.0	0.0	\$0.00
JV Eng/Arch C	JV TBD	2.45	C								0.0	0.0	\$0.00
JV Eng/Arch C	JV TBD	2.45	C								0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A								0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A								0.0	0.0	\$0.00
Altabba, B	Parsons	2.45	A								0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A								0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C								0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C								0.0	0.0	\$0.00
Levitov, B	AECOM	2.45	B								0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B								0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C								0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B								0.0	0.0	\$0.00
Kourkoumelis, V	Hirani	2.54	C								0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad								0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B								0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C								0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad								0.0	0.0	\$0.00
Wsniewski, B	Parsons	2.45	C								0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A								0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A								0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A								0.0	0.0	\$0.00
Doshi, K	STV	2.45	A								0.0	0.0	\$0.00
Cregget, D	AECOM	2.45	B								0.0	0.0	\$0.00
Baker, U	Wedlinger	2.6	D								0.0	0.0	\$0.00
Mirzakhani, M	AECOM	2.45	A								0.0	0.0	\$0.00
Wang, M	AECOM	2.45	B								0.0	0.0	\$0.00
Kopkall, H	YAS	2.51	B								0.0	0.0	\$0.00
Fearon, D	PACO	2.82	TA								0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.66	P								0.0	0.0	\$0.00
Totals:					0.00	0.0	\$0.00	0.00	0.0	\$0.00	0.0	0.0	\$0.00

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.9 - Prepare Record Drawings

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)			
Edwards, R	AECOM	2.45	A									0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A									0.0	0.0	\$0.00
Garz, M	STV	2.45	A									0.0	0.0	\$0.00
Caiatruva, S	SCSA	2.95	A									0.0	0.0	\$0.00
Son, J	STV	2.45	B									0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C									0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA									0.0	0.0	\$0.00
Quinones, P	STV	2.45	C									0.0	0.0	\$0.00
Basta, A	STV	2.45	A									0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA									0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A									0.0	0.0	\$0.00
Roschillone, A	AECOM	2.45	C									0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA									0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C									0.0	0.0	\$0.00
Abbate, D	STV	2.45	D									0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA									0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B									0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C									0.0	0.0	\$0.00
Pagani, S	PMA	2.5	C									0.0	0.0	\$0.00
Finkelslein, M	STV	2.45	C									0.0	0.0	\$0.00
Nervina, G	STV	2.45	C									0.0	0.0	\$0.00
Solano, J	STV	2.45	C									0.0	0.0	\$0.00
Zelner, P	STV	2.45	B									0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B									0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C									0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A									0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B									0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B									0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B									0.0	0.0	\$0.00
Bracco, S	STV	2.45	C									0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
Govekar, S	WNBA	2.76	Cad									0.0	0.0	\$0.00
PTG Cadd Op	PTG TBD	2.45	Cad									0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D									0.0	0.0	\$0.00
Zheng, H	STV	2.45	B									0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A									0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A									0.0	0.0	\$0.00
Alrabba, B	Parsons	2.45	A									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
Kourkouvelis, V	Hirani	2.54	C									0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad									0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B									0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C									0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad									0.0	0.0	\$0.00
Wlaniewski, B	Parsons	2.45	C									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Doshi, K	STV	2.45	A									0.0	0.0	\$0.00
Cregger, D	AECOM	2.45	B									0.0	0.0	\$0.00
Baker, U	Weidlinger	2.6	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D									0.0	0.0	\$0.00
Fearon, D	PACO	2.82	TA									0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.68	P									0.0	0.0	\$0.00
Totals:				0.00	0.0	\$0.00		0.00	0.0	\$0.00	0.0	0.0	\$0.00	

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.10 - Review Contractor's Proposed Design Changes and Comment (Allowance)

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)	
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)				
Edwards, R	AECOM	2.45	A					\$108.53		0.0		\$0.00	0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A					\$102.97		0.0		\$0.00	0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A					\$88.85	0.07	73.4		\$15,828.02	0.0	73.4	\$15,828.02
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.02	24.5		\$3,958.98	0.0	24.5	\$3,958.98
Son, J	STV	2.45	B					\$61.07		0.0		\$0.00	0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C					\$44.98		0.0		\$0.00	0.0	0.0	\$0.00
Fallice, D	PMA	2.5	TA					\$35.00		0.0		\$0.00	0.0	0.0	\$0.00
Quinones, P	STV	2.45	C					\$45.36		0.0		\$0.00	0.0	0.0	\$0.00
Basta, A	STV	2.45	A					\$68.33		0.0		\$0.00	0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA					\$20.40		0.0		\$0.00	0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A					\$81.04		0.0		\$0.00	0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C					\$52.31		0.0		\$0.00	0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA					\$29.79		0.0		\$0.00	0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C					\$45.67		0.0		\$0.00	0.0	0.0	\$0.00
Abbate, D	STV	2.45	D					\$27.88		0.0		\$0.00	0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA					\$31.18		0.0		\$0.00	0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B					\$88.58		0.0		\$0.00	0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C					\$43.27		0.0		\$0.00	0.0	0.0	\$0.00
Pagani, S	PMA	2.5	C					\$53.50		0.0		\$0.00	0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C					\$53.00		0.0		\$0.00	0.0	0.0	\$0.00
Nervina, G	STV	2.45	C					\$48.99		0.0		\$0.00	0.0	0.0	\$0.00
Solano, J	STV	2.45	C					\$53.00		0.0		\$0.00	0.0	0.0	\$0.00
Zellner, P	STV	2.45	B					\$70.19		0.0		\$0.00	0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.05	48.9		\$7,917.96	0.0	48.9	\$7,917.96
Chong, S	AECOM	2.45	C					\$40.89	0.02	24.5		\$2,449.80	0.0	24.5	\$2,449.80
Patel, K	AECOM	2.45	D					\$38.75	0.02	24.5		\$2,321.59	0.0	24.5	\$2,321.59
Schiff, M	AECOM	2.45	C					\$52.15	0.02	24.5		\$3,124.40	0.0	24.5	\$3,124.40
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.02	24.5		\$3,958.98	0.0	24.5	\$3,958.98
Diamond, R	SCSA	2.95	A					\$118.32	0.02	24.5		\$8,535.46	0.0	24.5	\$8,535.46
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$68.08	0.02	24.5		\$4,786.93	0.0	24.5	\$4,786.93
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$68.08	0.02	24.5		\$4,786.93	0.0	24.5	\$4,786.93
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$68.08	0.02	24.5		\$4,786.93	0.0	24.5	\$4,786.93
Ducibeta, R	DVS	2.31	P					\$235.00		0.0		\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C					\$48.89	0.02	24.5		\$2,797.29	0.0	24.5	\$2,797.29
JV Eng/Arch C	JV TBD	2.45	C					\$48.89	0.02	24.5		\$2,797.29	0.0	24.5	\$2,797.29
London, L	STV	2.45	D					\$31.27	0.02	24.5		\$1,873.44	0.0	24.5	\$1,873.44
PTG Eng/Arch D	PTG TBD	2.45	D					\$31.91	0.02	24.5		\$1,911.79	0.0	24.5	\$1,911.79
Avellan, J	WNBA	2.78	B					\$52.16		0.0		\$0.00	0.0	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad					\$24.76		0.0		\$0.00	0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.78	C					\$45.19		0.0		\$0.00	0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B					\$72.73		0.0		\$0.00	0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C					\$54.56		0.0		\$0.00	0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C					\$51.09		0.0		\$0.00	0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B					\$88.30		0.0		\$0.00	0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B					\$58.49		0.0		\$0.00	0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.05	48.9		\$7,917.96	0.0	48.9	\$7,917.96
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.05	48.9		\$7,917.96	0.0	48.9	\$7,917.96
PTG Eng/Arch B	PTG TBD	2.45	B					\$68.08		0.0		\$0.00	0.0	0.0	\$0.00
Zheng, H	STV	2.45	B					\$63.07		0.0		\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch B	PTG TBD	2.45	B					\$68.08		0.0		\$0.00	0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.02	24.5		\$3,958.98	0.0	24.5	\$3,958.98
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$68.08	0.05	48.9		\$9,533.86	0.0	48.9	\$9,533.86
Baxter, D	AECOM	2.45	C					\$42.32		0.0		\$0.00	0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C					\$44.28		0.0		\$0.00	0.0	0.0	\$0.00
Levitov, B	AECOM	2.45	B					\$88.02		0.0		\$0.00	0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B					\$81.22		0.0		\$0.00	0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C					\$44.97		0.0		\$0.00	0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B					\$57.57		0.0		\$0.00	0.0	0.0	\$0.00
Kourkoumelis, V	Hiranl	2.54	Cad					\$48.08		0.0		\$0.00	0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad					\$25.44		0.0		\$0.00	0.0	0.0	\$0.00
PTG Eng/Arch A	PTG TBD	2.45	A					\$88.95		0.0		\$0.00	0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C					\$53.74		0.0		\$0.00	0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad					\$34.07		0.0		\$0.00	0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C					\$45.85		0.0		\$0.00	0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$88.08	0.01	12.2		\$2,383.47	0.0	12.2	\$2,383.47
SCSA Eng/Arch B	SCSA TBD	2.95	B					\$88.08	0.02	24.5		\$4,786.93	0.0	24.5	\$4,786.93
JV Eng/Arch B	JV TBD	2.45	B					\$68.08	0.02	24.5		\$3,958.98	0.0	24.5	\$3,958.98
Cregger, D	AECOM	2.45	B					\$58.47		0.0		\$0.00	0.0	0.0	\$0.00
Baker, U	Weklinger	2.8	D					\$38.55		0.0		\$0.00	0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B					\$88.08		0.0		\$0.00	0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B					\$85.00		0.0		\$0.00	0.0	0.0	\$0.00
Kopkall, H	YAS	2.51	B					\$87.00		0.0		\$0.00	0.0	0.0	\$0.00
Fearon, D	PACO	2.62	TA					\$27.76		0.0		\$0.00	0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.66	P					\$144.00		0.0		\$0.00	0.0	0.0	\$0.00
Totals:										0.65		672.5		672.5	\$112,013.91

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.12 - Outline Listing of Required Contractor's Submittal

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09			7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)			
Edwards, R	AECOM	2.45	A								0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A								0.0	0.0	\$0.00
Garz, M	STV	2.45	A								0.0	0.0	\$0.00
Catalrava, S	SCSA	2.95	A								0.0	0.0	\$0.00
Son, J	STV	2.45	B								0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C								0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA								0.0	0.0	\$0.00
Quinones, P	STV	2.45	C								0.0	0.0	\$0.00
Basta, A	STV	2.45	A								0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA								0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A								0.0	0.0	\$0.00
PTG Eng/Arch B	PTG TBD	2.45	B								0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA								0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C								0.0	0.0	\$0.00
Abbate, D	STV	2.45	D								0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA								0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B								0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C								0.0	0.0	\$0.00
Paganl, S	PMA	2.5	C								0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C								0.0	0.0	\$0.00
Nervina, G	STV	2.45	C								0.0	0.0	\$0.00
Solano, J	STV	2.45	C								0.0	0.0	\$0.00
Zellner, P	STV	2.45	B								0.0	0.0	\$0.00
Hand, J	AECOM	2.45	B								0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C								0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D								0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C								0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B								0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A								0.0	0.0	\$0.00
SCSA Eng/Arch B	SCSA TBD	2.95	B								0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A								0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A								0.0	0.0	\$0.00
Bracco, S	STV	2.45	C								0.0	0.0	\$0.00
PTG Eng/Arch C	PTG TBD	2.45	C								0.0	0.0	\$0.00
Lem, R	STV	2.45	B								0.0	0.0	\$0.00
London, L	STV	2.45	D								0.0	0.0	\$0.00
PTG Eng/Arch D	PTG TBD	2.45	D								0.0	0.0	\$0.00
Avellan, J	WNBA	2.78	B								0.0	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad								0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.78	C								0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A								0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B								0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C								0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C								0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B								0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B								0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A								0.0	0.0	\$0.00
Koumjian, G	STV	2.45	A								0.0	0.0	\$0.00
Schuller, P	STV	2.45	A								0.0	0.0	\$0.00
Zheng, H	STV	2.45	B								0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A								0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A								0.0	0.0	\$0.00
Atabba, B	Parsons	2.45	A								0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A								0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C								0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C								0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B								0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B								0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C								0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B								0.0	0.0	\$0.00
Kourkoulis, V	Hirani	2.54	C								0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad								0.0	0.0	\$0.00
Khalli, M	Parsons	2.45	B								0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C								0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad								0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C								0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A								0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A								0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A								0.0	0.0	\$0.00
Doshi, K	STV	2.45	A								0.0	0.0	\$0.00
Cregger, D	AECOM	2.45	B								0.0	0.0	\$0.00
Baker, U	Weidinger	2.8	D								0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A								0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B								0.0	0.0	\$0.00
Kopka, H	YAS	2.51	B								0.0	0.0	\$0.00
JV Eng/Arch D	JV TBD	2.45	D								0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.68	P								0.0	0.0	\$0.00
Totals:					0.00	0.0	\$0.00		0.00	0.0	\$0.00	0.0	\$0.00

Professional Services Change Order
Revised - Cost Proposal
Revised - Schedule C
Task 3.13 - Risk Management Group Meetings

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 8/31/09			7/1/09 - 12/31/09			Total FTE	Total Hours	Total Labor (\$)		
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	FTE	Hours (Hrs)				Total Labor (\$)	
Edwards, R	AECOM	2.45	A				\$108.53		0.0	\$0.00	0.0	\$0.00		
McIntyre, S	STV	2.45	A				\$102.97		0.0	\$0.00	0.0	\$0.00		
Garz, M	STV	2.45	A				\$118.88		0.0	\$0.00	0.0	\$0.00		
Calatrava, S	SCSA	2.95	A				\$270.00		0.0	\$0.00	0.0	\$0.00		
Soft, J	STV	2.45	B				\$81.07		0.0	\$0.00	0.0	\$0.00		
Harris, K	AECOM	2.45	C				\$44.86		0.0	\$0.00	0.0	\$0.00		
Felice, D	PMA	2.5	TA				\$35.00		0.0	\$0.00	0.0	\$0.00		
Quinones, P	STV	2.45	C				\$45.38		0.0	\$0.00	0.0	\$0.00		
Basta, A	STV	2.45	A				\$88.33		0.0	\$0.00	0.0	\$0.00		
Jang, H	AECOM	2.45	TA				\$20.40		0.0	\$0.00	0.0	\$0.00		
McDemott, C	AECOM	2.45	A				\$81.04		0.0	\$0.00	0.0	\$0.00		
Rosciglione, A	AECOM	2.45	C				\$52.31		0.0	\$0.00	0.0	\$0.00		
Powell, D	ISR	2.332	TA				\$28.79		0.0	\$0.00	0.0	\$0.00		
Tong, E	Stellar	2.45	C				\$45.67		0.0	\$0.00	0.0	\$0.00		
Abbate, D	STV	2.45	D				\$27.88		0.0	\$0.00	0.0	\$0.00		
Dennis, Y	STV	2.45	TA				\$31.18		0.0	\$0.00	0.0	\$0.00		
JV Eng/Arch A	JV TBD	2.45	A				\$86.95	0.02	15.6	\$3,323.23	0.0	\$0.00		
JV Eng/Arch A	JV TBD	2.45	A				\$86.95	0.02	15.6	\$3,323.23	0.0	\$0.00		
JV Eng/Arch B	JV TBD	2.45	B				\$86.08		0.0	\$0.00	0.0	\$0.00		
PTG Eng/Arch B	PTG TBD	2.45	B				\$68.08	0.02	15.6	\$2,525.58	0.0	\$0.00		
Nervina, G	STV	2.45	C				\$48.99		0.0	\$0.00	0.0	\$0.00		
Solano, J	STV	2.45	C				\$53.00		0.0	\$0.00	0.0	\$0.00		
Zellner, P	STV	2.45	B				\$70.19		0.0	\$0.00	0.0	\$0.00		
Hand, J	AECOM	2.45	B				\$70.81		0.0	\$0.00	0.0	\$0.00		
Chong, S	AECOM	2.45	C				\$40.89		0.0	\$0.00	0.0	\$0.00		
Patel, K	AECOM	2.45	D				\$38.75		0.0	\$0.00	0.0	\$0.00		
Schiff, M	AECOM	2.45	C				\$52.15		0.0	\$0.00	0.0	\$0.00		
Woo, T	AECOM	2.45	B				\$70.13		0.0	\$0.00	0.0	\$0.00		
Diamond, R	SCSA	2.95	A				\$118.32		0.0	\$0.00	0.0	\$0.00		
SCSA Eng/Arch B	SCSA TBD	2.95	B				\$86.08		0.0	\$0.00	0.0	\$0.00		
SCSA Eng/Arch A	SCSA TBD	2.95	A				\$86.95		0.0	\$0.00	0.0	\$0.00		
SCSA Eng/Arch A	SCSA TBD	2.95	A				\$86.95		0.0	\$0.00	0.0	\$0.00		
Bracco, S	STV	2.45	C				\$48.08		0.0	\$0.00	0.0	\$0.00		
PTG Eng/Arch C	PTG TBD	2.45	C				\$48.89		0.0	\$0.00	0.0	\$0.00		
Lem, R	STV	2.45	B				\$61.36		0.0	\$0.00	0.0	\$0.00		
London, L	STV	2.45	D				\$31.27		0.0	\$0.00	0.0	\$0.00		
PTG Eng/Arch D	PTG TBD	2.45	D				\$31.81		0.0	\$0.00	0.0	\$0.00		
Avellan, J	WNBA	2.76	B				\$52.16		0.0	\$0.00	0.0	\$0.00		
Govekar, S	WNBA	2.76	Cad				\$24.76		0.0	\$0.00	0.0	\$0.00		
Kasakyan, A	WNBA	2.76	C				\$45.19		0.0	\$0.00	0.0	\$0.00		
Brodsky, V	STV	2.45	A				\$100.72		0.0	\$0.00	0.0	\$0.00		
Ghaly, N	Parsons	2.45	B				\$72.73		0.0	\$0.00	0.0	\$0.00		
Littler, M	Parsons	2.45	C				\$54.56		0.0	\$0.00	0.0	\$0.00		
Clarson, M	RCC	2.917	C				\$51.09		0.0	\$0.00	0.0	\$0.00		
Abdullah, M	STV	2.45	B				\$68.30		0.0	\$0.00	0.0	\$0.00		
Cobuzzi, A	STV	2.45	B				\$56.49		0.0	\$0.00	0.0	\$0.00		
Gilboa, J	STV	2.45	A				\$73.81		0.0	\$0.00	0.0	\$0.00		
Koumjian, G	STV	2.45	A				\$85.58		0.0	\$0.00	0.0	\$0.00		
Schuller, P	STV	2.45	A				\$90.24		0.0	\$0.00	0.0	\$0.00		
Zheng, H	STV	2.45	B				\$63.07		0.0	\$0.00	0.0	\$0.00		
Charalambous, J	Parsons	2.45	A				\$93.27		0.0	\$0.00	0.0	\$0.00		
Parnes, J	AECOM	2.45	A				\$78.44		0.0	\$0.00	0.0	\$0.00		
Atabba, B	Parsons	2.45	A				\$73.69		0.0	\$0.00	0.0	\$0.00		
Mauritz, P	AECOM	2.45	A				\$73.58		0.0	\$0.00	0.0	\$0.00		
Baxter, D	AECOM	2.45	C				\$42.32		0.0	\$0.00	0.0	\$0.00		
Jimenez, D	AECOM	2.45	C				\$44.29		0.0	\$0.00	0.0	\$0.00		
Leyntov, B	AECOM	2.45	B				\$68.02		0.0	\$0.00	0.0	\$0.00		
Mazumdar, A	AECOM	2.45	B				\$81.22		0.0	\$0.00	0.0	\$0.00		
Sherzer, M	AECOM	2.45	C				\$44.97		0.0	\$0.00	0.0	\$0.00		
Teodor, L	AECOM	2.45	B				\$57.57		0.0	\$0.00	0.0	\$0.00		
Kourkouvelis, V	Hirani	2.54	C				\$48.08		0.0	\$0.00	0.0	\$0.00		
Ingram, G	Parsons	2.45	Cad				\$25.44		0.0	\$0.00	0.0	\$0.00		
Khall, M	Parsons	2.45	B				\$64.33		0.0	\$0.00	0.0	\$0.00		
Palet, A	Parsons	2.45	C				\$53.74		0.0	\$0.00	0.0	\$0.00		
Sousa, M	Parsons	2.45	Cad				\$34.07		0.0	\$0.00	0.0	\$0.00		
Wisniewski, B	Parsons	2.45	C				\$45.85		0.0	\$0.00	0.0	\$0.00		
SCSA Eng/Arch A	SCSA TBD	2.95	A				\$88.95		0.0	\$0.00	0.0	\$0.00		
Lomax, S	SCSA	2.95	A				\$79.71		0.0	\$0.00	0.0	\$0.00		
Rando, M	SCSA	2.95	A				\$125.08		0.0	\$0.00	0.0	\$0.00		
Doshi, K	STV	2.45	A				\$98.72		0.0	\$0.00	0.0	\$0.00		
Cregger, D	AECOM	2.45	B				\$68.47		0.0	\$0.00	0.0	\$0.00		
Baker, U	Weidinger	2.8	D				\$36.55		0.0	\$0.00	0.0	\$0.00		
Mirzakashani, M	AECOM	2.45	A				\$90.87		0.0	\$0.00	0.0	\$0.00		
Wang, H	AECOM	2.45	B				\$65.00		0.0	\$0.00	0.0	\$0.00		
Kopkall, H	YAS	2.51	B				\$67.00		0.0	\$0.00	0.0	\$0.00		
Fearon, D	PACO	2.82	TA				\$27.76		0.0	\$0.00	0.0	\$0.00		
Nikolakakos, S	Russell	2.86	P				\$144.00		0.0	\$0.00	0.0	\$0.00		
Totals:					0.00	0.0	\$0.00		0.05	46.8	\$9,172.04	0.0	46.8	\$9,172.04

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 3.14 - Unspecified Engineering Services (Allowance)

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09			7/1/09 - 12/31/09			Total FTE	Total Hours	Total Labor (\$)		
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE				Hours (Hrs)	Total Labor (\$)
Edwards, R	AECOM	2.45	A				\$108.53		0.0	\$0.00	0.0	\$0.00		
McIntyre, S	STV	2.45	A				\$102.97		0.0	\$0.00	0.0	\$0.00		
JV Eng/Arch A	JV TBD	2.45	A				\$86.95	0.40	418.0	\$88,619.44	0.2	418.0	\$88,619.44	
Calatrava, S	SCSA	2.95	A				\$270.00		0.0	\$0.00	0.0	\$0.00		
Son, J	STV	2.45	B				\$61.07		0.0	\$0.00	0.0	\$0.00		
Harns, K	AECOM	2.45	C				\$44.96		0.0	\$0.00	0.0	\$0.00		
Felice, D	PMA	2.5	TA				\$35.00		0.0	\$0.00	0.0	\$0.00		
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.45	468.0	\$53,534.75	0.2	468.0	\$53,534.75	
Basta, A	STV	2.45	A				\$88.33		0.0	\$0.00	0.0	\$0.00		
Jang, H	AECOM	2.45	TA				\$20.40		0.0	\$0.00	0.0	\$0.00		
McDermott, C	AECOM	2.45	A				\$81.04		0.0	\$0.00	0.0	\$0.00		
Rosciglione, A	AECOM	2.45	C				\$52.31		0.0	\$0.00	0.0	\$0.00		
Powell, D	ISR	2.332	TA				\$29.79		0.0	\$0.00	0.0	\$0.00		
Tong, E	Stellar	2.45	C				\$45.87		0.0	\$0.00	0.0	\$0.00		
Abbate, D	STV	2.45	D				\$27.88		0.0	\$0.00	0.0	\$0.00		
Dennis, Y	STV	2.45	TA				\$31.16		0.0	\$0.00	0.0	\$0.00		
Kamboj, M	AECOM	2.45	B				\$69.58		0.0	\$0.00	0.0	\$0.00		
PTG Eng/Arch C	PTG TBD	2.45	C				\$46.89	0.40	418.0	\$47,586.45	0.2	418.0	\$47,586.45	
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.25	260.0	\$29,741.53	0.1	260.0	\$29,741.53	
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.25	260.0	\$29,741.53	0.1	260.0	\$29,741.53	
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.25	260.0	\$29,741.53	0.1	260.0	\$29,741.53	
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.25	260.0	\$29,741.53	0.1	260.0	\$29,741.53	
Zellner, P	STV	2.45	B				\$70.18	0.00	0.0	\$0.00	0.0	\$0.00		
JV Eng/Arch B	JV TBD	2.45	B				\$66.08	0.25	260.0	\$42,092.96	0.1	260.0	\$42,092.96	
Chong, S	AECOM	2.45	C				\$40.89	0.25	260.0	\$26,046.93	0.1	260.0	\$26,046.93	
Patel, K	AECOM	2.45	D				\$38.75	0.35	364.0	\$34,557.25	0.2	364.0	\$34,557.25	
Schiff, M	AECOM	2.45	C				\$52.15	0.15	156.0	\$19,931.73	0.1	156.0	\$19,931.73	
Weo, T	AECOM	2.45	B				\$70.13	0.50	520.0	\$89,345.82	0.3	520.0	\$89,345.82	
SCSA Eng/Arch A	SCSA TBD	2.95	A				\$86.95	0.50	520.0	\$133,381.30	0.3	520.0	\$133,381.30	
SCSA Eng/Arch B	SCSA TBD	2.95	B				\$66.08	0.40	416.0	\$81,093.38	0.2	416.0	\$81,093.38	
SCSA Eng/Arch B	SCSA TBD	2.95	B				\$66.08	0.40	416.0	\$81,093.38	0.2	416.0	\$81,093.38	
Bracco, S	STV	2.45	C				\$48.08		0.0	\$0.00	0.0	\$0.00		
PTG Eng/Arch C	PTG TBD	2.45	C				\$46.89		0.0	\$0.00	0.0	\$0.00		
Lem, R	STV	2.45	B				\$61.36		0.0	\$0.00	0.0	\$0.00		
London, L	STV	2.45	D				\$31.27	0.50	520.0	\$39,837.98	0.3	520.0	\$39,837.98	
Avellan, J	WNBA	2.76	B				\$52.16	0.40	416.0	\$59,888.03	0.2	416.0	\$59,888.03	
Govekar, S	WNBA	2.76	Cad				\$24.76	0.40	416.0	\$28,428.44	0.2	416.0	\$28,428.44	
Kasakyan, A	WNBA	2.76	C				\$45.19	0.40	416.0	\$51,885.35	0.2	416.0	\$51,885.35	
JV Eng/Arch A	JV TBD	2.45	A				\$86.95	0.20	208.0	\$44,309.72	0.1	208.0	\$44,309.72	
Ghaly, N	Parsons	2.45	B				\$72.73		0.0	\$0.00	0.0	\$0.00		
Littler, M	Parsons	2.45	C				\$54.56		0.0	\$0.00	0.0	\$0.00		
Clarson, M	RCC	2.917	C				\$51.09		0.0	\$0.00	0.0	\$0.00		
Abdullah, M	STV	2.45	B				\$66.30	0.50	520.0	\$87,014.20	0.3	520.0	\$87,014.20	
Cobuzzi, A	STV	2.45	B				\$58.49	0.50	520.0	\$71,968.28	0.3	520.0	\$71,968.28	
Gilboa, J	STV	2.45	A				\$73.81		0.0	\$0.00	0.0	\$0.00		
Koumjian, P	STV	2.45	A				\$85.58	0.35	364.0	\$76,320.24	0.2	364.0	\$76,320.24	
Schuller, G	STV	2.45	A				\$90.24	0.35	364.0	\$80,476.03	0.2	364.0	\$80,476.03	
Zheng, H	STV	2.45	B				\$63.07	0.40	416.0	\$64,280.94	0.2	416.0	\$64,280.94	
PTG Eng/Arch A	PTG TBD	2.45	A				\$86.95	0.05	52.0	\$11,077.43	0.0	52.0	\$11,077.43	
JV Eng/Arch B	JV TBD	2.45	B				\$66.08	0.50	520.0	\$84,185.92	0.3	520.0	\$84,185.92	
JV Eng/Arch B	JV TBD	2.45	B				\$66.08	0.05	52.0	\$8,418.59	0.0	52.0	\$8,418.59	
JV Eng/Arch B	JV TBD	2.45	B				\$66.08	0.05	52.0	\$8,418.59	0.0	52.0	\$8,418.59	
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.50	520.0	\$59,483.06	0.3	520.0	\$59,483.06	
Jimenez, D	AECOM	2.45	C				\$44.29		0.0	\$0.00	0.0	\$0.00		
Levitov, B	AECOM	2.45	B				\$66.02	0.30	312.0	\$50,465.69	0.2	312.0	\$50,465.69	
Mazumdar, A	AECOM	2.45	B				\$61.22		0.0	\$0.00	0.0	\$0.00		
Sherzer, M	AECOM	2.45	C				\$44.97		0.0	\$0.00	0.0	\$0.00		
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.30	312.0	\$35,689.84	0.2	312.0	\$35,689.84	
Kourkourmelis, V	Hirani	2.54	C				\$48.08	0.30	312.0	\$38,102.44	0.2	312.0	\$38,102.44	
Ingram, G	Parsons	2.45	Cad				\$25.44	0.95	988.0	\$61,580.06	0.5	988.0	\$61,580.06	
Khalli, M	Parsons	2.45	B				\$64.33		0.0	\$0.00	0.0	\$0.00		
Sousa, M	Parsons	2.45	Cad				\$34.07	1.00	1,040.0	\$86,810.36	0.5	1,040.0	\$86,810.36	
PTG Cadd Op	PTG TBD	2.45	Cad				\$28.27	0.50	520.0	\$36,015.98	0.3	520.0	\$36,015.98	
Wisniewski, B	Parsons	2.45	C				\$45.85	0.50	520.0	\$58,158.10	0.3	520.0	\$58,158.10	
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.50	520.0	\$59,483.06	0.3	520.0	\$59,483.06	
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.50	520.0	\$59,483.06	0.3	520.0	\$59,483.06	
Baker, U	Weidinger	2.6	D				\$36.55	0.30	312.0	\$29,649.36	0.2	312.0	\$29,649.36	
JV Eng/Arch C	JV TBD	2.45	C				\$46.89	0.30	312.0	\$35,689.84	0.2	312.0	\$35,689.84	
Wang, H	AECOM	2.45	B				\$65.00		0.0	\$0.00	0.0	\$0.00		
Kopkalli, H	YAS	2.51	B				\$67.00	0.30	312.0	\$52,469.04	0.2	312.0	\$52,469.04	
JV Eng/Arch D	JV TBD	2.45	D				\$31.91		0.0	\$0.00	0.0	\$0.00		
Nikolakakos, S	Russell	2.66	P				\$144.00		0.0	\$0.00	0.0	\$0.00		
Totals:									15.95	16,588.0	\$2,195,838.92	8.0	16,588.0	\$2,195,838.92

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 4.1 - Assist WTCC in Commissioning - Allowance

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09				7/1/09 - 12/31/09				Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)			
Edwards, R	AECOM	2.45	A									0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A									0.0	0.0	\$0.00
Garz, M	STV	2.45	A									0.0	0.0	\$0.00
Calatrava, S	SCSA	2.95	A									0.0	0.0	\$0.00
Son, J	STV	2.45	B									0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C									0.0	0.0	\$0.00
Felice, D	PMA	2.5	TA									0.0	0.0	\$0.00
Quinones, P	STV	2.45	C									0.0	0.0	\$0.00
Basta, A	STV	2.45	A									0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA									0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A									0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C									0.0	0.0	\$0.00
Powall, D	ISR	2.332	TA									0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C									0.0	0.0	\$0.00
Abbate, D	STV	2.45	D									0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA									0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B									0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C									0.0	0.0	\$0.00
Pagani, S	PMA	2.5	C									0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C									0.0	0.0	\$0.00
Nervina, G	STV	2.45	C									0.0	0.0	\$0.00
Solano, J	STV	2.45	C									0.0	0.0	\$0.00
Zellner, P	STV	2.45	B									0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A									0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B									0.0	0.0	\$0.00
JV Eng/Arch C	JV TBD	2.45	C									0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C									0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B									0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A									0.0	0.0	\$0.00
Bracco, S	STV	2.45	C									0.0	0.0	\$0.00
Lem, R	STV	2.45	B									0.0	0.0	\$0.00
London, L	STV	2.45	D									0.0	0.0	\$0.00
Avellan, J	WNBA	2.70	B									0.0	0.0	\$0.00
Govekar, S	WNBA	2.70	Cad									0.0	0.0	\$0.00
Kasahyan, A	WNBA	2.70	C									0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A									0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B									0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C									0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C									0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B									0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B									0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A									0.0	0.0	\$0.00
Kourmylan, G	STV	2.45	A									0.0	0.0	\$0.00
Schuller, P	STV	2.45	A									0.0	0.0	\$0.00
Zheng, H	STV	2.45	B									0.0	0.0	\$0.00
Cherelambous, J	Parsons	2.45	A	\$93.27		0.0	\$0.00	\$93.27		0.0	\$0.00	0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A									0.0	0.0	\$0.00
Altabba, B	Parsons	2.45	A									0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A									0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C									0.0	0.0	\$0.00
Jimenez, D	AECOM	2.45	C									0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B									0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B									0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C									0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B									0.0	0.0	\$0.00
Kourkourmellis, V	Hirani	2.54	C									0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad									0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B									0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C									0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad									0.0	0.0	\$0.00
Waniewski, B	Parsons	2.45	C									0.0	0.0	\$0.00
SCSA Eng/Arch A	SCSA TBD	2.95	A									0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A									0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A									0.0	0.0	\$0.00
Doshi, K	STV	2.45	A									0.0	0.0	\$0.00
Cregger, D	AECOM	2.45	B									0.0	0.0	\$0.00
Baker, U	Weidinger	2.8	D									0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A									0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B									0.0	0.0	\$0.00
Kopkall, H	YAS	2.51	B									0.0	0.0	\$0.00
Fearon, D	PACO	2.82	TA									0.0	0.0	\$0.00
Nikotakakos, S	Russell	2.88	P									0.0	0.0	\$0.00
Totals:					0.00	0.0	\$0.00		0.00	0.0	\$0.00	0.0	0.0	\$0.00

Professional Services Change Order
 Revised - Cost Proposal

Revised - Schedule C
 Task 4.2 - Assist WTCC in Sustainable Guidelines (Allowance)

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09			7/1/09 - 12/31/09			Total FTE	Total Hours	Total Labor (\$)
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE			
Edwards, R	AECOM	2.45	A							0.0	0.0	\$0.00
McIntyre, S	STV	2.45	A							0.0	0.0	\$0.00
Garz, M	STV	2.45	A							0.0	0.0	\$0.00
Calatrava, S	SCSA	2.95	A							0.0	0.0	\$0.00
Son, J	STV	2.45	B							0.0	0.0	\$0.00
Harris, K	AECOM	2.45	C							0.0	0.0	\$0.00
Felice, O	PMA	2.5	TA							0.0	0.0	\$0.00
Quinones, P	STV	2.45	C							0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A							0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B							0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A							0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C							0.0	0.0	\$0.00
Powell, O	ISR	2.332	TA							0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C							0.0	0.0	\$0.00
Abbate, D	STV	2.45	D							0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA							0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B							0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C							0.0	0.0	\$0.00
Pagan, S	PMA	2.5	C							0.0	0.0	\$0.00
Finkstein, M	STV	2.45	C							0.0	0.0	\$0.00
Nervina, G	STV	2.45	C							0.0	0.0	\$0.00
JV TA	JV TBD	2.45	TA							0.0	0.0	\$0.00
Zellner, P	STV	2.45	B							0.0	0.0	\$0.00
JV Eng/Arch A	JV TBD	2.45	A							0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C							0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D							0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C							0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B							0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A							0.0	0.0	\$0.00
Bracco, S	STV	2.45	C							0.0	0.0	\$0.00
JV Eng/Arch B	JV TBD	2.45	B							0.0	0.0	\$0.00
London, L	STV	2.45	D							0.0	0.0	\$0.00
Avellan, J	WNBA	2.76	B							0.0	0.0	\$0.00
Govekar, S	WNBA	2.76	Cad							0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.76	C							0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A							0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B							0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C							0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C							0.0	0.0	\$0.00
Abdullah, M	STV	2.45	B							0.0	0.0	\$0.00
Copuzzi, A	STV	2.45	B							0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A							0.0	0.0	\$0.00
Kourmian, G	STV	2.45	A							0.0	0.0	\$0.00
Schuller, P	STV	2.45	A							0.0	0.0	\$0.00
Zheng, H	STV	2.45	B							0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A							0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A							0.0	0.0	\$0.00
Altabba, B	Parsons	2.45	A							0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A							0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C							0.0	0.0	\$0.00
Jinenez, D	AECOM	2.45	C							0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B							0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B							0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C							0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B							0.0	0.0	\$0.00
Kourkourmellis, V	Hirani	2.54	C							0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad							0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B							0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C							0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad							0.0	0.0	\$0.00
Wshniewski, B	Parsons	2.45	C							0.0	0.0	\$0.00
Lamax, S	SCSA	2.95	A							0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A							0.0	0.0	\$0.00
Doshi, K	STV	2.45	A							0.0	0.0	\$0.00
Cregger, D	AECOM	2.45	B							0.0	0.0	\$0.00
Baker, U	Weidinger	2.6	D							0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A							0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B							0.0	0.0	\$0.00
Kopkall, H	YAS	2.51	B							0.0	0.0	\$0.00
Fearon, D	PACO	2.82	TA							0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.88	P							0.0	0.0	\$0.00
Totals:				0.00	0.0	\$0.00	0.00	0.0	\$0.00	0.0	0.0	\$0.00

Professional Services Change Order
Revised - Cost Proposal
Revised - Schedule C
Task 5 - Project Management

Staffing Name	Company	Multiplier (OH+Fee)	Eng/Arch Category	7/1/08 - 6/31/09			7/1/09 - 12/31/09			Total FTE	Total Hours	Total Labor (\$)		
				Hourly Rate	FTE	Hours (Hrs)	Total Labor (\$)	Hourly Rate	FTE				Hours (Hrs)	Total Labor (\$)
Edwards, R	AECOM	2.45	A					\$108.53	1.00	1,040.0	\$276,534.44	0.5	1,040.0	\$276,534.44
McIntyre, S	STV	2.45	A					\$102.97	1.00	1,040.0	\$262,367.56	0.5	1,040.0	\$262,367.56
Garz, M	STV	2.45	A					\$118.88		0.0	\$0.00	0.0	0.0	\$0.00
Calettrava, S	SCSA	2.95	A					\$270.00		0.0	\$0.00	0.0	0.0	\$0.00
Son, J	STV	2.45	B					\$61.07	1.00	1,040.0	\$155,606.36	0.5	1,040.0	\$155,606.36
Harris, K	AECOM	2.45	C					\$44.96	1.00	1,040.0	\$114,558.08	0.5	1,040.0	\$114,558.08
Felice, D	PMA	2.5	TA					\$35.00	1.00	1,040.0	\$91,000.00	0.5	1,040.0	\$91,000.00
Quinones, P	STV	2.45	C					\$45.36	0.20	208.0	\$23,115.48	0.1	208.0	\$23,115.48
Basta, A	STV	2.45	A					\$88.33		0.0	\$0.00	0.0	0.0	\$0.00
Jang, H	AECOM	2.45	TA					\$20.40		0.0	\$0.00	0.0	0.0	\$0.00
McDermott, C	AECOM	2.45	A					\$61.04		0.0	\$0.00	0.0	0.0	\$0.00
Rosciglione, A	AECOM	2.45	C					\$52.31		0.0	\$0.00	0.0	0.0	\$0.00
Powell, D	ISR	2.332	TA					\$29.79		0.0	\$0.00	0.0	0.0	\$0.00
Tong, E	Stellar	2.45	C					\$45.67	1.00	1,040.0	\$116,367.16	0.5	1,040.0	\$116,367.16
Abbate, D	STV	2.45	D					\$27.88		0.0	\$0.00	0.0	0.0	\$0.00
Dennis, Y	STV	2.45	TA					\$31.16		0.0	\$0.00	0.0	0.0	\$0.00
Kamboj, M	AECOM	2.45	B					\$69.56		0.0	\$0.00	0.0	0.0	\$0.00
Gallagher, T	Parsons	2.45	C					\$43.27		0.0	\$0.00	0.0	0.0	\$0.00
Pagani, S	PMA	2.5	C					\$53.50		0.0	\$0.00	0.0	0.0	\$0.00
Finkelstein, M	STV	2.45	C					\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Nervina, G	STV	2.45	C					\$48.99		0.0	\$0.00	0.0	0.0	\$0.00
Solano, J	STV	2.45	C					\$53.00		0.0	\$0.00	0.0	0.0	\$0.00
Zellner, P	STV	2.45	B					\$70.19	0.80	632.0	\$143,075.30	0.4	632.0	\$143,075.30
Hand, J	AECOM	2.45	B					\$70.61		0.0	\$0.00	0.0	0.0	\$0.00
Chong, S	AECOM	2.45	C					\$40.89		0.0	\$0.00	0.0	0.0	\$0.00
Patel, K	AECOM	2.45	D					\$38.75		0.0	\$0.00	0.0	0.0	\$0.00
Schiff, M	AECOM	2.45	C					\$52.15		0.0	\$0.00	0.0	0.0	\$0.00
Woo, T	AECOM	2.45	B					\$70.13		0.0	\$0.00	0.0	0.0	\$0.00
Diamond, R	SCSA	2.95	A					\$118.32		0.0	\$0.00	0.0	0.0	\$0.00
Bracco, S	STV	2.45	C					\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
Lem, R	STV	2.45	B					\$61.36		0.0	\$0.00	0.0	0.0	\$0.00
London, L	STV	2.45	D					\$31.27		0.0	\$0.00	0.0	0.0	\$0.00
Avellan, J	WNBA	2.78	B					\$52.16		0.0	\$0.00	0.0	0.0	\$0.00
Govekar, S	WNBA	2.78	Cad					\$24.76		0.0	\$0.00	0.0	0.0	\$0.00
Kasakyan, A	WNBA	2.78	C					\$45.19		0.0	\$0.00	0.0	0.0	\$0.00
Brodsky, V	STV	2.45	A					\$100.72		0.0	\$0.00	0.0	0.0	\$0.00
Ghaly, N	Parsons	2.45	B					\$72.73		0.0	\$0.00	0.0	0.0	\$0.00
Littler, M	Parsons	2.45	C					\$54.58		0.0	\$0.00	0.0	0.0	\$0.00
Clarson, M	RCC	2.917	C					\$51.09		0.0	\$0.00	0.0	0.0	\$0.00
Abdulah, M	STV	2.45	B					\$68.30		0.0	\$0.00	0.0	0.0	\$0.00
Cobuzzi, A	STV	2.45	B					\$56.49		0.0	\$0.00	0.0	0.0	\$0.00
Gilboa, J	STV	2.45	A					\$73.81		0.0	\$0.00	0.0	0.0	\$0.00
Kourmjian, G	STV	2.45	A					\$85.56		0.0	\$0.00	0.0	0.0	\$0.00
Schuller, P	STV	2.45	A					\$90.24		0.0	\$0.00	0.0	0.0	\$0.00
Zhang, H	STV	2.45	B					\$63.07		0.0	\$0.00	0.0	0.0	\$0.00
Charalambous, J	Parsons	2.45	A					\$93.27		0.0	\$0.00	0.0	0.0	\$0.00
Parnes, J	AECOM	2.45	A					\$76.44		0.0	\$0.00	0.0	0.0	\$0.00
Attaba, B	Parsons	2.45	A					\$73.69		0.0	\$0.00	0.0	0.0	\$0.00
Mauritz, P	AECOM	2.45	A					\$73.58		0.0	\$0.00	0.0	0.0	\$0.00
Baxter, D	AECOM	2.45	C					\$42.32		0.0	\$0.00	0.0	0.0	\$0.00
Jimenez, B	AECOM	2.45	C					\$44.29		0.0	\$0.00	0.0	0.0	\$0.00
Levintov, B	AECOM	2.45	B					\$66.02		0.0	\$0.00	0.0	0.0	\$0.00
Mazumdar, A	AECOM	2.45	B					\$61.22		0.0	\$0.00	0.0	0.0	\$0.00
Sherzer, M	AECOM	2.45	C					\$44.97		0.0	\$0.00	0.0	0.0	\$0.00
Teodor, L	AECOM	2.45	B					\$57.57		0.0	\$0.00	0.0	0.0	\$0.00
Kourkoulis, V	Hirani	2.54	C					\$48.08		0.0	\$0.00	0.0	0.0	\$0.00
Ingram, G	Parsons	2.45	Cad					\$25.44		0.0	\$0.00	0.0	0.0	\$0.00
Khalil, M	Parsons	2.45	B					\$64.33		0.0	\$0.00	0.0	0.0	\$0.00
Patel, A	Parsons	2.45	C					\$53.74		0.0	\$0.00	0.0	0.0	\$0.00
Sousa, M	Parsons	2.45	Cad					\$34.07		0.0	\$0.00	0.0	0.0	\$0.00
Wisniewski, B	Parsons	2.45	C					\$45.65		0.0	\$0.00	0.0	0.0	\$0.00
Lomax, S	SCSA	2.95	A					\$79.71		0.0	\$0.00	0.0	0.0	\$0.00
Rando, M	SCSA	2.95	A					\$125.06		0.0	\$0.00	0.0	0.0	\$0.00
Doshi, K	STV	2.45	A					\$98.72		0.0	\$0.00	0.0	0.0	\$0.00
Gregger, D	AECOM	2.45	B					\$58.47		0.0	\$0.00	0.0	0.0	\$0.00
Baker, U	Weldinger	2.6	D					\$36.55		0.0	\$0.00	0.0	0.0	\$0.00
Mirzakashani, M	AECOM	2.45	A					\$90.87		0.0	\$0.00	0.0	0.0	\$0.00
Wang, H	AECOM	2.45	B					\$65.00		0.0	\$0.00	0.0	0.0	\$0.00
Kopkall, H	YAS	2.51	B					\$67.00		0.0	\$0.00	0.0	0.0	\$0.00
Fearon, D	PACO	2.62	TA					\$27.76		0.0	\$0.00	0.0	0.0	\$0.00
Nikolakakos, S	Russell	2.66	P					\$144.00		0.0	\$0.00	0.0	0.0	\$0.00
Totals:														
					0.00	0.0	\$0.00		7.00	7,280.0	\$1,182,624.35	3.5	7,280.0	\$1,182,624.35

Contract No. 407-03-013
 Change Order (CO) #09-006-A
 Design Contract Change (DCC) 494
 (Period Covering 7/1/09 - 12/31/2009)

**Professional Services Change Order
 Revised - Cost Proposal**

**Schedule D
 Task 6 - Other Direct Costs/Out of Pocket Expenses Worksheet**

Item	Months	\$/Month	Total Cost
• Office Rent plus associated Office Utilities (See note1.)	-	-	-
• Office Maintenance (See note 2.)	-	-	-
• Build Out Costs	-	-	\$100,000
• Office Telephone Service	6	\$4,000	\$24,000
• Office Telephone Equipment	6	\$1,000	\$6,000
• Office Equipment Rentals	6	\$1,000	\$6,000
• Office Supplies	6	\$1,000	\$6,000
• Computer Equipment	6	\$10,000	\$60,000
• Computer Software	-	-	\$45,454
• Data Storage	6	\$2,000	\$12,000
• Reproduction costs	6	\$90,000	\$540,000
• Short-term travel costs	6	\$10,000	\$60,000
• Short-term Room and Board	6	\$10,000	\$60,000
• Mailings, Shipping and Delivery Services	6	\$2,000	\$12,000
• Misc. Costs that does not fall into the above categories. (See Note 2.)	-	-	-
• Specialty DDPs for their Services	-	-	\$500,000
Total Other Direct Costs/Out of Pocket Expenses:			\$1,431,454

Notes:

1. Per PA letter for CO#09-006 Addendum #1, dated June 18, 2009, allowable direct expenses related to office rent and associated costs are to be excluded from this proposal.
2. Per PA direction, this item was removed.



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

August 24, 2009

Downtown Design Partnership
A Joint Venture of AECOM, Inc. and STV Inc
605 Third Avenue
New York, NY 10158

Attention: Ira Allan Levy, PE, President, AECOM, Inc.

**SUBJECT: AMENDMENT LETTER – SUPPLEMENTAL SERVICES TASK ORDER
#TO-09-005 – Various DCC Nos. 485, 486, 489, 499**

Ref.: PERFORMANCE OF EXPERT ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL ON A TASK ORDER BASIS P.A. Agreement No.407-03-013;
Supplemental Agreement #1, as amended

Dear Mr. Levy:

This letter acknowledges that you performed and completed additional expert professional architectural and engineering services as set forth in the attached Scope of Work and as directed by The Port Authority of NY & NJ (Authority) as additional work items under the referenced Agreement, for the WTC Transportation Hub.

Total compensation for the performance of the abovementioned services shall not exceed the amount of **\$1,935,998**

The Consultant shall employ, to every extent possible, the most cost-effective methods of performing the scope of services noted above. This includes, but is not limited to, utilizing appropriate staff as needed (i.e. combining management and technical efforts) and tracking hours of technical staff. Accordingly, the Consultant shall inform the Director when the Consultant's expenditures reach 80% of the not-to-exceed amount noted above. The Consultant shall continue to render the additional services to completion after the point when the Consultant's compensation reaches 100% of such amount.

The previously authorized total amount for the referenced agreement is increased from \$55,203,538 to \$57,139,536.

115 Broadway, 7th Floor
New York, NY 10006



THE PORT AUTHORITY OF NY & NJ

**WTC CONSTRUCTION
DEPARTMENT**

**WORLD TRADE CENTER
TRANSPORTATION HUB**

The above referenced agreement remains in full force and effect and the performance of the requested additional services is subject to the terms and conditions of such referenced agreement.

Please return two original signed copies of this letter to the attention of **Richard Perez, Contract Specialist, Procurement Department, 115 Broadway, 19th floor**, New York, N. Y. 10006. Upon receipt by the Authority of a copy of this letter executed by a principal of your firm, you are authorized to proceed with performance of the requested additional services.

If you have any questions relating to the performance of the subject services, please do not hesitate to contact Vivian Okwuagwu at 212-435-5147.

Sincerely,

Shawn T. Lenahan, A.I.A.
Senior Program Manager
WTC Construction Department

Att.

Accepted:

Firm Name: Downtown Design Partnership

a JV of AECOM and STU Inc

Name, Title *Hon. Elise de Bra Leuy* *8/26/09*
NE Region Executive Date

Name, Title *Masha Lobis* *8/31/09*
EVP/COO Date

Cc: F. Gallo, S. Lenahan, N. Lombardi, K. Matthews, V. Okwuagwu, M. Pagliettini, R. Perez, N. Ranalli, C. Russell, M. Socrates, WTCC Document Control



**DOWNTOWN
DESIGN PARTNERSHIP**

7 Hanover Square, Suite 1800 • New York, NY 10004
Phone: 917-522-2800 • Fax: 212-785-2951

August 21, 2009

Ref #: DDP-PA-1643-09

The Port Authority of New York and New Jersey
115 Broadway, 19th Floor
New York, New York 10006

Attention: **Mr. Richard Perez**

Subject: **P.A. Agreement No. 407-03-013
Performance of Expert Professional
Architectural and Engineering Services for the
World Trade Center Transportation Hub**

Reference: **Revision 2 - Technical and Cost Proposal for Port Authority
Professional Services Task Order # 09-005
Various DCC Nos. 485, 486, 489 and 499**

Dear Mr. Perez,

In response to the Port Authority of New York & New Jersey's request for proposal, dated June 16, 2009, to provide additional architectural and engineering services, attached please find Downtown Design Partnership's technical and cost proposal (Rev. 2) for Port Authority Task Order No. TO#09-005 for DCC Nos. 485, 486, 489 and 499.

The attached supersedes DDP's earlier proposals attached to DDP-PA-1308-09, dated July 14, 2009 and DDP-PA-1538-09, dated July 30, 2009.

Should you have any questions regarding the attached, please do not hesitate to call.

Sincerely,
Downtown Design Partnership


F. Ross Edwards, P.E.
Project Director

Cc:
w/ attachments J. Son, File
w/o attachments D. Servedio, I. Levy, S. McIntyre, M. Garz,

**FOR EXPERT PROFESSIONAL ARCHITECTURAL AND ENGINEERING
SERVICES FOR THE PERMANENT WORLD TRADE CENTER PATH
TERMINAL WITH DOWNTOWN DESIGN PARTNERSHIP (DDP),
A JOINT VENTURE OF DMJM+HARRIS, INC. AND STV, INC.**

**PA AGREEMENT #407-03-013
Purchase Order #4900000675
SCOPE OF WORK DESCRIPTION**

**Supplemental Agreement - Task Order 09-005
Various DCC Nos. 485, 486, 489 and 499**

The following is a proposal to provide additional architectural and engineering services as an additional work item. Unless stated otherwise, all scope of work and associated design costs do not include Services During Construction efforts. All Work agreed upon by all parties shall be authorized under the referenced DCC's. The scope of services for this proposal includes the following:

The Scope of Work under this change order is inclusive of the following DCC's: 485, 486, 489 and 499. All work shall be performed in accordance the Scope of Services outlined in the referenced Agreement and as detailed below.

SCOPE OF WORK DESCRIPTIONS

A. DCC No. 485 - East Bathtub and Related WP 20 Coordination

In anticipation of Final Design completion, various design coordination issues remain unresolved among the Hub, SPI, the VSC and the Retail programs. Accordingly, as the engineer of record, DDP is required to address outstanding coordination issues with SPI, the VSC and Retail programs in order to allow the Hub team to address all existing coordination issues and make any necessary changes to drawings only once.

Therefore, the Consultant shall perform the following design services. Each of the following tasks must be tracked and invoiced separately.

TASK 1 - SPI -COORDINATION

Architecture & Structure

1. Structural interface of Hub Parcel with T2 & T3 - Design loads provided by DDP
2. Structural interface of 9X with T2, T3 & T4 - B4, B3 & B2 slabs
3. Fit-out Scope between projects
 - a. Shared corridors/hallways fit-out between stakeholders

- b. Shared mechanical spaces within T2, 3 and 4
- c. BOH security / FA vestibule fit-out scope between stakeholders
- d. Partitions ownership and demarcation
- 4. (a) Waterproofing systems and topping slabs at and above grade
 - (b) Waterproofing systems and topping slabs below grade
- 5. Vertical transportation elements within Towers 2 & 3
- 6. Consistency of Transportation signs at Tower entries
- 7. Grades at T3 entrance and T4 entrance
- 8. Retail egress paths
- 9. Per PA, item removed.
- 10. Tower 2
 - a. 1 -line reconfiguration of MTA, per assessment - Openings at T2 shear wall
 - b. Fulton St-Wedge of Light entrance
 - c. T2 Access stairs and Hub BOH space conflict at 295 Lobby
 - d. T2 loading dock dispute between PNSPI
 - e. T2/B 1 - office lobby entrance
 - f. Visibility of T2 Hub/Retail Vesey ST Entrance
- 11. Tower 3
 - a. T 3 North side and Hub Plaza, including demarcation of scope between projects, documentation of slab edges and finishes
 - b. 1 -line reconfiguration of MTA per assessment
 - c. Shape of column at B 1 Hub escalator lobby
 - d. T3 RIW exit corridor/Parking Elevator Slab
 - e. B1 Retail toilet rooms
- 12. Modifications to Cortlandt Way to accommodate storefronts and corridor head-height requirements in the Basis of Design Report (BDR)

Mechanical/Electrical/Plumbing

- 1. General re-coordination of MEP distribution systems with base building and other stakeholder systems within T2 & T3 project limits
 - a. Below grade stair pressurization systems with base building structure and architecture
 - b. At grade stair shaft exhaust systems for below grade stairs
 - c. Hub siamese' connections at Tower locations

- d. Size and location of Hub duct shafts within Retail spaces
 - e. Resolution of all POE's at T2 & T3
 - f. Accommodation of VSC systems
2. General re-coordination of MEP distribution systems with base building and other stakeholder systems within Hub project limits
- a. T3 & T4 primary power distribution systems
 - b. Hub ductwork in commercial parking program area
 - c. Size and location of Hub duct shafts within Retail spaces
 - d. Accommodation of VSC systems
3. Fire Alarm Coordination
- a. FA systems integration and auto activation
 - b. FA scope swap based on the 4/10/2008 agreed upon Fire Alarm documents
4. Hub wireless/first responder system scope and coverage with Towers 2, 3 & 4
5. Tower 2
- a. Hub Power Distribution Center (PDC) duct shaft and plenum routing
 - b. Hub shaft for venting of elevator 25, serving transportation entrance and Retail
6. Tower 3
- a. Hub fuel oil fill stations at HubIT3
 - b. HUB generator exhausts
 - c. SPI shaft serving T3 lobbies through Hub generator/mechanical space at 386/404
 - d. Hub access from secure zone in lobby to electrical shaft north wall
 - e. Hub Fire Command station at T3 North wall
7. Hub
- a. SPI parking elevator lobby coordination
 - b. GSA parking and bus parking exit at T3

TASK 2 - VSC COORDINATION

1. Coordination of VSC Communications Conduits

- a. Review proposed routing for VSC communications conduits. If upon review, portions of proposed routing are not feasible, coordinate with VSC design team to develop alternate routing.
- b. Provide a route for 2-4" conduits from East POE room to VSC Telecom Room 110.
- c. Attend up to 4 meetings to coordinate the above, and prepare sketches as required in support of these meetings.
- d. Provide structural openings sleeves, and embeds as needed to accommodate VSC scope.
- e. Revise HUB design documents as required to reflect coordinated conduit route and agreed upon construction scope.

2. Coordination of VSC Electrical Requirements

- a. Review proposed routing of VSC electrical conduits and connections to HUB spot networks.
- b. Attend up to two meetings to coordinate and confirm conduit routing and connections within HUB spot network rooms.
- c. Provide structural openings sleeves, and embeds as needed to accommodate VSC scope.
- d. Revise HUB design documents as required to reflect coordinated conduit route and agreed upon construction scope.

3. Coordination of VSC drain lines and Topping Slab

- a. Review and confirm VSC topping slab design.
- b. Provide coordination for routing of bus parking drains currently shown on HUB documents. Drain locations/routings need to be updated to reflect current VSC design.
- c. Provide coordination for routing of VSC drains installed in SPI structural parcels to HUB sump pits.
- d. Attend up to two meetings to coordinate the above.
- e. Provide structural openings sleeves, and embeds as needed to accommodate VSC scope.
- f. Revise HUB design documents as required to reflect coordinated routing and agreed upon construction scope.

4. Coordination of all HUB utilities within the roadway and bus parking areas

- a. Provide coordination for resolving conflicts between HUB and VSC

utilities within the roadway and bus parking areas.

- b. Attend up to four meetings to coordinate the above. Prepare sketches and sections as required in support of the coordination and to confirm clearances at the roadway.
- c. Revise HUB design documents as required to reflect coordinated and agreed upon construction scope.

5. South Egress Stair

Installation of Stair and Fit Out for egress stair in Package 9x area, serving Bus and Car parking programs. (Note: design of structure, installation of concrete stair enclosure and QAD review are covered in DCC 501 Task 2: line item 1).

6. Cost Estimates

Prepare cost estimates for all VSC elements within package 20, such as embedded conduits, piping, sleeves and structural openings to be shown on revised HUB documents.

TASK 3 - RETAIL COORDINATION

Architectural

1. NYTP/Family Room scope swap (dead end corridor resolution)
2. Stair BX rotation impacts
3. Retail Pump room program coordination (B3-T3)
4. Vestibule leading to Retail freight elevators (B3-T3)
5. Background coordination southeast area of Tower 3 (B 1 & B2 Toilet Rm area)
6. Spot Network program coordination (T4-B3)
7. Ownership of un-programmed Hub space (T4-B3)
8. Conflicts in area of Refuge corridor (T2-B2 Toilet area Vestibule Partitions)
9. Partition coordination and ownership delineation
10. Background coordination at Northwest corner of Oculus
11. Loss of GLA at southwest corner of Oculus
12. Door swing location coordination (SW corner of Oculus, B2)
13. Egress corridor coordination (T3-B2, wall alignment, toilet area layout)
14. Dual EMR proposal by Retail (T3-B2)
15. Retail Steam Meter Room coordination (T2-B 1)
16. Retail toilet rooms (T2-B 1)
17. Hub programs taking back Retail GLA space (NW corner of Oculus, B1)

18. MTA program at subway platform end location taking up Retail GLA space (T3 -B 1)
19. T2/B 1 - office lobby entrance (NW corner of Oculus, B 1)
20. Size and location of Hub duct shafts within retail spaces (movement away from Storefront)
21. Wall location at base of Hub escalator (T4)
22. Scenic elevator enclosure coordination (T4-B1)
23. Delineation of Stakeholder finishes below grade (T2-B 1 M)
24. Access hatch to service T3 scenic elevators (T3-LA)
25. Room configuration at southeast corner of T3 (T3-L4)
26. Coordination of additional equipment pad scope
27. Verification of ceiling heights for MEP coordination
28. Coordination of all 2-hour rated soffits
29. Hub/SPI Telephone Room Exchange
30. Detail of partition at shared corridors and slab elevation changes
31. Oculus Stone finish detailing at Hub/Retail Storefront interface

Mechanical/Electrical/Plumbing - Tower 1

- 1a. Coordination of Hub Smoke Exhaust ductwork and Fan running into Retail piping, kitchen exhaust equipment and condensate pump in Retail Mechanical Room
- 1b. Coordination of Hub Supply duct running into Retail Smoke Exhaust and Supply Air ducts in shared Hub/Retail shaft west of Hub column D65

Mechanical Tower 2

2. Documentation of Hub/Retail Tower 2 & 3 Smoke Purge solution
3. Retail HVAC Piping serving T3 & T4 by Retail Pump Room-B3003 runs in same location as Hub risers
4. Retail HVAC Piping serving T3 & T4 by column 30413A runs in same location as Hub risers
5. Retail HVAC Piping serving T3 & T4 by column 30413A runs in heavily congested hallway with Hub ductwork
6. Retail ductwork serving T2 MER and Telecom room by column 21312C runs in heavily congested hallway with Hub ductwork
7. Coordination of Hub ductwork serving PATH MER; runs through Retail Plant B200 1 between columns 2 1 3/2C-2F

8. Hub ductwork crosses over Retail B2004IJC and B2005Ramily Room, conflicts with Retail ductwork
9. Coordination of Retail/Hub ductwork running in same corridor along column line 2GP between 2 12-2 1 4
10. Coordination of Retail ductwork floor penetration and duct routing located within hallway between 201 -20412B
11. Coordination of Retail/Hub ductwork running in same corridor west of Women's Restroom B2003
12. Retail ductwork crosses extensive Hub ductwork run within corridor along column line 2G between 203-206
13. Retail ductwork crosses extensive Hub ductwork within corridor along column line 203P between 2F-2G
14. Hub ductwork crosses over Retail storage, electrical and telecom rooms along column line 26 between 209-2 12
15. Coordination of Hub/Retail smoke control ductwork at top of staircase southwest of column 213-2H (see #2, Documentation of Hub/Retail Tower 2 & 3 Smoke Purge solution)
16. Retail ductwork crosses extensive Hub ductwork within corridor along column line 26 between 204-206
17. Conflict between Hub exhaust ducts crossing Retail duct risers within 2GPI2 1 4
18. Conflict between Hub exhaust ducts crossing Retail duct risers in hallway by column 2HI2 15
19. El. +386' coordinate Hub stair pressurization fan ductwork over Retail shaft No. 4 risers (2 SWTH, 1 NE Fan)
20. El. +404' coordination of Hub ductwork to exhaust plenums on south wall between 2 15-2 16
21. El. +404' Hub exhaust plenums and Retail ductwork by column 261204 reduces headroom to 6'4" within corridor
22. El. +404' conflict between Hub/Retail ductwork by column 2BI208
23. El. +404' coordination of SF-IOISF-5 fan by column 261208 with Retail elevator smoke purge ductwork. Coordinate 2 Hub staircase pressurization ductwork routes from Hub SF-6 and SF-9 in Retail MER between 2 14-21 6 on North and South walls Mechanical Tower 3
24. Coordination of the Hub supply/return/exhaust ducts along column line 3C, conflict with Retail Electrical/Telecom room
25. Conflicts along column line 4PJ14P7, Hub main supply/return air ductwork location impacts headroom

26. Coordination of Hub main supply/return air ductwork along column line 4PJ/4P5
27. El. +386' coordination of partition wall along column line 365/309.7; Impacts Retail Transit Hall Return Air system
28. El. +386' Retail Atrium exhaust ductwork floor penetrations, duct transitions to 4M, and plenum within Hub generator room to be coordinated
29. El. +404' Retail Atrium exhaust plenum and duct routes between 309-312 within Hub generator room to be coordinated
30. El. +404' Retail Atrium exhaust plenum and louver square footage near col. 312/3G.8 within Hub generator room to be coordinated
31. El. +404' Hub fans and ductwork SF-15 and SF-16 to be coordinated with Retail fans and ductwork RF/SX3-I A, 1B and base building equipment in SW MER corner

Electrical

32. Coordinate routing of Hub conduits within Retail and shared corridors
33. Coordinate conduits around main riser shafts on north side of T3 core
34. T2/el. +250' coordinate riser conduits in south side of T2 core
35. T4/el. +250' and +274' coordinate routing of Hub risers around column 4P2
36. T3/el.+296'coordinate routing of Hub conduits within Retail space specifically the Special Events Control Room
37. Re-coordination of all Retail Normal Electrical Feeders based on updated Allocations
38. Re-coordination of all Retail Emergency Electrical Feeders based on Updated Allocations
39. T3/el. +274' coordinate routing of Hub conduits within Retail spaces
40. T4/el. +296' coordinate routing of Hub conduits within Retail spaces, specifically the Special Events area
41. T4/el. +386' coordinate routing of Hub conduits within Retail spaces

Plumbing

42. Coordination of Hub piping through T3-B3 corridor PL-135
43. Coordination of Hub piping through T2-B2 corridor in northwest corner
44. Coordination of storm inverts with RPC heights
45. Conflicts with 8" Cold Water Site Loop through Retail command Center; critical systems area may require alternate Hub routing
46. T4/el. +274' conflict between Hub 3" SAN and Retail Spot Network.
47. Coordination between Hub piping running around T2-B1 core and Retail

- plumbing piping for gas, cold water & sanitary through same route
48. T2/el. +306' coordinate 8" CW routed to stair shaft PU-OBF with Retail service pipes in shaft

Fire Protection

49. T2/el. +296' Coordination of sprinkler scope between Hub/Retail in Public Vestibule UT-071 & Rm UT-078
50. Coordination of 4" FCO dedicated to Retail
51. T3/el. +250' coordination required to avoid Hub piping crossing with Retail sanitary lines in Roadway area
52. T3/el. +250' coordination required for 2 14" Hub storm pipes to avoid Retail Scenic elevator and service piping
53. T2/el. +250' provide 4" sanitary P.O. for future Retail sanitary connection
54. T4/el. +296' review 6" EJD runs in Retail Tele Rm. 10" Hub house trap shown in Retail Electrical Rm. Relocate 10" tap south to avoid electrical closet

The proposed budget for this DCC is an allowance. Charges shall be incurred up to the proposed budget for this DCC. Work for this DCC shall be performed only when and as directed by the PA Project Manager or his designee, in writing.

DELIVERABLES

DDP shall provide ongoing coordination, review of drawings with SPI and other relevant stakeholder projects, in accordance with the established budget. - See DCC 499

B. DCC No. 486 - Coordination and Implementation of WBVA/PAC Early Action Foundations

TASK 1 – COORDINATION

The West Bathtub Vehicular Access (WBVA) and Performing Arts Center (PAC), which affect the final design of Work Package 20, are at various stages of design development. Accordingly, DDP shall perform coordination with West Bathtub Vehicular Access and Performing Arts Center design teams through the completion of Early Action Foundation Structures in the North Platform area. The Scope of Work under this DCC includes implementation of design changes in Hub Package 20 contract documents.

North Platform structure under review includes, but is not limited to, WVBA/PAC columns C1 to C8 and shear walls SW-1 to SW-9 identified within LSP scope.

- a. DDP to identify areas for acceptable WBVA/PAC structure footprint, and re-program
- b. Hub/PATH rooms where necessary and assist in identifying utilities, and work through staging/constructability issues.
- c. Hub columns C9 to C21 south of the Header Duct are not to be relocated -. Hub column C21 and potential C22 to support corner of Fulton Street
- d. DDP to provide assistance in alignment of PAC/Retail columns above +266'
- e. For baseline see attached sketch S100 and Load Matrix. For current LSP drawing, see FO100.00.

The proposed budget for this DCC is an allowance. Charges shall be incurred up to the proposed budget for this DCC. Work for this DCC shall be performed only when and as directed by the PA Project Manager or his designee, in writing.

DELIVERABLES

Implementation of design resulting from coordination of WBVA/PAC Early Action Foundations shall be included in DCC 486. At the discretion of the Authority, the total duration for this effort is 4 months from Notice to Proceed.

C. DCC No. 499 - Implementation of Coordination on East Bathtub, and Related WP 20 Items

DDP shall perform the following implementation activities.

Task 1

- Implementation of tasks arising from DCC 485 Task 1, SPI Coordination
- Implementation of all design coordination elements from DCC 485 (Tasks 1) into Hub Package 20 Contract Documents

Task 2

- Implementation of tasks arising from DCC 485 Task 2, VSC Coordination
- Implementation of all design coordination elements from DCC 485 (Tasks 2) into Hub Package 20 Contract Documents

Task 3

- Implementation of tasks arising from DCC 485 Task 3, Retail Coordination

The proposed budget for this DCC is an allowance. Charges shall be incurred up to the proposed budget for this DCC. Work for this DCC shall be performed only when and as directed by the PA Project Manager or his designee, in writing.

DELIVERABLES

Signed and sealed Package 20 drawings. The total duration for this effort shall be 4 months from Notice to Proceed, in accordance with the established budget.

D. DCC No. 489 - Evaluate Retail CCTV Cameras

During the development of the Retail CCTV design, DVS (Ducibella, Venter & Santore) proposed 148 locations for CCTV Cameras. As part of a subsequent effort the retail manager (Westfield) and their security consultant, Case Global, identified 164 locations for CCTV cameras along with a request to access video images from an additional 45 cameras belonging to the WTC Hub. However, of the 148 locations proposed by DVS, Westfield/Case Global showed 60 duplicate locations. Accordingly, the locations identified by DVS need to be deleted and the remaining 88 locations proposed by DVS are not required by the Retail manager to support their operational needs. DDP is shall evaluate the retail CCTV cameras to determine if some of these proposed locations may be required to meet the Retail Security Performance Criteria developed by PANYNJ. If so, the camera will need to be added to the design in order to satisfy all Retail Security Performance Criteria requirements as follows:

Task 1

- Delete 60 out of 148 CCTV camera locations proposed by DVS that duplicate locations shown by Westfield/Case Global. For estimating purposes assume one meeting with PANYNJ/Retail to verify cameras to be deleted.
- Review 88 out of 148 CCTV camera locations proposed by DVS to determine if these are required to meet the Retail Security Performance Criteria (SPC) requirements.

Task 2

- Delete any of the 88 CCTV cameras that are not required to meet the SPC requirements, and include any of the 88 that are required to meet SPC requirements in the final design documents. For estimating purposes assume two meetings with PANYNJ/Retail to finalize camera locations to be deleted/included.

DELIVERABLES

All deliverables shall be part of work package 20, which includes signed and sealed drawings.



**GRAND SUMMARY
PROFESSIONAL SERVICES
REVISED - TASK ORDER #09-005**

Principal		Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTALS	
Average Rate	\$413.36		\$86.95		\$66.08		\$46.89		\$31.91		\$28.27		\$23.17		
Average Overhead	1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322		
Average Rate with Overhead	\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

A. TASK A - DCC 485		\$0	1,407	\$285,334	2,013	\$310,208	688	\$74,920	494	\$36,762	204	\$19,384	12	\$665	4,908	\$727,273
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Fee/Profit (On all Labor, excluding Principals): \$72,727
 Labor Subtotal (Incl. Overhead & Fee/Profit): \$800,000
 Other Direct Costs: \$0
Total Task A: \$800,000

B. TASK B - DCC 488		\$0	871	\$176,835	1,039	\$160,112	484	\$50,528	219	\$16,297	498	\$32,702	2	\$89	3,091	\$436,364
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Fee/Profit (On all Labor, excluding Principals): \$43,636
 Labor Subtotal (Incl. Overhead & Fee/Profit): \$480,000
 Other Direct Costs: \$0
Total Task B: \$480,000

C. TASK C - DCC 489	29	\$11,987	687	\$135,265	1,001	\$154,256	530	\$57,715	335	\$24,930	1,141	\$75,229	32	\$1,707	3,735	\$441,090
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Fee/Profit (On all Labor, excluding Principals): \$44,910
 Labor Subtotal (Incl. Overhead & Fee/Profit): \$506,000
 Other Direct Costs: \$0
Total Task C: \$506,000

D. TASK D - DCC 489		\$0	110	\$22,308	493	\$75,972	185	\$20,148		\$0	272	\$17,938		\$0	1,060	\$138,363
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Fee/Profit (On all Labor, excluding Principals): \$13,636
 Labor Subtotal (Incl. Overhead & Fee/Profit): \$150,000
 Other Direct Costs: \$0
Total Task D: \$150,000



**GRAND SUMMARY
PROFESSIONAL SERVICES
REVISED - TASK ORDER #09-005**

	Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTALS	
Average Rate	\$413.36	\$66.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17		
Average Overhead	1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322		
Average Rate with Overhead	\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03		
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

TOTAL PA TO #09-005	29	\$11,687	3,055	\$619,541	4,546	\$700,549	1,867	\$203,368	1,046	\$77,890	2,203	\$145,253	48	\$2,461	12,794	\$1,761,090
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Fee/Profit (On all Labor, excluding Principals):	\$174,910
Subtotal Labor (incl. Overhead & Fee/Profit):	\$1,935,000
Subtotal Other Direct Costs :	\$0
Grand Total PA TO #09-005 :	\$1,935,000

TASK ORDER # 09-005
DCC #485 - East Bathtub and Related WP20 Coordination

Average Rate
Average Overhead
Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

I. TASK A

A	DCC 485 East Bathtub and Related WP20 Coordination
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	\$0	1,407	\$285,334	2,013	\$310,208	688	\$74,920	494	\$36,762	294	\$19,384	12	\$665	4,908	\$727,273
															\$0
Labor & Overhead:	\$0	1,407	\$285,334	2,013	\$310,208	688	\$74,920	494	\$36,762	294	\$19,384	12	\$665	4,908	\$727,273

Fee/Profit (On all Labor, excluding Principals): \$72,727

Total Labor Cost: \$800,000

Other Direct Costs:

Grand Total Task A: \$800,000

Task A
Breakdown by Staff Classification

J. Task 1

A.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	4	x	35.2	x	10	=	1,407
Arch/Eng B	6	x	33.6	x	10	=	2,013
Arch/Eng C	2	x	34.4	x	10	=	688
Arch/Eng D	2	x	24.7	x	10	=	494
CADD	2	x	14.7	x	10	=	294
Technical Assistant	1	x	1.2	x	10	=	12
							4,908

TASK ORDER # 09-005
DCC #486 Coordination of WBVA/PAC Early Action Foundation

Average Rate
 Average Overhead
 Average Rate with Overhead

Principal	Eng/Arch A	Eng/Arch B	Eng/Arch C	Eng/Arch D	CADD	Technical Assistant	TOTAL		
\$413.36	\$86.95	\$66.08	\$46.69	\$31.91	\$28.27	\$23.17			
1.0	2.3322	2.3322	2.3322	2.3322	2.3322	2.3322			
\$413.36	\$202.80	\$154.10	\$108.90	\$74.42	\$65.93	\$54.03			
Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$

I. TASK B

B. DCC 486 Coordination of WBVA/PAC Early Action Foundation

	\$0	871	\$176,635	1,039	\$180,112	464	\$50,528	219	\$16,297	496	\$32,702	2	\$89	3,091	\$436,364
Labor & Overhead:	\$0	871	\$176,635	1,039	\$180,112	464	\$50,528	219	\$16,297	496	\$32,702	2	\$89	3,091	\$436,364

Fee/Profit (On all Labor, excluding Principals): \$43,636

Total Labor Cost: \$480,000

Other Direct Costs:

Grand Total Task B: \$480,000

Task B
Breakdown by Staff Classification

I. Task 2

B.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	3	x	29.0	x	10	=	871
Arch/Eng B	3	x	34.6	x	10	=	1,039
Arch/Eng C	2	x	23.2	x	10	=	464
Arch/Eng D	1	x	21.9	x	10	=	219
CADD	2	x	24.8	x	10	=	496
Technical Assistant	1	x	0.2	x	10	=	2
							3,091

TASK ORDER # 09-005
DCC #499 Implementation of East Bathtub and Related WP20 Coordination

Average Rate
 Average Overhead
 Average Rate with Overhead

Principal	Eng/Arch A		Eng/Arch B		Eng/Arch C		Eng/Arch D		CADD		Technical Assistant		TOTAL	
	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$	Hours	\$
Average Rate	\$413.36		\$86.95		\$66.08		\$46.69		\$31.91		\$28.27		\$23.17	
Average Overhead	1.0		2.3322		2.3322		2.3322		2.3322		2.3322		2.3322	
Average Rate with Overhead	\$413.36		\$202.80		\$154.10		\$108.90		\$74.42		\$65.93		\$54.03	
I. TASK C														
C. DCC 499	29	\$11,987	667	\$135,265	1,001	\$154,256	530	\$57,715	335	\$24,930	1,141	\$75,229	32	\$1,707
Labor & Overhead:	29	\$11,987	667	\$135,265	1,001	\$154,256	530	\$57,715	335	\$24,930	1,141	\$75,229	32	\$1,707

Fee/Profit (On all Labor, excluding Principals): \$44,910
Total Labor Cost: \$506,000
Other Direct Costs:
Grand Total Task C: \$506,000

Task C
Breakdown by Staff Classification

I. Task 3

c.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	29
Arch/Eng A	3	x	13.9	x	16	=	667
Arch/Eng B	3	x	20.9	x	16	=	1,001
Arch/Eng C	2	x	16.6	x	16	=	530
Arch/Eng D	1	x	20.9	x	16	=	335
CADD	4	x	17.8	x	16	=	1,141
Technical Assistant	1	x	2.0	x	16	=	32
							3,735

Task D
Breakdown by Staff Classification

I. Task D

D.

	No. of Staff		Hours / Week		No. of Weeks		Staff Hours
Principal	0	x	0.0	x	0	=	0
Arch/Eng A	1	x	11.0	x	10	=	110
Arch/Eng B	2	x	24.7	x	10	=	493
Arch/Eng C	1	x	18.5	x	10	=	185
Arch/Eng D	1	x	0.0	x	10	=	0
CADD	1	x	27.2	x	10	=	272
Technical Assistant	1	x	0.0	x	10	=	0
							1,060



**World
Transportation Hub**

DCC
Number 485

Title:

East Bathtub and Related WP 20 Coordination

I. DDP Cost Proposal Breakdown:

A. Labor Cost	Hours	Average Hourly Rate	Direct Cost
Management			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII		\$ 86.95	\$0
Arch/Eng Grade VI-V		\$ 66.08	\$0
Arch/Eng Grade IV-III		\$ 46.69	\$0
Arch/Eng Grade II-I		\$ 31.91	\$0
Op. Cadd		\$ 28.27	\$0
Technical Assistant		\$ 23.17	\$0
Subtotal Hours	0		\$0
Architectural			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	700	\$ 86.95	\$60,865
Arch/Eng Grade VI-V	700	\$ 66.08	\$46,256
Arch/Eng Grade IV-III	180	\$ 46.69	\$8,404
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	180	\$ 28.27	\$5,089
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	1,760		\$120,614
Structural			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	350	\$ 86.95	\$30,433
Arch/Eng Grade VI-V	240	\$ 66.08	\$15,859
Arch/Eng Grade IV-III	120	\$ 46.69	\$5,603
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	0	\$ 28.27	\$0
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	710		\$51,895
Mechanical (HVAC)			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	70	\$ 86.95	\$6,087
Arch/Eng Grade VI-V	290	\$ 66.08	\$19,163
Arch/Eng Grade IV-III	290	\$ 46.69	\$13,540
Arch/Eng Grade II-I	205	\$ 31.91	\$6,542
Op. Cadd	0	\$ 28.27	\$0
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	855		\$45,331
Electrical			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	70	\$ 86.95	\$6,087
Arch/Eng Grade VI-V	406	\$ 66.08	\$26,828
Arch/Eng Grade IV-III	58	\$ 46.69	\$2,708
Arch/Eng Grade II-I	186	\$ 31.91	\$5,935
Op. Cadd	0	\$ 28.27	\$0
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	720		\$41,558



**World
Transportation Hub**

DCC
Number 486

Title:

**Coordination/Implementation of
WBVA/PAC Early Action Foundations**

I. DDP Cost Proposal Breakdown:

A. Labor Cost	Hours	Average Hourly Rate	Direct Cost
Management			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII		\$ 86.95	\$0
Arch/Eng Grade VI-V		\$ 66.08	\$0
Arch/Eng Grade IV-III		\$ 46.69	\$0
Arch/Eng Grade II-I		\$ 31.91	\$0
Op. Cadd		\$ 28.27	\$0
Technical Assistant		\$ 23.17	\$0
Subtotal Hours	0		\$0
Architectural			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	414	\$ 86.95	\$35,956
Arch/Eng Grade VI-V	354	\$ 66.08	\$23,422
Arch/Eng Grade IV-III	118	\$ 46.69	\$5,516
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	177	\$ 28.27	\$5,010
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	1,063		\$69,906
Structural			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	236	\$ 86.95	\$20,547
Arch/Eng Grade VI-V	118	\$ 66.08	\$7,807
Arch/Eng Grade IV-III	118	\$ 46.69	\$5,516
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	177	\$ 28.27	\$5,010
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	650		\$38,881
Mechanical (HVAC)			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	47	\$ 86.95	\$4,109
Arch/Eng Grade VI-V	83	\$ 66.08	\$5,465
Arch/Eng Grade IV-III	118	\$ 46.69	\$5,516
Arch/Eng Grade II-I	59	\$ 31.91	\$1,885
Op. Cadd	0	\$ 28.27	\$0
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	307		\$16,976
Electrical			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	30	\$ 86.95	\$2,568
Arch/Eng Grade VI-V	201	\$ 66.08	\$13,273
Arch/Eng Grade IV-III	35	\$ 46.69	\$1,655
Arch/Eng Grade II-I	65	\$ 31.91	\$2,074
Op. Cadd	0	\$ 28.27	\$0
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	331		\$19,570



**World
Transportation Hub**

DCC
Number 499

Title:

**Implementation of Coordination on East
Bathtub and Related WP 20**

I. DDP Cost Proposal Breakdown:

A. Labor Cost	Hours	Average Hourly Rate	Direct Cost
Management			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII		\$ 86.95	\$0
Arch/Eng Grade VI-V		\$ 66.08	\$0
Arch/Eng Grade IV-III		\$ 46.69	\$0
Arch/Eng Grade II-I		\$ 31.91	\$0
Op. Cadd		\$ 28.27	\$0
Technical Assistant		\$ 23.17	\$0
Subtotal Hours	0		\$0
Architectural			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	100	\$ 86.95	\$8,679
Arch/Eng Grade VI-V	143	\$ 66.08	\$9,423
Arch/Eng Grade IV-III	143	\$ 46.69	\$6,658
Arch/Eng Grade II-I	71	\$ 31.91	\$2,275
Op. Cadd	143	\$ 28.27	\$4,031
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	599		\$31,066
Structural			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	143	\$ 86.95	\$12,399
Arch/Eng Grade VI-V	271	\$ 66.08	\$17,903
Arch/Eng Grade IV-III	143	\$ 46.69	\$6,658
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	285	\$ 28.27	\$8,062
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	841		\$45,022
Mechanical (HVAC)			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	36	\$ 86.95	\$3,100
Arch/Eng Grade VI-V	111	\$ 66.08	\$7,350
Arch/Eng Grade IV-III	114	\$ 46.69	\$5,326
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	228	\$ 28.27	\$6,450
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	489		\$22,225
Electrical			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	36	\$ 86.95	\$3,100
Arch/Eng Grade VI-V	157	\$ 66.08	\$10,365
Arch/Eng Grade IV-III	37	\$ 46.69	\$1,731
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	145	\$ 28.27	\$4,112
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	375		\$19,307



**World
Transportation Hub**

DCC
Number 499

Title:

**Implementation of Coordination on East
Bathtub and Related WP 20**

I. DDP Cost Proposal Breakdown:

A. Labor Cost	Hours	Average Hourly Rate	Direct Cost
Plumbing / Fire Protection			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	11	\$ 86.95	\$992
Arch/Eng Grade VI-V	0	\$ 66.08	\$0
Arch/Eng Grade IV-III	31	\$ 46.69	\$1,465
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	43	\$ 28.27	\$1,209
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	86		\$3,666
Communications			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	297	\$ 86.95	\$25,789
Arch/Eng Grade VI-V	264	\$ 66.08	\$17,432
Arch/Eng Grade IV-III	0	\$ 46.69	\$0
Arch/Eng Grade II-I	264	\$ 31.91	\$8,418
Op. Cadd	297	\$ 28.27	\$8,385
Technical Assistant	34	\$ 23.17	\$793
Subtotal Hours	1,155		\$60,817
Blast Analysis			
Principals	29	\$ 413.36	\$11,789
Arch/Eng Grade VIII-VII	43	\$ 86.95	\$3,720
Arch/Eng Grade VI-V	0	\$ 66.08	\$0
Arch/Eng Grade IV-III	0	\$ 46.69	\$0
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	0	\$ 28.27	\$0
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	71		\$15,508
Others (Cost Estimating/Scheduling)			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	3	\$ 86.95	\$248
Arch/Eng Grade VI-V	56	\$ 66.08	\$3,675
Arch/Eng Grade IV-III	63	\$ 46.69	\$2,929
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	0	\$ 28.27	\$0
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	121		\$6,852



**World
Transportation Hub**

DCC
Number 499

Title:

**Implementation of Coordination on East
Bathtub and Related WP 20**

I. DDP Cost Proposal Breakdown:

A. Labor Cost	Hours	Average Hourly Rate	Direct Cost
Total Hours	3,737		
Subtotal Direct Labor			\$ 204,463.62
Overhead and Fee = 156.5%			\$ 301,536.38
Subtotal Technical Fee			<u>\$ 506,000.00</u>
B. Other Direct Costs / Expenses (Reproduction, Postage, etc.)			
Total Fee & Expenses			<u>\$ 506,000.00</u>

II. Subconsultants (List each Subconsultant and their Proposal Amount):

A.			\$ -
B.			\$ -
C.			\$ -
D.			\$ -
	Total Subconsultants		<u>\$ -</u>
	Grand Total		<u><u>\$ 506,000.00</u></u>



**World
Transportation Hub**

DCC
Number 489

Title:

Evaluate/Implement Retail CCTV Cameras

I. DDP Cost Proposal Breakdown:

A. Labor Cost	Hours	Average Hourly Rate	Direct Cost
Management			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII		\$ 86.95	\$0
Arch/Eng Grade VI-V		\$ 66.08	\$0
Arch/Eng Grade IV-III		\$ 46.69	\$0
Arch/Eng Grade II-I		\$ 31.91	\$0
Op. Cadd		\$ 28.27	\$0
Technical Assistant		\$ 23.17	\$0
Subtotal Hours	0		\$0
Architectural			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	41	\$ 86.95	\$3,572
Arch/Eng Grade VI-V	68	\$ 66.08	\$4,525
Arch/Eng Grade IV-III	137	\$ 46.69	\$6,394
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	82	\$ 28.27	\$2,323
Technical Assistant		\$ 23.17	\$0
Subtotal Hours	329		\$16,814
Structural			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII		\$ 86.95	\$0
Arch/Eng Grade VI-V		\$ 66.08	\$0
Arch/Eng Grade IV-III		\$ 46.69	\$0
Arch/Eng Grade II-I		\$ 31.91	\$0
Op. Cadd		\$ 28.27	\$0
Technical Assistant		\$ 23.17	\$0
Subtotal Hours	0		\$0
Mechanical (HVAC)			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	0	\$ 86.95	\$0
Arch/Eng Grade VI-V	68	\$ 66.08	\$4,525
Arch/Eng Grade IV-III	0	\$ 46.69	\$0
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	0	\$ 28.27	\$0
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	68		\$4,525
Communications			
Principals		\$ 413.36	\$0
Arch/Eng Grade VIII-VII	41	\$ 86.95	\$3,572
Arch/Eng Grade VI-V	219	\$ 66.08	\$14,479
Arch/Eng Grade IV-III	0	\$ 46.69	\$0
Arch/Eng Grade II-I	0	\$ 31.91	\$0
Op. Cadd	82	\$ 28.27	\$2,323
Technical Assistant	0	\$ 23.17	\$0
Subtotal Hours	342		\$20,374



THE PORT AUTHORITY OF NY & NJ

Furthermore, under §3.d of the Master Agreement, the Contractor must refrain from using Federal assistance funds to support lobbying, and comply and assure compliance by each third party contractor at any tier and each subrecipient at any tier, with applicable requirements of U.S. DOT regulations, “New Restrictions on Lobbying,” 49 CFR Part 20 modified as necessary by 31 U.S.C. §1352. See also §6 of the “Port Authority of New York and New Jersey, Federal Transit Administration Requirements for Professional Services Attachment” entitled “Certification – Lobbying Restrictions – Contracts Exceeding \$100,000” whereby each person who requests or receives from the Authority a contract with Federal assistance shall file with the Authority a certification entitled “Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352”, attached hereto, and a disclosure form entitled “Disclosure of Lobbying activities pursuant to U.S.C. 1352, also attached hereto. This requirement also applies to any subcontracts awarded in excess of the threshold amount.

Similarly, for contracts to exceeding \$25,000, the Contractor must comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CRF 29, Subpart C in any lower tier covered transaction it enters into.

Please complete the certification entitled “Certification regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tiered Covered Transactions” and the “Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352” attached hereto and return executed originals of these Certifications. These documents are also appended to the “Port Authority of New York and New Jersey - Federal Transit Administration Requirements for Professional Services Attachment” and can be copied and retained for use by subcontractors for contracts in excess of the threshold amounts.

The Port Authority of New York & New Jersey also hereby offers to amend the subject agreement as follows:

On page 7, paragraph 9., second paragraph replace “...period of one year after...”, with “...period of four (4) years after...”.

The subject agreement shall remain in full force and effect, except as amended above. If you are in agreement with the foregoing changes, please indicate your acceptance by signing both original copies of this letter and returning one original to Patricia Cose, Procurement Manager, WTC Site Projects.



THE PORT AUTHORITY OF NY & NJ

Sincerely,

Patricia Cose

Patricia Cose
Procurement Manager, WTC Site Projects

ACCEPTED:

Downtown Design Partnership
A Joint Venture of DMJM+HARRIS, Inc. & STV Inc.

By: *Jonathan Jay*

Title: EXECUTIVE VP
DMJM - HARRIS, INC

Date: 5/15/06

Robert Law

STV Incorporated
Chairman and CEO

May 17, 2006

**THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY - FEDERAL
TRANSIT ADMINISTRATION REQUIREMENTS FOR PROFESSIONAL
SERVICES ATTACHMENT**

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1. ORGANIZATIONAL CONFLICT OF INTEREST

- A. This Contract may give rise to a potential for an organizational conflict of interest. An organizational conflict of interest exists when the nature of the work to be performed under the contract may, without some form of restriction on future activities; result in an unfair competitive advantage to the Contractor.
- i. The Contractor shall have access to confidential and/or sensitive Authority information in the course of contract performance. Additionally, the Contractor may be provided access to proprietary information obtained from other contracted entities during contract performance. The Contractor agrees to protect all such information from disclosure unless so authorized, in writing, by the Authority and to refrain from using such information for any purpose other than that for which it was furnished.
 - ii. To the extent that the Contractor either (a) uses confidential and/or sensitive Authority information or proprietary information obtained from other Authority contractors to develop any form of document, report, or plan that is determined by the Authority to be the basis, in whole or in part, of any subsequent solicitation issued by the Authority or (b) develops written specifications that are used in any subsequent solicitation issued by the Authority, the Contractor agrees that it shall not be eligible to compete for such subsequent solicitation(s) as a prime or principal contractor or as part of any teaming arrangement unless the Authority provides, in writing, a specific waiver of this restriction. The duration of any restriction imposed under this subparagraph shall not exceed the length of the initial performance period of any subsequently awarded contract for which the Contractor was ineligible to compete.
- B. The Contractor, by submitting its bid or proposal, agrees to the above stated conditions and terms and further agrees to perform all duties under the contract and, in doing so, not to enter into contractual agreements with Authority prime contractors and first-tier subcontractors in such a way as to create an organizational conflict of interest.
- C. If the Authority determines that the Contractor has violated any term of this numbered clause, the Authority may take any appropriate action available under the law or regulations to obtain redress to include, but not be limited to, requiring the Contractor to terminate any affiliation or contractual arrangement with an Authority prime contractor or first-tier subcontractor at no cost to the Authority; determining the Contractor ineligible to compete for or be awarded any subsequent or "follow-on" contracts that may be based upon the Contractor's actions under this Contract or violations of this numbered clause, or terminating this Contract, in whole or in part.

2. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION TERMS

This Agreement is anticipated to be partially funded by the Federal Transit Administration, pursuant to the Agreement entitled, "United States of America Department of Transportation Federal Transit Administration – Master

Agreement for 'Lower Manhattan Recovery Grants', dated May 16, 2003, ("Master Agreement") which is attached hereto and incorporated herein by reference.

All contractual provisions required by DOT, as set forth in FTA Circular 4220.1E as modified by LMRO Third Party Contracting Requirements, dated August 21, 2003, are attached hereto and incorporated herein by reference. Anything to the contrary herein notwithstanding, all FTA-mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Authority requests which would cause the Authority to be in violation of the FTA terms and conditions.

Each and every provision required by the FTA to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein. If any provision of this Contract shall be such as to effect non-compliance with any FTA requirement, such provision shall not be deemed to form part hereof, but the balance of this Contract shall remain in full force and effect.

3. **FEDERAL CHANGES**

The Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement, as they may be amended or promulgated from time to time during the term of this Contract. Contractor's failure to so comply shall constitute a material breach of this Contract. The most recent Federal laws, regulations, policies, and administrative practices apply to this Contract at any particular time, unless FTA issues a written determination otherwise. All standards or limits within the Master Agreement are minimum requirements, unless modified by the FTA.

4. **NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES**

The Authority and the Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the Authority, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal Assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

5. **CERTIFICATION - DEBARMENT AND SUSPENSION**

This Contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that none of the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the proposer certifies as follows: The certification in this clause is a material representation of fact relied upon by the Port Authority of New York and New Jersey. If it is later determined that the proposer knowingly rendered an erroneous certification, in addition to remedies available to the Port Authority of New York and New Jersey, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The proposer agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

- A. FTA requires that each potential Contractor, for major third party contracts, complete a certification entitled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" for itself and its principals and requires each Subcontractor or Supplier [for Subcontracts and Supplier agreements expected to equal or exceed the Federal procurement small purchase threshold fixed at 10 U.S.C. 253(g) (currently \$25,000)] to complete a certification entitled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tiered Covered Transactions" for itself and its principals. Copies of the required Certification forms and accompanying instructions are set forth in the Appendix to this Attachment.

- B. In the event that the Contractor has certified prior to award that it is not proposed for debarment, debarred, suspended, or voluntarily excluded from covered transactions by any Federal Department or agency and such certification is found to be false, this Contract may be canceled, terminated or suspended by the Authority and the Contractor will be liable for any and all damages incurred by the Authority because of such cancellation, termination or suspension because of such false certification.

- C. The Contractor shall obtain certifications from all known potential Subcontractors and Suppliers [for which payments are expected to equal or exceed the Federal procurement small purchase threshold fixed at 10 U.S.C. 253(g).(currently \$25,000)] and submit such certifications to the address set forth in E below.
- D. Prior to the award of any Subcontracts or Supplier agreements expected to equal or exceed the Federal procurement small purchase threshold fixed at 10 U.S.C. 253(g) (currently \$25,000), regardless of tier, any prospective Subcontractor or Supplier who has not previously submitted a certification for this Contract must execute and submit to the Contractor a certification in the form annexed in the Appendix to this Attachment which will be deemed a part of the resulting Subcontract and Supplier agreement.
- E. The originals of any Certifications or correspondence relating hereto shall be sent by the Contractor to the Director of Procurement, One Madison Avenue, 7th Floor, New York, NY 10010.
- F. The Contractor shall not knowingly enter into any Subcontracts or Supplier agreements with a person that is proposed for debarment, debarred, suspended, declared ineligible or voluntarily excluded from covered transactions.
- G. As required by FTA, the Contractor and its Subcontractors or Suppliers required to file the certification have a continuing duty to disclose, and shall provide immediate written notice to the Authority if, at any time, it learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

6. **CERTIFICATION - LOBBYING RESTRICTIONS -CONTRACTS EXCEEDING \$100,000**

- A. Definitions. As used in this Clause:
"Agency," as defined in 5 U.S.C. 552(f), includes Federal executive departments and agencies as well as independent regulatory commissions and Government corporations, as defined in 31 U.S.C. 9101(1). As used in the Certification set forth in the Appendix to this Attachment, it also includes any other public agency.
"Covered Federal action" means any of the following Federal actions:
 - 1. The awarding of any Federal contract;
 - 2. The making of any Federal grant;
 - 3. The making of any Federal loan;
 - 4. The entering into of any cooperative agreement; and
 - 5. The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. As

used in the above referenced Certification, it includes the award of the contract with which it is associated.

"Indian tribe" and "tribal organization" have the meaning provided in Section 4 of the Indian Self Determination and Education Assistance Act (25 U.S.C. 450B).

Alaskan natives are included under the definitions of Indian tribes in that Act.

"Influencing or attempting to influence" means making, with the intent to influence, any communication to or appearance before an officer or employees of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government" means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government. It also includes a bi-state agency.

"Officer or employee of an agency" includes the following individuals who are employed by an agency:

- a. An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment;
- b. A member of the uniformed services as defined in section 101(3), title 37, United States Code;
- c. A special government employee as defined in Section 202, title 18, United States Code; and
- d. An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code Appendix 2.
- e. An employee of a bi-state agency.

"Person" means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian Organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable Compensation" means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable Payment" means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient" includes all contractors and subcontractors at any tier in connection with a Federal Contract. The term excludes an Indian Tribe, tribal organization,

or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly Employed" means, with respect to an officer or employee of a person requesting or receiving a Federal Contract, an officer or employee who is employed by such person for at least one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for one hundred and thirty (130) working days.

"State" means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-state, regional, or interstate entity having governmental duties and powers.

B. Prohibition.

1. Section 1352 of title 31, United States Code provides in part that no appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. For the purposes of the Certification included in the Appendix to this Attachment, it includes the award of the associated contract.

2. The prohibition does not apply as follows:

a. Agency and legislative liaison by own employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B.1.) of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or the contract associated with the certification if the payment is for agency and legislative liaison activities not directly related to a covered Federal Action.

(ii) For purposes of subparagraph B. 2.) a.(i) of this Section, providing any information specifically requested by an agency or Congress is allowable at any time.

(iii) For purposes of subparagraph B. 2.) a.(i) of this Section, the following agency and legislative liaison activities are allowable at any time only where they are not related to specific solicitation for any covered Federal action.

(a) Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sales and service capabilities; and,

(b) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(iv) For purposes of paragraph B. 2)a.(i) of this Section, the following agency and legislative liaison activities are allowable only where they are prior to formal solicitation of any covered Federal action:

(a) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(b) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(c) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Public Law 95-507 and other subsequent amendments.

(iv) Only those activities expressly authorized by subparagraph B. 2)a. of this Section are allowable under subparagraph B. 2)a.

b. Professional and technical services by Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or an extension, continuation, renewal, amendment, or modification of a Federal contract or the contract associated with the certification if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that contract.

(ii) For purposes of subparagraph B. 2.) b. (i) of this Section, "professional and technical services" shall be limited to advice and analysis

directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Only those services expressly authorized by subparagraph B. 2.) b. this Section are allowable under subparagraph B. 2.) b.

c. *Reporting for Own Employees.*

No reporting is required with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

d. *Professional and technical services by Other than Own Employees.*

(i) The prohibition on the use of appropriated funds, in subparagraph B. 1.) of this Section, does not apply in the case of any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.

(ii) For purposes of subparagraph B. 2.) d. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of

a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(v) Only those services expressly authorized by subparagraph B. 2.) d. of this Section are allowable under subparagraph B. 2.) d.

C. Disclosure.

1. Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a certification entitled "Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352," as set forth in the Appendix to this Attachment that the person has not made, and will not make, any payment prohibited by subparagraph B. of this Clause.

2. Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a disclosure form entitled "Disclosure of Lobbying Activities Pursuant to 31 U.S.C. 1352" (Standard Form-LLL), as set forth in the Appendix to this Attachment, if such person has made or has agreed to make any payment using non-appropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph B. of this Clause if paid for with appropriated funds.

3. Each person shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph C.2) of this Section. An event that materially affects the accuracy of the information reported includes:

a. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

b. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

c. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

4. Any person who requests or receives from a person referred to in subparagraph C.1) of this Section a subcontract exceeding \$100,000 at any tier under a Federal contract shall file a certification, and a disclosure form, if required, to the next tier above.

5. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in subparagraph C.1) of this Section. That person shall forward all disclosure forms to the Authority.

D. Agreement.

In accepting any contract resulting from this solicitation, the person submitting the offer agrees not to make any payment prohibited by this Clause.

E. Penalties.

1. Any person who makes an expenditure prohibited under subparagraph A of this Clause shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure.

2. Any person who fails to file or amend the disclosure form to be filed or amended if required by the Clause, shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. Contractors may rely without liability on the representations made by their Subcontractors in the certification and disclosure form.

F. Cost Allowability.

Nothing in this Clause is to be interpreted to make allowable or reasonable any costs which would be unallowable or unreasonable in accordance with Part 31 of the Federal Acquisition Regulation. Conversely, costs made specifically unallowable by the requirements in this Clause will not be made allowable under any of the provisions of Part 31 of the Federal Acquisition Regulation.

7. **ACCESS TO RECORDS AND REPORTS**

The Contractor agrees to provide the Authority, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions. The Contractor also agrees, pursuant to 49 CFR 633.15 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to the Contractor's records and construction sites pertaining to the project.

The Contractor agrees to provide the Authority, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions.

The Contractor shall make available records related to the contract to the Authority, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

The Contractor agrees to maintain all books, records, accounts and reports required under this Contract for a period of not less than three (3) years after final payment is made by the Authority and all other pending matters are closed, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case the Contractor agrees to maintain same until the Authority, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

This requirement is independent of the Authority's requirements for record retention contained elsewhere in the contract documents.

8. CIVIL RIGHTS

- A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, and section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.
- B. Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:
- i. Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.
 - ii. Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.
 - iii. Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment

Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

C. The Contractor also agrees to include these requirements in each subcontract related to this project, modified only if necessary to identify the affected parties.

9. **SEISMIC SAFETY**

If this is a contract for the construction of new buildings or additions to existing buildings, the Contractor agrees that any new building or addition to an existing building will be constructed in accordance with standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify compliance to the extent required by the regulation. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance. The completed certification of compliance is to be submitted to the Engineer. The seismic safety standards applicable to this Contract are contained in Section 2312 ICBO Uniform Building Code (UBC), as modified by the Appendix to Title 27, Chapter 1 (Volume 7), of the Administrative Code and Charter of the City of New York at RS 9-6 Earthquake Loads.

10. **ENERGY CONSERVATION**

The Contractor agrees to comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and Conservation Act, 42 U.S.C. §6321 et seq. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a Subcontractor is in compliance with the requirements of this Section.

11. **CLEAN WATER REQUIREMENTS – CONTRACTS EXCEEDING \$100,000**

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC §1251 et seq.
- B. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.
- C. The Contractor also agrees to include the requirements of this Article in all subcontracts exceeding \$100,000 issued pursuant to this Contract.

12. CLEAN AIR REQUIREMENTS – CONTRACTS EXCEEDING \$100,000

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 USC §7401 et seq. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.
- B. The Contractor also agrees to include the requirements of this Clause in all subcontracts exceeding \$100,000 issued pursuant to this Contract.

13. FLY AMERICA

The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for the Project unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

14. CONTRACTS INVOLVING FEDERAL PRIVACY ACT REQUIREMENTS

The following requirements apply to the Contractor and its employees that administer any system of records on behalf of the Federal Government under any contract:

- A. The Contractor agrees to comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. § 552a. Among other things, the Contractor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Federal Government. The Contractor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract.
- B. The Contractor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

15. **PREFERENCE FOR RECYCLED PRODUCTS**

The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recover Act (RCRA), as amended (42.U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

16. **PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS.**

- A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, apply to its actions pertaining to this Project. The Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the contract or project. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.
- B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under this Contract, financed in whole or in part with Federal assistance, the Federal Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.
- C. The Contractor agrees to include the above two clauses in each subcontract related to this Contract. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

17. **TRANSIT EMPLOYEE PROTECTIVE REQUIREMENTS**

To the extent that FTA determines that transit operations are involved, the Contractor agrees to carry out the transit operations work on the underlying contract in compliance with terms and conditions determined by the U.S. Secretary of Labor to be fair and equitable to protect the interests of employees employed under this Contract and to meet the employee protective requirements of 49 U.S.C. A 5333(b), and U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the letter of certification from the U.S. DOL to FTA applicable to the FTA Recipient's project from which Federal assistance is provided to support work on the underlying contract. The Contractor agrees to carry out that work in compliance with the

conditions stated in that U.S. DOL letter. The requirements of this subsection (1), however, do not apply to any contract financed with Federal assistance provided by FTA either for projects for elderly individuals and individuals with disabilities authorized by 49 U.S.C. § 5310(a)(2), or for projects for nonurbanized areas authorized by 49 U.S.C. § 5311. Alternate provisions for those projects are set forth in subsections (b) and (c) of this clause.

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

IRA ALLAN LEVY

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any public agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement or the award of the contract associated with this Certification.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any public agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, or the contract associated with this Certification, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(I)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day NINETEENTH of MAY 2006.

By: [Signature] Signature of Authorized Official

EXECUTIVE VICE PRESIDENT Official Name and Title of Authorized Official DMJM - HARRIS, INC

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

Dominick M. Servedio

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any public agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement or the award of the contract associated with this Certification.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any public agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, or the contract associated with this Certification, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

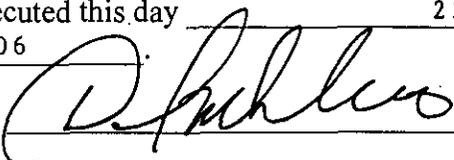
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 22nd of May,
2006

By:  Signature of Authorized Official

Chairman, CEO Official Name and Title of Authorized
Official STV

STANDARD FORM LLL - DISCLOSURE OF LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

- | | | |
|--|--|---|
| 1. Type of Federal Action:
[] a. contract

b. grant

c. cooperative agreement

_____ d. loan

e. loan guarantee

f. loan insurance | 2. Status of Federal Action:
[] a. bid//offer/application

b. Initial award

c. post-award | 3. Report Type:
[] a. initial filing

b. material change

For Material Change Only:
year quarter

date of last report |
|--|--|---|

4. Name and Address of Reporting Entity:

Prime Subawardee
Tier____, *if known:*
Congressional District, *if known:*

5. If Reporting Entity in No.4 is a Subawardee, Enter Name and Address of Prime:

Congressional District, *if known:*

6. Federal Department/Agency:

7. Federal Program Name/Description:
CFDA Number, *if applicable:*

8. Federal Action Number, *if known:*

9. Award Amount, *if known:*

\$

10. a. Name and Address of Lobbying Registrant
(if individual, last name, first name, MI):

b. Individuals Performing Services *(including address if different from No.10a)*
(last name, first name, MI):

11. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more that \$100,000 for such failure.

Signature _____

Print Name

Title

Telephone No.

Date:

INSTRUCTIONS FOR COMPLETION OF DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.
(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number. According to the Paperwork Reduction Act, as amended no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY
AND VOLUNTARY EXCLUSION - LOWER TIER COVERED TRANSACTIONS

1. The lower tier participant,

STV Incorporated

_____, certifies, that as of October 6, 2003, the date of award of P.A. Agreement 407-03-013 that neither it nor its principals were debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency and that as of the date of execution of this Certification, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency..

2. Where the prospective lower tier participant is unable to certify to any of the statements in this Certification, such prospective participant shall attach an explanation to this Certification.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

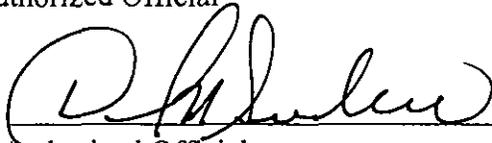
Executed this day

22nd

of May

_____, 2006

By Signature of Authorized Official



Name and Title of Authorized Official Dominick M. Servedio
Chairman, CEO
STV

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER COVERED TRANSACTIONS

1. The lower tier participant,

DMJM - HARRIS, INC., certifies, that as of October 6, 2003, the date of award of P.A. Agreement 407-03-013 that neither it nor its principals were debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency and that as of the date of execution of this Certification, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency..

2. Where the prospective lower tier participant is unable to certify to any of the statements in this Certification, such prospective participant shall attach an explanation to this Certification.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day

NINETEENTH of MAY
2006

By Signature of Authorized Official

John Allan Levy
Name and Title of Authorized Official EXECUTIVE VICE PRESIDENT
DMJM - HARRIS, INC.

**INSTRUCTIONS FOR COMPLETION OF CERTIFICATION REGARDING
DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION -
LOWER TIER COVERED TRANSACTIONS**

1. The signed certification is a material representation of fact. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Authority may pursue available remedies, including suspension and/or debarment.
2. The prospective lower tier participant shall provide immediate written notice to the Authority if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. The Proposer may contact the Procurement Representative for assistance in obtaining a copy of those regulations.
4. The prospective lower tier participant agrees that it has not, since entering into the Contract, and shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Authority.
5. The prospective lower tier participant further agrees that it will include the "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.
7. Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
8. Except for transactions authorized under sub-paragraph 4 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, the Authority may pursue available remedies including suspension and/or debarment.

ATTACHMENT

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

MASTER AGREEMENT FOR "LOWER MANHATTAN RECOVERY GRANTS"

For Federal Transit Administration Agreements authorized by
the 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to
Terrorist Attacks on the United States, Public Law 107-38;
the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107; the
Fiscal Year 2002 Department of Defense Appropriations Act, Public Law 107-117; the
Fiscal Year 2002 Department of Transportation and Related Agencies Appropriations Act,
Public Law 107-206; the Consolidated Appropriations Resolution, 2003, Public Law 208-7;
the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288,
42 U.S.C. § 5121-5206; and/or other Federal enabling legislation

N.B. This Agreement is based on the standard FTA Master Agreement which is incorporated by reference in all FTA grants and cooperative agreements. Inapplicable provisions of that agreement are marked "Not Applicable" in this Agreement and left in place for the benefit of Recipients who also receive funds authorized under the Federal Transit Laws who are familiar with the section numbers.

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UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

LOWER MANHATTAN RECOVERY MASTER AGREEMENT

The following terms and conditions apply to the Federal assistance authorized by the 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to Terrorist Attacks on the United States, Public Law 107-38; the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107; the Fiscal Year 2002 Department of Defense Appropriations Act, Public Law 107-117; the Fiscal Year 2002 Department of Transportation and Related Agencies Appropriations Act, Public Law 107-206; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Law 93-288; and/or other Federal enabling legislation administered by FTA.

This Agreement includes a comprehensive listing of requirements applicable to the various Projects that will be funded under the authorities listed above. Not every provision of this Agreement will apply to every Project for which FTA provides Federal financial assistance through a Grant Agreement. The type of Project, the federal statute authorizing financial assistance for the Project, and the legal status of the Recipient as a "State" or "local government" will determine which requirements apply. Requirements that do not apply will not be enforced. The provisions of this Agreement will continue to apply to the Project unless or until modified or superseded by subsequent Federal requirements or Agreements.

Thus, in consideration of the mutual covenants, promises, and representations herein, FTA and the Recipient agree as follows:

Section 1. Definitions.

- a. Application means the electronically signed and dated request for Federal financial assistance, including any amendment thereto, with all explanatory, supporting, and supplementary documents filed with and accepted or approved by the FTA by or on behalf of the Recipient.
- b. Approval, Authorization, Concurrence, Waiver means a written statement (transmitted electronically or in hard copy) by a Federal Government official authorized to permit the Recipient to perform or omit an action required by this Grant Agreement, which action may not be performed or omitted without such permission. Unless stated otherwise, an approval, authorization, concurrence, or waiver permitting the performance or omission of a specific action does not constitute permission to perform or omit other similar actions. **Oral permissions or interpretations have no legal force or effect.**
- c. Approved Project Budget means the most recent statement, approved by the FTA, of the costs of the Project, the maximum amount of Federal assistance for which the Recipient is currently eligible, the specific tasks (including specified contingencies) covered, and the estimated cost of each task. As used in the "Approved Project Budget," the term "Scopes" means categories and the term "Scope Level Codes" means category codes. Although "Scopes" and "Scope Level Codes" generally indicate the type of activities encompassed by the Project, the data listed under "Scopes" and "Scope Level Codes" (for example), do not necessarily reflect, and are not intended to be treated as, prima facie evidence of the precise limits or boundaries of a Project, unless stated otherwise. Consequently, the data listed under "Scopes" and "Scope Level Codes" will not always constitute the precise parameters of the scope of the Project. FTA reserves the right to consider other information in determining the "Scope of the Project" when that term is used for legal purposes.
- d. Environmental Protection Agency (EPA) is the Federal agency with primary authority to promulgate and enforce legislation to protect the environment.
- e. Federal Government means the United States of America, including any executive department or agency thereof.
- f. Federal Transit Administration (FTA) is the Federal agency designated to award funds and oversee implementation of the project. Any reference to the Urban Mass Transportation Administration is deemed a reference to the Federal Transit Administration.
- g. Federal Transit Administrator also designates the former Urban Mass Transportation Administrator. Any reference in law, map, regulation, document, paper, or other record of the United States to the Urban Mass Transportation Administrator is deemed a reference to the Federal Transit Administrator.
- h. "FEMA" is the Federal entity with primary authority to provide federal assistance following a Presidentially-declared major disaster or emergency. It is part of the Emergency Preparedness and Response Directorate of the Department of Homeland Security.

i. FHWA is the acronym for the Federal Highway Administration, an operating administration of the U.S. Department of Transportation (U.S.DOT).

j. FTA is the acronym for the Federal Transit Administration, an operating administration of the U.S. Department of Transportation (U.S. DOT).

k. Grant Agreement means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project in which FTA does not take an active role or retain substantial control, in accordance with the requirements of 31 U.S.C. § 6304. The Grant Agreement consists of the FTA Award establishing the specific parameters of the Project, an Execution statement signed by the Recipient, and may include other Special Conditions or Requirements. This Master Agreement is incorporated by reference and made part of the Grant Agreement.

l. Local Government includes a public transit authority, as well as a county, municipality, city, town, township, special district, council of governments (whether or not incorporated as a private nonprofit organization under State law), regional or interstate government entity, or any agency or instrumentality thereof. For purposes of the New York Recovery funding program, the Port Authority of New York and New Jersey, the New York Mass Transit Administration, and the City of New York are considered local governments.

m. Lower Manhattan Recovery Office (LMRO) is an FTA office with responsibility for carrying out the Lower Manhattan Recovery projects.

n. Project means the activity or activities (task or tasks) listed in Project Description, the Approved Project Budget, and any modifications stated in the Conditions to the Grant Agreement applicable to the Project

o. Recipient means the entity that receives Federal assistance directly from FTA to support the Project. The term "Recipient" includes each FTA "Grantee." Except as FTA permits otherwise, the Recipient is the entire legal entity even if only a single organization within that entity is designated as the Recipient in the Grant Agreement. Unless expressly stated otherwise, in the case of a Recipient that is a consortium, partnership, or similar multi-party entity, each participant in, member of, or party to that consortium, partnership, or multi-party entity is treated as a "Recipient" for purposes of compliance with applicable requirements of this Grant Agreement.

p. Secretary means the U.S. DOT Secretary, including his or her duly authorized designee.

q. Subagreement means an agreement through which a Recipient awards financial assistance derived from FTA to the subrecipient as defined below. The term "subagreement" also includes the term "subgrant," but does not include the term "third party subcontract."

r. Subrecipient means any entity that receives Federal assistance awarded by a FTA Recipient, rather than FTA directly. The term "subrecipient" also includes the term "subgrantee," but does not include "third party contractor" or "third party subcontractor."

s. Third Party Contract means a contract or purchase order awarded by the Recipient or subrecipient to a vendor or contractor, financed in whole or in part with Federal assistance awarded by FTA.

t. Third Party Subcontract means a subcontract at any tier entered into by the third party contractor or third party subcontractor, financed in whole or in part with Federal assistance originally derived from FTA.

u. Transit means transportation by a conveyance, either publicly or privately owned, that provides regular and continuing general or special public transportation to the public, but does not include school bus, charter, or sightseeing transportation. The term "transit" also includes "mass transportation" and "public transportation."

Section 2. Project Implementation.

a. General Requirements.

(1) Project Description. The Recipient shall perform the work described in its Application which is incorporated by reference in the approved Grant.

(2) Effective Date. The effective date of this Agreement is the date on which the FTA Authorized Official signs it.

(3) Recipient's Capacity. The Recipient will maintain or acquire sufficient legal, financial, technical, and managerial capacity to plan, manage, and complete the Project, and provide for the use of Project facilities and equipment, to comply with the terms of the Grant Agreement, the Approved Project Budget, the Project schedules, the Recipient's annual certifications and assurances to FTA, and all applicable Federal laws, executive orders, regulations, directives, and published policies governing this Project.

(4) Completion Dates. The Recipient agrees to complete the Project in a timely manner. Milestone dates and other Project completion dates for the Project are to be treated as good faith estimates rather than precise obligations, except where otherwise provided.

b. U.S. DOT Administrative Requirements. The Recipient acknowledges that Federal administrative requirements differ based on the type of entity receiving Federal assistance: A Recipient that is a State or a local government will comply with U.S. DOT regulations, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments," 49 C.F.R. Part 18.

c. Application of Federal, State, and Local Laws and Regulations.

(1) Federal Laws and Regulations. Federal law or specific laws authorizing Project approval control Project implementation. Implementing regulations, policies, and related administrative practices applicable on the effective date of this Grant may be modified after the

date when the Recipient executes the Grant Agreement, and might apply to this project. New Federal laws, regulations, policies, and administrative practices may be promulgated after the date when the Recipient executes the Grant Agreement, and might apply to this project. The most recent of such Federal requirements will govern the administration of the Project at any particular time, unless FTA issues a written determination otherwise. All standards or limits within this Lower Manhattan Recovery Master Agreement are minimum requirements, unless modified by FTA.

(2) State, Territorial, and Local Law. In instances when a Federal statute or regulation preempts State, local, or territorial law, the Recipient must abide by the Federal statute or regulation. Otherwise, no provision of this Agreement shall require the Recipient to observe or enforce compliance with any provision, perform any other act, or do any other thing in contravention of State, territorial, or local law. If any provision herein would require the Recipient to violate State, territorial, or local law, the Recipient will notify FTA immediately in writing in order that appropriate action may be taken

d. Recipient's Primary Responsibility to Comply with Federal Requirements. Irrespective of participation by other parties in the Project, and unless notified otherwise in writing by the FTA, the Recipient is ultimately responsible for compliance with all Federal requirements applicable to this Project.

e. Recipient's Responsibility to Extend Federal Requirements to Other Entities. The Recipient is responsible for extending all applicable Federal requirements to all parties participating in the implementation of the Project.

f. No Federal Government Obligations to Third Parties. Absent the Federal Government's express written consent, the Federal Government shall not be subject to any obligations or liabilities to any subrecipient, any third party contractor, or any other person not a party to the Grant Agreement in connection with the performance of the Project. Notwithstanding that the Federal Government may have concurred in or approved any solicitation, subagreement, or third party contract, the Federal Government has no obligations or liabilities to any party, including any subrecipient or any third party contractor.

g. Changes in Project Performance (i.e., Disputes, Breaches, Defaults or Litigation). The Recipient will notify FTA immediately of any change in local law, conditions (such as its legal, financial, or technical capacity), or any other event that may significantly affect the Recipient's ability to perform the Project in accordance with the terms of the Grant Agreement. In addition, the Recipient will notify FTA immediately of any current or prospective major dispute, breach, default, or litigation that may affect the Federal Government's interests in the Project or the Federal Government's administration or enforcement of Federal laws or regulations. The Recipient will inform FTA before naming the Federal Government as a party to litigation for any reason, in any forum.

Section 3. Ethics.

a. Code of Ethics. The Recipient will maintain a written code or standards of conduct that shall govern the performance of its officers, employees, board members, or agents engaged in the award or administration of third party contracts or subagreements supported by Federal assistance. This code or standards of conduct shall provide that the Recipient's officers, employees, board members, or agents may neither solicit nor accept gratuities, favors, or anything of monetary value from any present or potential contractor or subrecipient. The Recipient may set *de minimis* rules where the financial interest is not substantial, or the gift is an unsolicited item of nominal intrinsic value. This code or standards shall also prohibit the Recipient's officers, employees, board members, or agents from using their respective positions for a purpose that constitutes or presents a real or apparent personal or organizational conflict of interest or personal gain. As permitted by State or local law or regulations, the code or standards shall include penalties, sanctions, or other disciplinary actions for violations by the Recipient's officers, employees, board members, or their agents, or by contractors or subrecipients or their agents.

(1) Personal Conflicts of Interest. The Recipient's code or standards of conduct will prohibit the Recipient's employees, officers, board members, or agents from participating in the selection, award, or administration of a third party contract or subagreement supported by Federal funds if a real or apparent conflict of interest would be involved. Such a conflict would arise when any of the following parties has a financial or other interest in the entity selected for award: (a) an employee, officer, board member, or agent; (b) any member of his or her immediate family; (c) his or her partner; or (d) an organization that employs, or intends to employ, any of the above.

(2) Organizational Conflicts of Interest. The Recipient's code or standards of conduct will include procedures for identifying and preventing real and apparent organizational conflicts of interest. An organizational conflict of interest exists when the nature of the work to be performed under a proposed third party contract or subagreement may, without some restrictions on future activities, result in an unfair competitive advantage to the third party contractor or subrecipient or impair its objectivity in performing the contract work.

b. Debarment and Suspension. The Recipient will itself comply, and assure the compliance of each third party contractor and subrecipient at any tier, with Executive Orders Nos. 12549 and 12689, "Debarment and Suspension," 31 U.S.C. § 6101 note, and U.S. DOT regulations, "Governmentwide Debarment and Suspension (Nonprocurement)," within 49 C.F.R. Part 29. Recipients, third party contractors and subrecipients will review the Excluded Parties Listing System at <http://epls.arnet.gov> before entering into any contracts.

c. Bonus or Commission. The Recipient affirms that it has not paid, and agrees not to pay, any bonus or commission to obtain approval of its Federal assistance application for the Project.

d. Lobbying Restrictions. The Recipient will itself comply and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with U.S. DOT regulations, "New Restrictions on Lobbying," 49 C.F.R. Part 20, modified as necessary by 31 U.S.C. § 1352.

e. Employee Political Activity. The Recipient will comply with the provisions of the Hatch Act, 5 U.S.C. §§ 1501 - 1508, 7324 - 7326, and U.S. Office of Personnel Management regulations, "Political Activity of State or Local Officers or Employees," 5 C.F.R. Part 151. Note that, in accordance with 23 U.S.C. § 142(g), the Hatch Act does not apply to a nonsupervisory employee of a transit system or of any other agency or entity performing related functions receiving FTA assistance to whom the Hatch Act would otherwise apply.

f. False or Fraudulent Statements or Claims. The Recipient certifies or affirms the truthfulness and accuracy of each statement it has made, it makes, or it may make in connection with the Project covered by the Grant Agreement pursuant to the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§ 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31 and 18 U.S.C. § 1001.

Section 4. Federal Financial Assistance.

FTA will provide Federal financial assistance for the Project in an amount up to one hundred percent (100%) of the eligible project costs consistent with the approved Project scope and budget.

Section 5. Local Share.

If the Recipient provides a local share for the Project, the Recipient agrees as follows:

a. Restrictions on the Source of the Local Share. Except as permitted otherwise by Federal law, the Recipient agrees to provide sufficient funds that, together with the Federal financial assistance awarded, will ensure payment of the actual cost of each Project activity covered by the Grant Agreement. The Recipient agrees that no local share funds provided will be derived from receipts from the use of Project facilities or equipment, revenues of the transit system in which such facilities or equipment are used, or other Federal funds, except as permitted by law.

b. Duty to Obtain the Local Share. Unless FTA otherwise approves, the Recipient agrees to complete all proceedings necessary to provide the local share of the Project costs at or before the time those funds are needed to meet Project expenses.

c. Calculation of the Local Share. Unless FTA expressly approves otherwise in writing, the Recipient agrees that the local share will apply to each Project activity in the Grant Agreement.

d. Completion of Project with Local Funds. If the Project expenses exceed the approved Project budget, additional funds to complete the Project must be made available from non-federal sources.

Section 6. Approved Project Budget.

The Recipient will prepare a Project budget which, upon approval by FTA, is designated the

"Approved Project Budget." The Recipient will incur obligations and make disbursements of Project funds only as authorized in the latest Approved Project Budget. The latest Approved Project Budget is incorporated herein by reference and made part the Grant Agreement for the Project.

An amendment to the Approved Project Budget requires the issuance of a formal amendment to the Grant Agreement, except that re-allocation of funds among budget items or fiscal years that does not increase the total amount of the Federal financial assistance awarded may be made in accordance with applicable Federal regulations and directives. Prior FTA approval is required when funds are to be transferred from non-construction to construction categories or vice versa or when, in non-construction grants, cumulative transfers of funds between total direct cost categories exceed ten percent of the total budget.

The Recipient shall obtain prior written approval for any budget revision that would result in the need for additional funds. Award of additional Federal financial assistance requires a new Approved Project Budget.

If a Recipient estimates that it will have unobligated funds remaining after the end of the performance period, the recipient should report this to FTA at the earliest possible time and ask for disposition instructions.

Section 7. Accounting Records.

- a. Project Accounts. The Recipient will establish and maintain for the Project either a separate set of accounts, or separate accounts within the framework of an established accounting system, that can be identified with the Project, in accordance with applicable Federal regulations and other requirements that FTA may impose. The Recipient agrees that all checks, payrolls, invoices, contracts, vouchers, orders, or other accounting documents related in whole or in part to the Project shall be clearly identified, readily accessible and available to FTA upon its request, and, to the extent feasible, kept separate from documents not related to the Project.
- b. Funds Received or Made Available for the Project. The Recipient will deposit, in a financial institution, all advance Project payments it receives from the Federal Government and record in the Project Account all amounts provided by the Federal Government in support of the Project and all other funds provided for, accruing to, or otherwise received on account of the Project (Project funds) in accordance with applicable Federal regulations and other requirements FTA may impose.
- c. Documentation of Project Costs and Program Income. The Recipient will support all costs charged to the Project, including any approved services contributed by the Recipient or others, with properly executed payrolls, time records, invoices, contracts, or vouchers describing in detail the nature and propriety of the charges. The Recipient also will maintain accurate records of all program income derived from implementing the Project, except certain income determined by FTA to be exempt from the general Federal program income requirements.

d. Checks, Orders, and Vouchers. The Recipient will refrain from drawing checks, drafts, or orders for goods or services to be charged against the Project Account until it has received and filed a properly signed voucher describing in proper detail the purpose for the expenditure.

Section 8. Reporting, Record Retention, and Access.

a. Types of Reports. The Recipient will submit to FTA the reports specified in this Agreement, the Lower Manhattan Recovery Program Guidance and any other reports the Federal Government may require.

b. Format Requirements for Reports. All reports and other documents or information intended for public availability developed in the course of the Project and required to be submitted to FTA must be prepared and submitted in electronic and or hard copy formats as FTA may require. Electronic submissions must comply with the electronic accessibility requirements of Subsection 12.g, and Section 15.s of this Lower Manhattan Recovery Master Agreement. FTA may require records to be submitted in other formats.

c. Timing of Filing Reports. The Grantee shall electronically submit financial reports (Financial Status Report) and milestone reports to FTA within thirty (30) calendar days after the end of each quarter of the performance period (normally the Federal fiscal quarter). Reports are due by January 31, April 30, July 31, and December 31, unless notified otherwise in writing by FTA.

d. Record Retention. The Recipient will maintain intact and readily accessible data, documents, reports, records, contracts, and supporting materials relating to the Project as the Federal Government may require during the course of the Project and for three years thereafter from the date of transmission of the final expenditure report.

e. Access to Records of Recipients and Subrecipients. Upon request, the Recipient will permit, and require its Subrecipients to permit, the U.S. Secretary of Transportation, the Comptroller General of the United States, and, to the extent appropriate, the State, or their authorized representatives, to inspect all Project work, materials, payrolls, and other data, and to audit the books, records, and accounts of the Recipient and its Subrecipients pertaining to the Project.

f. Project Closeout. Project closeout does not alter the reporting and record retention requirements of this Section 8 of this Lower Manhattan Recovery Master Agreement.

Section 9. Payments.

a. Recipient's Request for Payment. To obtain a Federal assistance payment for the Project from FTA, the Recipient will:

- (1) Submit to FTA all financial and progress reports required to date by this Agreement, and

(2) Identify the source(s) of financial assistance provided for the Project from which the payment is to be derived.

b. Payment by FTA. FTA will make all payments through the Automated Clearing House (ACH) method of payment, regardless of the amount involved but not before execution of this Agreement.

(1) Electronic Clearing House Operation Payments. If payment is made through the FTA Electronic Clearinghouse Operation (ECHO) using an ECHO Control Number, the Recipient will comply with: FTA's ECHO requirements that implement U.S. Department of Treasury Circular 1075, Part 205, "Withdrawal of Cash from the Treasury for Advances Under Federal Grants and Other Programs;" Treasury Financial Manual, Vol. 1, Part 6, Chapter 2000; the ECHO System Operations Manual, "Guidelines for Disbursements" used for FTA Projects; and the requirements of this Subsection 9.b(1). If the Recipient fails to comply with the following requirements of this Subsection 9.b (1), the Federal Government may revoke the unexpended portion of Federal assistance awarded for the Project.

(a) The Recipient may draw down cash only when an expense is incurred and cash is needed for immediate disbursement required for Project purposes. Unless provided otherwise by Federal law or regulation, the Recipient will expend all Federal funds obtained under the Project for Project purposes *no later than three (3) working days after receiving those funds*. If the Recipient fails to expend those Federal assistance funds within three (3) working days of their receipt or fails to return those funds to FTA within a reasonable period, or fails to establish procedures to minimize the time elapsing between cash advances and the disbursement, the Federal Government may revoke or temporarily suspend the Recipient's ECHO Control Number and the Recipient's access to the ECHO System. In addition, a Recipient's failure to adhere to these requirements may result in other remedies or penalties authorized by Federal law or regulation.

(b) The Recipient will report its cash disbursements and balances promptly in compliance with Federal requirements.

(c) The Recipient will provide for control and accountability for all Project funds consistent with Federal requirements and procedures for use of the ECHO system.

(d) The Recipient will not draw down funds for a Project in an amount exceeding the sum obligated by the Federal Government or the current available balance for that Project.

(e) The Recipient will draw down funds only for allowable and eligible Project costs.

(f) The Recipient will refrain from drawing down Federal assistance until needed for disbursement.

(g) The Recipient will notify the LMRO when a single draw down will exceed \$50 million three days before the drawdown is anticipated.

(h) The Recipient will remit interest to the Federal Government on any Federal assistance prematurely drawn down, irrespective of whether that Federal assistance has been deposited in an interest-bearing account. A debt for any premature draw down of Federal assistance funds does not qualify as a "claim" covered by the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720. Thus, the interest provisions of this Subsection 9.b (1)(h) of this Lower Manhattan Recovery Master Agreement, rather than the interest provisions of the Debt Collection Act of 1982, as amended, will determine amount of interest due on any debt for Federal assistance prematurely drawn down. A Recipient that is a State or State instrumentality will remit interest to the Federal Government calculated as provided by U.S. Department of Treasury regulations, "Rules and Procedures for Funds Transfers," 31 C.F.R. Part 205 that implement section 5(b) of the Cash Management Improvement Act of 1990; as amended, 31 U.S.C. § 6503(b). Interest on any debt that a State or state instrumentality may incur for Federal assistance prematurely drawn down does not qualify for the interest exemption of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 and 3717.

(2) Requisition. If the requisition method of payment is used, the Recipient will:

(a) Complete and submit the "Payment Information Form - ECHO-ACH Payment System," Revised 10/92, to FTA's Accounting Division, and

(b) Complete and submit Standard Form 270, "Request for Advance or Reimbursement," to the FTA LMRO.

Upon receiving a request for payment and adequate supporting information, FTA will approve payment by direct deposit, provided that the Recipient is in compliance with the requirements of the Grant Agreement, has satisfied FTA that the Federal funds requested are needed in that requisition period, and is making adequate progress toward Project completion. After these requirements have been fulfilled, the Federal Government may reimburse the apparent allowable costs incurred (or to be incurred in the requisition period), not to exceed the maximum amount of Federal funds payable through the Federal fiscal year of that requisition, as set forth in the Approved Project Budget for the Project.

c. Costs Reimbursed. Project costs, to be eligible for Federal participation, must:

(1) Conform to the Project Description, the Approved Project Budget, and all other terms of the Grant Agreement,

(2) Be necessary in order to accomplish the Project,

(3) Be reasonable for the goods or services purchased,

(4) Be actual net costs to the Recipient (*i.e.*, the price paid minus any refunds, rebates, or other items of value received by the Recipient that have the effect of reducing the cost actually incurred, excluding program income),

(5) Be incurred for work performed after the Effective Date of the Grant Agreement, unless

the Federal Government has provided otherwise in writing,

(6) Be satisfactorily documented,

(7) Be treated consistently in accordance with accounting principles and procedures approved by the Federal Government for the Recipient, and with accounting principles and procedures approved by the Recipient for its contractors,

(8) Be eligible under Federal law, regulation, or guidelines for Federal participation,

(9) Comply with the provisions of OMB Circular A-87, Revised, "Cost Principles for State and Local Governments," and

(10) Comply with 44 CFR Subchapter D, Subparts G, H and I and implementing policies and administrative guidance if funding for the Project is authorized by the Stafford Act.

d. Bond Interest and Other Financing Costs. To the extent permitted in writing by FTA, bond interest and other similar financing costs are allowable. FTA's participation in Project interest costs will be limited to an amount that does not exceed the most favorable financing terms reasonably available for the Project at the time of borrowing. For projects funded with FEMA funds, financing costs are not an allowable cost.

e. Excluded Costs:

(1) In determining the amount of Federal assistance FTA will provide, FTA will exclude the following:

(a) Any Project cost incurred by the Recipient before the Effective Date of the Grant Agreement or Amendment thereto, unless otherwise permitted by Federal law or regulation, or unless an authorized FTA official states in writing to the contrary;

(b) Any cost that is not included in the latest Approved Project Budget;

(c) Any cost for goods or services received in connection with a third party contract or other arrangement required to be, but has not been, concurred in or approved in writing by the Federal Government;

(d) Any ordinary governmental or nonproject operating cost;

(e) Any cost ineligible for FTA participation as required by Federal law, regulation, or guidelines for Federal participation.

(2) The Federal Government will not make a final determination about the eligibility of any cost until an audit of the Project has been completed.

f. Federal Claims, Excess Payments, Disallowed Costs, including Interest.

(1) Recipient's Obligation to Pay. Upon notification to the Recipient that specific amounts are owed to the Federal Government, whether for Federal claims for funds recovered from third parties or elsewhere, for excess payments, or for disallowed costs, the Recipient will remit to the Federal Government promptly the amounts owed; including any interest due.

(2) Amount of Interest Due. The Recipient agrees that the amount of interest due depends on whether the Federal Government treats the principal portion of the debt as a Federal claim or as a debt owed to the Federal Government. Thus, Recipient will pay interest calculated as follows:

(a) Federal Claims against the Recipient. The Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720, exempts State governments and units of general local government from the obligation to pay interest on claims pursued by the Federal Government under that Act, 31 U.S.C. §§ 3701 and 3717. Interest on claims against other parties will be calculated in accordance with the interest provisions of U.S. Treasury/U.S. DOJ regulations, "Standards for the Administrative Collection of Claims," at 31 C.F.R. § 901.9(i).

(b) Excess Payments. A debt for any excess payment does not qualify as a "claim" for purposes of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720; Accordingly, interest on any debt for excess payments does not qualify for the interest exemption for State and local governments at 31 U.S.C. §§ 3701 and 3717. Thus, the Recipient will pay common law prejudgment interest and related charges for excess payments made by the Federal Government, as permitted by U.S. Treasury/U.S. DOJ regulations, "Standards for the Administrative Collection of Claims," at 31 C.F.R. § 901.9(i).

(c) Disallowed Costs. A debt for any disallowed cost does not qualify as a "claim" for purposes of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720; thus the interest exemption for State governments and units of general local government provided by that Act will not apply to interest on the debt for the disallowed cost. Accordingly, a Recipient that is a State government or a unit of general local government agrees that interest on any debt for a disallowed cost does not qualify for the interest exemption for State and local governments at 31 U.S.C. §§ 3701 and 3717. Thus, the Recipient will pay common law prejudgment interest and related charges for excess payments made by the Federal Government, as permitted by 31 C.F.R. § 901(i).

g. De-obligation of Funds. The Recipient agrees that the Federal Government may de-obligate unexpended Federal funds before Project closeout.

h. Duplication of Benefits. Pursuant to Section 312 of the Stafford Act, 42 U.S.C. § 5155, the Recipient is liable to the United States for the receipt of any financial assistance for the Project to the extent such assistance duplicates benefits available to the Recipient from another source, including insurance.

Section 10. Project Completion, Audit, Settlement, and Closeout.

a. Project Completion. Within ninety (90) calendar days following Project completion or termination by the Federal Government, the Recipient will submit a final Financial Status Report (either electronically or on Standard Form 269A), a certification of Project expenses, and third party audit reports, as applicable.

b. Audit Requirements.

(1) Audit of Recipients. The Recipient will have the financial and compliance audits required by the Single Audit Act Amendments of 1996, 31 U.S.C. §§ 7501 *et seq.*, performed in accordance with OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations," and the OMB A-133 Compliance Supplement provisions for the Department of Transportation, March, 2002, and any further revision or supplement thereto. Project closeout will not alter the Recipient's audit responsibilities. Audits will be conducted in accordance with U.S. General Accounting Office, "Government Auditing Standards."

(2) Audit Costs. Audit costs for Project administration and management are allowable to the extent authorized by OMB Circular A-87, Revised, OMB Circular A-21, Revised, OMB Circular A-122, Revised, or 48 C.F.R. Chapter I, Subpart 31.2, whichever is applicable.

c. Funds Due the Federal Government. The Recipient will remit to the Federal Government any excess payments made to the Recipient, any costs disallowed by the Federal Government, and any amounts recovered by the Recipient from third parties or from other sources, as well as any interest required by Subsection 9.f (2)(b) of this Agreement.

d. Project Closeout. Project closeout occurs when FTA notifies the Recipient that FTA has closed out the Project, and then either forwards the final Federal assistance payment or acknowledges that the Recipient has remitted the proper refund. Project closeout by FTA does not invalidate any continuing obligations imposed on the Recipient by the Grant Agreement or by the Federal Government's final notification or acknowledgment.

Section 11. Right of the Federal Government to Terminate.

Upon written notice, the Federal Government may suspend or terminate all or part of the Federal financial assistance provided herein if the Recipient has violated the terms of the Grant Agreement, or if the Federal Government determines that the purposes of the statute authorizing the Project would not be adequately served by the continuation of Federal financial assistance for the Project. Any failure to make reasonable progress on the Project or other violation of the Grant Agreement that endangers substantial performance of the Project shall provide sufficient grounds for the Federal Government to terminate the Grant Agreement. Termination of any Federal financial assistance for the Project will not invalidate obligations properly incurred by the Recipient before the termination date, to the extent those obligations cannot be canceled. If, however, the Federal Government determines that the Recipient has willfully misused Federal assistance funds by failing to make adequate progress, failing to make reasonable and

appropriate use of the Project real property, facilities, or equipment, or has failed to comply with the terms of the Grant Agreement, the Federal Government reserves the right to require the Recipient to refund the entire amount of Federal funds provided for the Project or any lesser amount as the Federal Government may determine. Expiration of any Project time period established for the Project does not, by itself, constitute an expiration or termination of the Grant Agreement.

Section 12. Civil Rights.

The Recipient will comply with all applicable civil rights statutes and implementing regulations including, but not limited to, the following:

a. Nondiscrimination in General. The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier under the Project with 42 U.S.C. §5151, which requires the distribution of supplies, the processing of applications, and other relief and assistance activities in an equitable and impartial manner, without discrimination on the grounds of race, color, religion, nationality, sex, age, or economic status, and with 49 U.S.C. §5332, which prohibits discrimination on the basis of race, color, creed, national origin, sex, or age, and prohibits discrimination in employment or business opportunity.

b. Nondiscrimination -- Title VI of the Civil Rights Act. The Recipient will comply, and assures the compliance of each third party contractor and each subrecipient at any tier under the Project, with all requirements prohibiting discrimination on the basis of race, color, or national origin of Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000d *et seq.*, and U.S. DOT regulations, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation--Effectuation of Title VI of the Civil Rights Act," 49 C.F.R. Part 21.

c. Equal Employment Opportunity. (1) The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with all requirements of Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e. Accordingly, the Recipient agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, sex, disability, age, or national origin. The Recipient will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, sex, disability, age, or national origin. Such action shall include, but not be limited to, employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

(2) Equal Employment Opportunity Requirements for Construction Activities. With respect to activities deemed by the U.S. Department of Labor (U.S. DOL) to qualify as "construction," the Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with all applicable EEO requirements of U.S. DOL regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive

Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000(e) note,) and any Federal statutes, executive orders, regulations, and Federal policies affecting construction undertaken as part of the Project.

d. Contracting with Small and Minority Firms, Women's Business Enterprise and Labor Surplus Area Firms. Pursuant to Executive Order 12432 as implemented by 49 CFR § 18.36(e), Recipient and its subrecipients will take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.

e. Nondiscrimination on the Basis of Sex. The Recipient will comply with all applicable requirements of Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. §§ 1681 *et seq.*, with U.S. DOT regulations, "Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance," 49 C.F.R. Part 25, and with any implementing directives that U.S. DOT or FTA may promulgate, which prohibit discrimination on the basis of sex.

f. Nondiscrimination on the Basis of Age. The Recipient will comply with all applicable requirements of the Age Discrimination Act of 1975, as amended, 42 U.S.C. §§ 6101 *et seq.*, and implementing regulations, which prohibit employment and other discrimination against individuals on the basis of age.

g. Access Requirements for Persons with Disabilities. The Recipient will comply with all applicable requirements of section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, with the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 *et seq.*, which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments to that Act, and with the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 *et seq.*, which requires that buildings and public accommodations be accessible to persons with disabilities, including any subsequent amendments to that Act. In addition, the Recipient will comply with all applicable requirements of the following regulations and any subsequent amendments thereto:

(1) U.S. DOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 C.F.R. Part 37;

(2) U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27;

h. Drug or Alcohol Abuse - Confidentiality and Other Civil Rights Protections. The Recipient will comply with confidentiality and other civil rights protections of the Drug Abuse Office and Treatment Act of 1972, as amended, 21 U.S.C. §§ 1174 *et seq.*, with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended, 42 U.S.C. §§ 4581 *et seq.*, and with the Public Health Service Act of 1912, as amended, 42 U.S.C. §§ 290dd-3 and 290ee-3, and any subsequent amendments to these acts.

i. Access to Services for Persons with Limited English Proficiency. The Recipient will comply

with guidance set forth in Executive Order No. 13166, "Improving Access to Services for Persons with Limited English Proficiency," August 11, 2000, 42 U.S.C. § 2000d-1 note, and with the requirements and provisions of U.S. DOT Notice, "DOT Guidance to Recipients on Special Language Services to Limited English Proficient (LEP) Beneficiaries," 66 Fed. Reg. 6733 *et seq.*, January 22, 2001.

j. Environmental Justice. The Recipient will comply with the policies of Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 42 U.S.C. § 4321 note.

k. Other Nondiscrimination Statutes. The Recipient will comply with applicable requirements of other nondiscrimination statute(s) that may apply to the Project.

Section 13. Planning and Private Enterprise.

a. Not Applicable.

b. Not Applicable.

c. Infrastructure Investment. During the implementation of the Project, the Recipient will take into consideration the recommendations of Executive Order No. 12803, "Infrastructure Privatization," 31 U.S.C. § 501 note, and Executive Order No. 12893, "Principles for Federal Infrastructure Investments," 31 U.S.C. § 501 note.

Section 14. Preference for United States Products and Services.

a. Not Applicable.

b. Not Applicable.

c. Fly America. The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for the Project unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

Section 15. Procurement.

a. Federal Standards. The Recipient will comply with 49 CFR § 18.36.

b. Not Applicable.

c. FTA Technical Review. The Recipient will permit FTA to review and approve the Recipient's technical specifications and requirements, to the extent FTA believes necessary to ensure proper Project administration.

d. Exclusionary or Discriminatory Specifications. The Recipient will refrain from using any

Federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications. 49 CFR §18.36(c).

e. Not Applicable.

f. Clean Air and Clean Water. The Recipient will include in third party contracts and subgrants exceeding \$100,000 adequate provisions to ensure that Project participants report the use of facilities placed or likely to be placed on U.S. EPA's "List of Violating Facilities," refrain from using violating facilities, report violations to FTA and the Regional EPA Office, and comply with the inspection and other applicable requirements of:

(1) Section 306 of the Clean Air Act, as amended, 42 U.S.C. § 7414, and other applicable provisions of the Clean Air Act, as amended, 42 U.S.C. §§ 7401 *et seq.*; and

(2) Section 508 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1368, and other provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 *et seq.*

g. Preference for Recycled Products. To the extent applicable, the Recipient will comply with U.S. EPA's "Comprehensive Procurement Guidelines for Products Containing Recovered Materials," 40 C.F.R. Part 247, implementing section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962, and otherwise provide a competitive preference for products and services that conserve natural resources and protect the environment and are energy efficient.

h. Geographic Restrictions. The Recipient will refrain from using any State or local geographic preference, except those expressly mandated or encouraged by Federal statute such as in 42 U.S.C. § 5150, 44 CFR § 206.10, which allows preference to local firms "to the extent feasible and practicable."

i. Architectural, Engineering, Design, or Related Services. Recipients may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services consistent with 49 CFR §18.36(d)(3)(v).

j. Force Account. Where the total amount of force account work to be performed under the grant is greater than \$10,000,000, FTA prior review of the Recipient's force account plan and justification is required. The Recipient is directed to the section of Force Account in the LMRO Program Guidance for further guidance.

k. Award to Other than the Lowest Bidder. A Recipient may award a third party contract to a party other than the lowest bidder, when such an award furthers objectives consistent with the purposes of 49 CFR §18.36 and any implementing directives, circulars, manuals, or other guidance FTA may issue. (See 49 CFR §18.36(b)(8) and §18.36(d)(2)(E).)

l. Not Applicable.

m. Bonding. The Recipient will comply with the requirements in 49 CFR §18.36(h) as may be modified by LMRO Program Guidance issued by FTA.

n. Not Applicable.

o. Access to Third Party Contract Records. The Recipient will require its third party contractors and third party subcontractors to provide access by the FTA, FEMA and the Comptroller General of the United States, or their duly authorized representatives, any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transactions, as per 49 CFR 18.36§(i)(10).

p. National Intelligent Transportation Systems Architecture and Standards. The Recipient will use its best efforts to ensure that any Intelligent Transportation System solutions used in its Project do not preclude interface with other Intelligent Transportation Systems in the Region. (See FTA Notice, "FTA National ITS Architecture Policy on Transit Projects" 66 Fed. Reg. 1455 *et seq.*, January 8, 2001 and other FTA Program Guidance that may be issued.)

q. Not Applicable.

r. Neutrality in Labor Relations. To the extent permitted by law, the Recipient will comply with Executive Order No. 13202, "Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal and Federally Funded Construction Projects," Executive Order No. 13202, February 17, 2001, as amended by Executive Order No. 13208, April 6, 2001, 41 U.S.C. § 251 note, which among other things, prohibits including requirements for affiliation with a labor organization as a condition for award of any contract or subcontract for construction or construction management services.

s. Electronic and Information Technology. Electronic and information technology procured under this Project will meet the applicable accessibility standards of section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and Architectural and Transportation Barriers Compliance Board regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

t. Use of Local Firms and Individuals. Pursuant to 42 U.S.C. § 5150 and any implementing regulation, in the expenditure of FEMA funds for debris clearance, distribution of supplies, reconstruction, and other major disaster or emergency assistance activities which may be carried out by contract or agreement with private organizations, firms, or individuals, the Recipient will give preference, to the extent feasible and practicable, to those organizations, firms and individuals residing or doing business primarily in the area affected by a major disaster or emergency.

Section 16. Not Applicable.

Section 17. Patent Rights.

a. General. If any invention, improvement, or discovery of the Recipient or any of its third party contractors is conceived or first actually reduced to practice in the course of or under the Project, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the Recipient will notify FTA immediately and

provide a detailed report.

b. Federal Rights. The rights and responsibilities of the Recipient, and those of each third party contractor at any tier and each subrecipient at any tier, pertaining to that invention, improvement, or discovery will be determined in accordance with applicable Federal laws, regulations, including any waiver thereof.

Section 18. Rights in Data and Copyrights.

a. Definition. The term "subject data" used in this section means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the Project. Examples include, but are not limited to: computer software, standards, specifications, engineering drawings and associated lists, process sheets, manuals, technical reports, catalog item identifications, and related information. "Subject data" does not include financial reports, cost analyses, or similar information used for Project administration.

b. General Requirement. Except for its own internal use, the Recipient may not publish or reproduce "subject data" whether in whole or in part, in any manner or form, nor may the Recipient authorize others to do so, without the prior written consent of the Federal Government, unless the Federal Government has previously released or approved the release of such data to the public.

c. - h. Requirements condensed into a. & b. above.

Section 19. Use of Real Property, Equipment, and Supplies.

a. Use of Project Property. The Recipient will use Project real property, equipment, and supplies for appropriate Project purposes (which may include joint development purposes that generate program income, both during and after the award period used to support transit activities) for the duration of the useful life of that property, as required by FTA. Should the Recipient unreasonably delay or fail to use Project property during the useful life of that property, the Recipient may be required to return the entire amount of the Federal assistance expended on that property. The Recipient further will notify FTA immediately when any Project property is withdrawn from Project use or when Project property is used in a manner substantially different from the representations the Recipient has made in its Application or the Project Description for the Grant Agreement for the Project.

b. General Federal Requirements. A Recipient that is a State or a local government will comply with property management standards of 49 C.F.R. §§ 18.31 through 18.34, including any amendments thereto, and other applicable guidelines or regulations the Federal Government may issue. In addition, the Recipient will comply with FTA's established reimbursement requirements for premature dispositions of certain Project equipment (*i.e.*, when Project equipment is withdrawn from appropriate use before the expiration of the equipment's useful life established by FTA), as explained in Subsection 19.g of this Lower Manhattan Recovery Master Agreement.

c. Maintenance. The Recipient will maintain Project real property and keep equipment in good operating order, in compliance with any guidelines, directives, or regulations FTA may issue.

d. Records. The Recipient will keep satisfactory records regarding the use of Project real property, equipment, and supplies, and submit to the FTA upon request such information as may be required to assure compliance with Section 19 of this Agreement.

e. Encumbrance of Project Property. The Recipient will maintain satisfactory continuing control of Project real property or equipment. Thus, absent written authorization by FTA permitting otherwise:

(1) Written Transactions. The Recipient will refrain from executing any transfer of title, lease, lien, pledge, mortgage, encumbrance, third party contract, grant anticipation note, alienation, or any other obligation that in any way would affect the Federal interest in any Project real property or equipment.

(2) Oral Transactions. The Recipient will refrain from obligating itself in any manner to any third party with respect to Project real property or equipment.

(3) Other Actions. The Recipient will refrain from taking any action that would either adversely affect the Federal interest or impair the Recipient's continuing control of the use of Project real property or equipment.

f. Transfer of Project Property.

(1) Federal Government Direction. The Federal Government may direct the disposition of, and even require the Recipient to transfer title to, any real property, equipment, or supplies financed with Federal assistance made available for the Grant Agreement.

(2) Leasing Project Property to Another Party. If the Recipient leases any Project asset to another party, the Recipient will retain ownership of the leased asset, and assure that the lessee will use the Project asset appropriately, either through a "Lease and Supervisory Agreement" between the Recipient and lessee, or another similar document. Upon request by FTA, the Recipient will provide a copy of any relevant documents.

g. Disposition of Project Property. With prior FTA approval, the Recipient may sell, transfer, or lease Project property and use the proceeds to reduce the gross project cost of other eligible capital transit projects. FTA may establish the useful life for Project property: The Recipient will use Project property continuously and appropriately throughout that useful life.

(1) Project Property Whose Useful Life Has Expired. When the useful life of Project Property has expired, the Recipient will comply with FTA's disposition requirements.

(2) Project Property Prematurely Withdrawn from Use. For property withdrawn from appropriate use before its useful life has expired, the Recipient agrees as follows:

(a) Notification Requirement. The Recipient will notify FTA immediately when any Project real property, equipment, or supplies are prematurely withdrawn from appropriate use, whether by planned withdrawal, misuse, or casualty loss.

(b) Calculating the Fair Market Value of Prematurely Withdrawn Project Property. The Federal Government retains a Federal interest in the fair market value of Project property prematurely withdrawn from mass transportation use. The amount of the Federal interest in the property shall be determined on the basis of the ratio of the Federal assistance awarded by the Federal Government for the property to the actual cost of the Property. The fair market value of property prematurely withdrawn from use will be calculated as follows:

1. Equipment and Supplies. Unless otherwise determined in writing by FTA, fair market value shall be calculated by straight-line depreciation of the equipment or supplies, based on the useful life of the equipment or supplies established or approved by FTA. In addition, the fair market value of equipment and supplies shall be the value immediately before the occurrence prompting the withdrawal of that property from use. In the case of equipment or supplies lost or damaged by fire, casualty, or natural disaster, the fair market value shall be calculated on the basis of the condition of that property immediately before the fire, casualty, or natural disaster, irrespective of the extent of insurance coverage. As authorized by 49 C.F.R. § 18.32(b), a State may use its own disposition procedures, provided that those procedures comply with the State's laws.

2. Real Property. The fair market value of real property shall be determined either by competent appraisal based on an appropriate date approved by the Federal Government, as provided by 49 C.F.R. Part 24, or by straight line depreciation, whichever is greater.

3. Exceptional Circumstances. The Federal Government may require the use of another method of determining the fair market value of property. In unusual circumstances, the Recipient may request that another reasonable valuation method be used including, but not limited to, accelerated depreciation, comparable sales, or established market values. In determining whether to approve such a request, the Federal Government may consider any action taken, omission made, or unfortunate occurrence suffered by the Recipient with respect to the preservation or conservation of Project property withdrawn from appropriate use.

(c) Obligations to the Federal Government. Unless otherwise approved in writing by the Federal Government, the Recipient will remit to the Federal Government the Federal interest in the fair market value of Project real property, equipment, or supplies prematurely withdrawn from appropriate use. In the case of fire, casualty, or natural disaster, the Recipient may fulfill its responsibilities with respect to the Federal interest remaining in the damaged equipment or supplies by either:

1. Investing an amount equal to the remaining Federal interest in like-kind equipment or supplies that are eligible for assistance within the scope of the Project that provided financial assistance for the damaged equipment or supplies; or

2. Returning to the Federal Government an amount equal to the remaining Federal interest in the damaged property.

h. Insurance Proceeds. If the Recipient receives insurance proceeds as a result of damage or destruction to the Project property, the Recipient will:

(1) Apply those insurance proceeds to the cost of replacing the damaged or destroyed Project property taken out of service, or

(2) Return to the Federal Government an amount equal to the remaining Federal interest in the damaged or destroyed property.

i. Transportation - Hazardous Materials. The requirements of Research and Special Programs Administration, "Shippers - General Requirements for Shipments and Packagings," 49 C.F.R. Part 173, apply to the transportation of hazardous materials.

j. Misused or Damaged Project Property. If any damage to Project real property, equipment, or supplies results from abuse or misuse of that property occurring with the Recipient's knowledge and consent, the Recipient will restore that real property or equipment to its original condition or refund the value of the Federal interest in the damaged property, as the Federal Government may require.

k. Obligations After Project Closeout Project closeout will not alter the Recipient's property management obligations of Section 19 of this Agreement and applicable Federal regulations and other FTA requirements or directives.

Section 20. Insurance.

a. Minimum Requirements. At a minimum, the Recipient will comply with the insurance requirements normally imposed by the laws, regulations, and ordinances imposed by its State and local governments. This includes, but is not limited to, the Recipient's obtaining all necessary environmental liability insurance.

b. Flood Hazards. To the extent applicable, the Recipient will comply with the flood insurance purchase requirements of section 102(a) of the Flood Disaster Protection Act of 1973, 42 U.S.C. § 4012a(a), with respect to any Project activity involving construction or acquisition having an insurable cost of \$10,000 or more.

c. FEMA Requirements. For assistance received pursuant to the Stafford Act, including Section 406, 42 U.S.C. § 5172, the Recipient agrees to comply with 42 U.S.C. § 5154 and 44 CFR Part 206, Subpart I, to obtain and maintain insurance reasonable and necessary to protect against future loss from the type of hazard that caused the major disaster.

Section 21. Relocation.

When relocation of individuals or businesses is required, the Recipient will comply with the following requirements:

- a. Relocation Protections. The Recipient will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. §§ 4601 *et seq.*; and U.S. DOT regulations, "Uniform Relocation and Real Property Acquisition for Federal and Federally Assisted Programs," 49 C.F.R. Part 24, which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally assisted programs. These requirements apply to all interests in real property acquired for Project purposes regardless of Federal participation in purchases.
- b. Nondiscrimination in Housing. The Recipient will comply with Title VIII of the Civil Rights Act of 1968, as amended, 42 U.S.C. §§ 3601 *et seq.* and Executive Order No. 12892, "Leadership and Coordination of Fair Housing in Federal Programs: Affirmatively Furthering Fair Housing," 42 U.S.C. § 3608 note, when carrying out its responsibilities to provide housing used to meet Federal relocation requirements.
- c. Prohibition Against Use of Lead-Based Paint. In undertaking construction or rehabilitation of residence structures on behalf of individuals affected by land acquisition in connection with the Project, the Recipient will refrain from using lead-based paint in accordance with Section 401(b) of the Lead-Based Paint Poisoning Prevention Act, 42 U.S.C. § 4831(b).

Section 22. Real Property.

- a. Land Acquisition. The Recipient will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. §§ 4601 *et seq.*; and U.S. DOT regulations, "Uniform Relocation and Real Property Acquisition for Federal and Federally Assisted Programs," 49 C.F.R. Part 24. These requirements apply to all interests in real property acquired for Project purposes regardless of Federal participation in purchases.
- b. Covenant Assuring Nondiscrimination. The Recipient will include a covenant in the title of the real property acquired for the Project to assure nondiscrimination during the useful life of the Project.
- c. Recording Title to Real Property. To the extent required by FTA, the Recipient will record the Federal interest in the title of real property.
- d. FTA Approval of Changes in Real Property Ownership. The Recipient will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from FTA.

Section 23. Construction.

- a. Drafting, Review, and Approval of Construction Plans and Specifications. The Recipient will comply with FTA requests pertaining to the drafting, review, and approval of construction plans and specifications.
- b. Supervision of Construction. The Recipient will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms to the approved plans and specifications.
- c. Construction Reports. The Recipient will provide progress reports and such other information as may be required by FTA or the State.
- d. Project Management. The FTA will manage the Project consistent with the FTA Project Management and Oversight Regulation applicable to major capital investments. (See 49 CFR Part 633.)
- e. Seismic Safety. The Recipient will comply with the Earthquake Hazards Reduction Act of 1977, as amended, 42 U.S.C. §§ 7701 *et seq.*, Executive Order No. 12699, "Seismic Safety of Federal and Federally-Assisted or Regulated New Building Construction," 42 U.S.C. § 7704 note, and implementing U.S. DOT regulations, "Seismic Safety," 49 C.F.R. Part 41, (specifically, 49 C.F.R. § 41.117).
- f. Minimum Standards for Public and Private Structures. Pursuant to the Stafford Act at 42 U.S.C. § 5176, and any implementing regulation, the Recipient will ensure that any repair or construction to be financed pursuant to this agreement will be in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards.

Section 24. Employee Protections.

- a. Construction Activities. The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with the following employee protection requirements for construction employees:

- (1) Davis-Bacon Act, as amended, 40 U.S.C. §§ 276a - 276a(7), requiring compliance with the Davis-Bacon Act, and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

- (2) Contract Work Hours and Safety Standards Act, as amended, particularly with the requirements of section 102 of the Act, 40 U.S.C. §§ 327 - 332; and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts

Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5; and with section 107 of the Act, 40 U.S.C. § 333, and U.S. DOL regulations, "Safety and Health Regulations for Construction," 29 C.F.R. Part 1926; and

(3) Copeland "Anti-Kickback" Act, as amended, 18 U.S.C. § 874 and 40 U.S.C. § 276c, and U.S. DOL regulations, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in part by Loans or Grants from the United States," 29 C.F.R. Part 3.

b. Activities Not Involving Construction. The Recipient will comply, and assure the compliance of each third party contractor and each subrecipient at any tier, with any applicable employee protection requirements for nonconstruction employees of section 102 of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. §§ 327 - 332, and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

c. Activities Involving Commerce. The Recipient will comply with the provisions of the Fair Labor Standards Act, 29 U.S.C. §§ 201 *et seq.*, applies to employees performing Project work involving commerce.

d. Not Applicable.

Section 25. Environmental Requirements.

The Recipient recognizes that many Federal and State laws imposing environmental and resource conservation requirements may apply to the Project. The Recipient also recognizes that U.S. EPA, FHWA and other Federal agencies have issued, and in the future are expected to issue, regulations, guidelines, standards, orders, directives, or other requirements that may affect the Project. Thus, the Recipient will comply, and assures the compliance of each subrecipient and each third party contractor, with any such Federal requirements as the Federal Government may now or in the future promulgate. Listed below are requirements of particular concern to FTA and the Recipient.

a. Environmental Protection. Federal assistance is contingent upon the Recipient's facilitating FTA's compliance with all applicable requirements and implementing regulations of the National Environmental Policy Act of 1969, as amended, (NEPA) 42 U.S.C. §§ 4321 *et seq.* (as interpreted by 42 U.S.C. 5159); Executive Order No. 11514, as amended, "Protection and Enhancement of Environmental Quality," 42 U.S.C. § 4321 note; and Council on Environmental Quality regulations pertaining to compliance with the National Environmental Policy Act of 1969, as amended, 40 C.F.R. Part 1500 *et seq.* For purposes of NEPA, FTA is designated as Lead Agency.

b. Air Quality. The Recipient will comply with all applicable regulations, standards, or orders implementing the Clean Air Act, as amended, 42 U.S.C. §§ 7401 *et seq.* In addition:

(1) The Recipient will comply with the applicable requirements of the U.S. EPA

regulations, "Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act," 40 C.F.R. Part 51, Subpart T; and "Determining Conformity of Federal Actions to State or Federal Implementation Plans," 40 C.F.R. Part 93. To support the requisite air quality conformity finding for the Project, the Recipient will implement each air quality mitigation or control measure incorporated in the Project. The Recipient further agrees that any Project identified in an applicable State Implementation Plan (SIP) as a Transportation Control Measure will be wholly consistent with the design concept and scope of the Project described in the SIP.

(2) U.S. EPA also imposes requirements implementing the Clean Air Act, as amended, that may apply to transit operators, particularly operators of large transit bus fleets. Accordingly, the Recipient will comply with the following U.S. EPA regulations to the extent they are applicable to the Project: "Control of Air Pollution from Motor Vehicles and Motor Vehicle Engines," 40 C.F.R. Part 85; "Control of Air Pollution from New and In-Use Motor Vehicles and New and In-Use Motor Vehicle Engines: Certification and Test Procedures," 40 C.F.R. Part 86; and "Fuel Economy of Motor Vehicles," 40 C.F.R. Part 600.

(3) The Recipient will comply with the notification of violating facilities requirements of Executive Order No. 11738, "Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans," 42 U.S.C. § 7606 note.

c. Clean Water. The Recipient will comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 *et seq.* In addition:

(1) The Recipient will protect underground sources of drinking water consistent with the provisions of the Safe Drinking Water Act of 1974, as amended, 42 U.S.C. §§ 300f *et seq.*

(2) The Recipient will comply with the notification of violating facilities requirements of Executive Order No. 11738, "Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans," 42 U.S.C. § 7606 note.

d. Use of Public Lands. The Recipient will refrain from using publicly owned land from a park, recreation area, or wildlife or waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from a historic site of national, State, or local significance for the Project unless FTA makes the specific findings required by 49 U.S.C. § 303.

e. Wild and Scenic Rivers. The Recipient will comply with the Wild and Scenic Rivers Act of 1968, as amended, 16 U.S.C. §§ 1271 *et seq.* relating to protecting components of the national wild and scenic rivers system.

f. Coastal Zone Management. The Recipient will assure Project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972, as

amended, 16 U.S.C. §§ 1451 *et seq.*

g. Wetlands. The Recipient will facilitate compliance with the protections for wetlands in accordance with Executive Order No. 11990, as amended, "Protection of Wetlands," 42 U.S.C. § 4321 note.

h. Floodplains. The Recipient will facilitate compliance with the flood hazards protections in floodplains in accordance with Executive Order No. 11988, as amended, "Floodplain Management" 42 U.S.C. § 4321 note.

i. Endangered Species. The Recipient will comply with protections for endangered species of the Endangered Species Act of 1973, as amended, 16 U.S.C. §§ 1531 *et seq.*

j. Historic Preservation. The Recipient will facilitate compliance with the Federal historic and archaeological preservation requirements of section 106 of the National Historic Preservation Act, as amended, 16 U.S.C. § 470f; of Executive Order No. 11593, "Protection and Enhancement of the Cultural Environment," 16 U.S.C. § 470 note; and of the Archaeological and Historic Preservation Act of 1974, as amended, 16 U.S.C. §§ 469a *et seq.* as follows:

(1) In accordance with U. S. Advisory Council on Historic Preservation regulations, "Protection of Historic and Cultural Properties," 36 C.F.R. Part 800, the Recipient will consult with the State Historic Preservation Officer concerning investigations to identify properties and resources included in or eligible for inclusion in the National Register of Historic Places that may be affected by the Project, and will notify FTA of any affected properties.

(2) The Recipient will comply with all Federal requirements to avoid or mitigate adverse effects on those historic properties.

l. Mitigation of Adverse Environmental Effects. Should the Proposed project cause or result in adverse environmental effects, the Recipient agrees to take all reasonable measures to minimize those adverse effects, as required by 23 C.F.R. Part 771 and 49 C.F.R. Part 622. The Recipient will comply with all environmental mitigation measures that may be identified as commitments in applicable environmental documents (*i.e.*, environmental assessments, environmental impact statements, memoranda of agreement, and documents required by 49 U.S.C. § 303) and will comply with any conditions the Federal Government might impose in a finding of no significant impact or a record of decision. Those mitigation measures are incorporated by reference and made part of this Grant Agreement. Deferred mitigation measures will be incorporated by reference and made part of the Grant Agreement as soon as agreement with the Federal Government is reached. Those mitigation measures agreed upon may not be modified or withdrawn without the express written approval of the Federal Government.

Section 26. Energy Conservation.

The Recipient will comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and

Conservation Act, 42 U.S.C. §§ 6321 *et seq.*

Sections 27. - 29 Not Applicable.

Section 30. Metric System.

The Recipient will use the metric system of measurement in its Project activities, pursuant to the Metric Conversion Act, as amended by the Omnibus Trade and Competitiveness Act, 15 U.S.C. §§ 205a *et seq.*; Executive Order No. 12770, "Metric Usage in Federal Government Programs," 15 U.S.C. § 205a note; and other U.S. DOT or FTA regulations, guidelines, and policies. To the extent practicable and feasible, the Recipient will accept products and services with dimensions expressed in the metric system of measurement.

Section 31. Substance Abuse.

- a. Drug-Free Workplace. The Recipient will comply with U.S. DOT regulations, "Drug-Free Workplace Requirements (Grants)," 49 C.F.R. Part 29, Subpart F, as modified by 41 U.S.C. §§ 702 *et seq.*
- b. Not Applicable.

Section 32. Not Applicable.

Section 33. Seat Belt Use.

Pursuant to Executive Order No. 13043, "Increasing Seat Belt Use in the United States," April 16, 1997, 23 U. S. C. § 402 note, the Recipient is encouraged to adopt on-the-job seat belt use policies and programs for its employees when operating company-owned, rented, or personally-operated vehicles and include this provision in third party contracts, third party subcontracts, and subagreements entered into under this Project.

Section 34. Protection of Sensitive Security Information.

To the extent applicable, the Recipient will comply with section 101(e) of the Aviation and Transportation Security Act, 49 U.S.C. § 40119(b), and U.S. Transportation Security Administration regulations, "Protection of Sensitive Security Information," 49 C.F.R. Part 1520, and any implementing regulations, requirements or guidelines, that the Federal Government may issue.

Sections 35. 43 Not Applicable.

Section 44. Disputes, Breaches, Defaults, or Other Litigation.

FTA has a vested interest in the settlement of any dispute, breach, default, or litigation involving the Project. Accordingly:

- a. Notification to FTA. The Recipient will notify FTA of any current or prospective major dispute, breach, default, or litigation that may affect the Federal Government's interests in the Project or the Federal Government's administration or enforcement of Federal laws or regulations. If the Recipient seeks to name the Federal Government as a party to litigation for any reason, in any forum, the Recipient will inform FTA before doing so.
- b. Federal Interest in Recovery. The Federal Government retains the right to a proportionate share, based on the percentage of the Federal share awarded for the Project, of proceeds derived from any third party recovery, except that the Recipient may return any liquidated damages recovered to its Project Account in lieu of returning the Federal share to the Federal Government.
- c. Enforcement. The Recipient will pursue all legal rights provided within any third party contract.
- d. FTA Concurrence. FTA reserves the right to concur in any compromise or settlement of any claim involving the Project and the Recipient.
- e. Alternative Dispute Resolution. FTA encourages the Recipient to use alternative dispute resolution procedures, as may be appropriate.
- f. Indemnification. Pursuant to 42 U.S.C. § 5173, the Recipient will, in the case of debris or wreckage removal from private property, indemnify the Federal Government against any claim arising from such removal.

Section 45. Amendments to the Project.

A change in Project conditions causing an inconsistency with the terms of the Grant Agreement will require an amendment to the Grant Agreement signed by the original signatories. A change in the fundamental information submitted in its Application will also require an Amendment to its Application or the Grant Agreement.

Section 46. FTA's Electronic Award and Management System.

Except as otherwise permitted by FTA, the Recipient will use FTA's electronic award and management system to submit information and reports to FTA. FTA, however, reserves the right to determine the extent to which the Recipient may use FTA's electronic award and management system to execute legal documents pertaining to FTA Projects.

Section 47. Information Obtained Through Internet Links.

This Agreement may include electronic links to Federal statutes, regulations, directives, guidance, and other documents. FTA does not guarantee the accuracy of information accessed through such links. Accordingly, information obtained through any electronic link within this Master Agreement does not represent an official version of a Federal statute, regulation, requirement, guidance, or document, and might be inaccurate. Thus, information obtained through such links is neither incorporated by reference nor made part of this Agreement. The Federal Register and the Code of Federal Regulations are the official sources for regulatory information pertaining to the Federal Government.

Section 48. Severability.

If any provision of this Agreement is held invalid, the remainder of the Agreement shall not be affected, if that remainder would continue to conform to the requirements of applicable law.



U.S. Department of
Transportation
**Federal Transit
Administration**

August 21, 2003

Subject: LMRO THIRD PARTY CONTRACTING REQUIREMENTS

1. **PURPOSE.** This document sets forth the requirements a grantee must adhere to in the solicitation, award and administration of its third party contracts funded by the FTA/FEMA grants for the Lower Manhattan Recovery projects. These requirements are based on the common grant rules, Federal statutes, Executive Orders and their implementing regulations, and FTA policy. This document is based on FTA Circular 4220.1E. Inapplicable provisions of that circular are marked "Not Applicable" in this document and are left in place for the benefit of grantees who also receive funds authorized under the Federal Transit Laws who are familiar with the section numbers.
2. **NOT APPLICABLE**
3. **REFERENCES.**
 - a. Federal Transit Laws, 49 U.S.C. Chapter 53 – definitions only.
 - b. 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to Terrorist Attacks on the United States, Public Law 107-38; the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107; the Fiscal Year 2002 Department of Defense Appropriations Act, Public Law 107-117; the Fiscal Year 2002 Department of Transportation and Related Agencies Appropriations Act, Public Law 107-206; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, 42 U.S.C. § 5121-5206.
 - c. Sections 4001 and 1555 of the Federal Acquisition Streamlining Act of 1994, 41 U.S.C. § 403(11) and 40 U.S.C. § 481(b), respectively,
 - d. 49 C.F.R. part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments.
 - e. 49 C.F.R. part 19, Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations.
 - f. Executive Order 12612, "Federalism," dated 10-26-87.
 - g. Not Applicable.
 - h. LMRO Master Agreement.
 - i. Appendix D, Best Practices Procurement Manual.

4. **APPLICABILITY.** This guidance applies to all FTA grantees and subgrantees that contract with outside sources under the joint FTA/FEMA assistance programs for the Lower Manhattan Recovery projects. These requirements do not apply to procurements undertaken in support of capital projects completely accomplished without FTA or FEMA funds.
5. **POLICY.** FTA's role in grantee procurements is reflective of Executive Order 12612, Federalism which directs Federal agencies to refrain from substituting their judgment for that of their recipients unless the matter is primarily a Federal concern and to defer, to the maximum extent feasible, to the States to establish standards rather than setting national standards.
 - a. **Grantee Self-Certification.** Since most FTA grantees have experience with the third party contracting requirements of the "common grant rules" (49 C.F.R. parts 18 and 19), the LMRO will rely primarily on grantees' "self-certifications" that their procurement system meets FTA/FEMA requirements to support the required finding that a grantee has the technical capacity to comply with Federal procurement requirements. All grantees must "self certify" as part of the Annual Certification/Assurance Process.

The LMRO will monitor compliance with this guidance as part of its routine oversight responsibilities and if it becomes aware of circumstances that might invalidate a grantee's self-certification, the LMRO will investigate and recommend appropriate measures to correct whatever deficiency may exist.
 - b. **Review of Third Party Contracts.** The LMRO relies on the validity of each grantee's self-certification and on periodic, post-grant reviews rather than on a pre-award review of third party contracts to ensure that grantees comply with Federal requirements and standards. Grantees are still free to request FTA's pre-award review of their procurements as part of the LMRO's technical assistance program. Conversely, if the LMRO requests to review the record of a particular procurement, grantees must make their procurement documents available for the LMRO's pre-award (or post-award) review.
 - c. **Procurement System Reviews.** The LMRO will fully review and evaluate the performance of grantees in carrying out grant programs with specific reference to their compliance with statutory and administrative requirements. Accordingly, the LMRO will perform a baseline procurement system review as part of its on-going oversight responsibility and may recommend "best practices" in order to assist the grantee in improving its procurement practices. In such cases, the LMRO will identify such recommendations as "advisory."
 - d. **Procurement Technical Assistance.** The LMRO will provide procurement training and technical assistance as requested to enable the grantees to better understand and meet LMRO requirements.
 - e. **Contract Clauses and Provisions.** The LMRO Master Agreement, issued annually and incorporated into each grant, lists many but not all the FTA/FEMA and other

crosscutting Federal requirements applicable to LMRO grantees. Many of these requirements are related to grantee procurements. Further explanations and interpretations of this guidance is can be found in the footnotes of FTA Circular 4220.1E. Suggested wording for contract clauses and provisions are available in FTA's "Best Practices Procurement Manual" available on the FTA website at fta.dot.gov.

f. Not Applicable.

6. **DEFINITIONS**. All definitions in 49 U.S.C. §5302 are applicable to this guidance. The following additional definitions are provided:

- a. "Best Value" is a selection process in which proposals contain both price and qualitative components, and award is based upon a combination of price and qualitative considerations. Qualitative considerations may include technical design, technical approach, quality of proposed personnel, and/or management plan. The award selection is based upon consideration of a combination of technical and price factors to determine {or derive} the offer deemed most advantageous and of the greatest value to the procuring agency.
- b. "Design-Bid-Build" refers to the project delivery approach where the grantee commissions an architect or engineer to prepare drawings and specifications under a design services contract, and separately contracts for at-risk construction, by engaging the services of a contractor through sealed bidding or competitive negotiations.
- c. "Design-Build" refers to a system of contracting under which one entity performs both architectural/engineering and construction under one contract.
- d. "FEMA" is the Federal entity with primary authority to provide federal assistance following a Presidentially-declared major disaster or emergency. It is part of the Emergency Preparedness and Response Directorate of the Department of Homeland Security.
- e. "FTA" refers to the Federal Transit Administration
- f. "Grantee" means the public or private entity to which a grant or cooperative agreement is awarded by the joint FTA/FEMA effort. The grantee is the entire legal entity even if only a particular component of the entity is designated in the assistance award document.

For the purposes of this circular, "grantee" also includes any subgrantee of the grantee. Furthermore, a grantee is responsible for assuring that its subgrantees comply with the requirements and standards of this guidance, and that subgrantees are aware of requirements imposed upon them by Federal statutes and regulations.

- g. Lower Manhattan Recovery Office (LMRO) refers to the FTA office with responsibility for carrying out the Lower Manhattan Recovery projects.

- h. "Piggybacking" is an assignment of existing contract rights to purchase supplies, equipment, or services.
- i. "State" means any of the several states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, any territory or possession of the United States, or any agency or instrumentality of a State exclusive of local governments. "State" does not include any public and Indian housing agency under the United States Housing Act of 1937.
- j. "Tag-on" is defined as the addition of work (supplies, equipment or services) that is beyond the scope of the original contract that amounts to a cardinal change as generally interpreted in Federal practice by the various Boards of Contract Appeals. "In scope" changes are not tag-ons.
- k. "Third party contract" refers to any purchase order or contract awarded by a grantee to a vendor or contractor using Federal financial assistance awarded by FTA.

7. **GENERAL PROCUREMENT STANDARDS APPLICABLE TO THIRD-PARTY PROCUREMENTS.**

- a. Conformance with State and Local Law. Grantees and subgrantees shall use their own procurement procedures that reflect applicable State and local laws and regulations, provided that the procurements conform to applicable Federal law, including the requirements and standards identified in this circular. If there is no State law on a particular aspect of procurement, then Federal contract law principles will apply.
- b. Contract Administration System. Grantees shall maintain a contract administration system that ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.
- c. Written Standards of Conduct. Grantees shall maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer, agent, immediate family member, or Board member of the grantee shall participate in the selection, award, or administration of a contract supported by FTA/FEMA funds if a conflict of interest, real or apparent, would be involved.

Such a conflict would arise when any of the following has a financial or other interest in the firm selected for award:

- (1) The employee, officer, agent, or Board member,
- (2) Any member of his/her immediate family,
- (3) His or her partner, or
- (4) An organization that employs, or is about to employ, any of the above.

The grantee's officers, employees, agents, or Board members will neither solicit nor accept gifts, gratuities, favors, or anything of monetary value from contractors, potential contractors, or parties to subagreements. Grantees may set minimum rules when the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by state or local law or regulations, such standards of conduct will provide for penalties, sanctions, or other disciplinary action for violation of such standards by the grantee's officers, employees, or agents, or by contractors or their agents.

- d. Ensuring Most Efficient and Economic Purchase. Grantee procedures shall provide for a review of proposed procurements to avoid purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase.

Where appropriate, an analysis will be made of lease versus purchase alternatives and any other appropriate analysis to determine the most economical approach.

- e. Intergovernmental Procurement Agreements.

- (1) Grantees are encouraged to utilize available state and local intergovernmental agreements for procurement or use of common goods and services. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included, whether in the master intergovernmental contract or in the grantee's purchase document.
- (2) Grantees are also encouraged to jointly procure goods and services with other grantees. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included in the resulting joint solicitation and contract documents.
- (3) Grantees may assign contractual rights to purchase goods and services to other grantees if the original contract contains appropriate assignability provisions. Grantees who obtain these contractual rights (commonly known as 'piggybacking') may exercise them after first determining the contract price remains fair and reasonable.

- f. Use of Excess Or Surplus Federal Property. Grantees are encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property, whenever such use is feasible and reduces project costs.

- g. Use of Value Engineering in Construction Contracts. Grantees are encouraged to use value engineering clauses in contracts for construction projects.

- h. Awards to Responsible Contractors. Grantees shall make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration shall be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

- i. Written Record of Procurement History. Grantees shall maintain records detailing the history of each procurement. At a minimum, these records shall include:
 - (1) the rationale for the method of procurement,
 - (2) selection of contract type,
 - (3) reasons for contractor selection or rejection, and
 - (4) the basis for the contract price.

- j. Use of Time and Materials Type Contracts. Grantees will use time and material type contracts only:
 - (1) After a determination that no other type of contract is suitable; and
 - (2) If the contract specifies a ceiling price that the contractor shall not exceed except at its own risk.

- k. Responsibility for Settlement of Contract Issues/Disputes. Grantees alone will be responsible in accordance with good administrative practice and sound business judgment for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the grantee of any contractual responsibility under its contracts.

The LMRO will not substitute its judgment for that of the grantee or subgrantee, unless the matter is primarily a Federal concern. Violations of the law will be referred to the local, State, or Federal authority having proper jurisdiction.

- l. Written Protest Procedures. Grantees shall have written protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding protests to the LMRO. All protest decisions must be in writing. A protester must exhaust all administrative remedies with the grantee before pursuing a protest with the FTA.

Reviews of protests by FTA will be limited to:

 - (1) a grantee's failure to have or follow its protest procedures, or its failure to review a complaint or protest; or
 - (2) violations of Federal law or regulation.

An appeal to FTA must be received by the LMRO within five (5) working days of the date the protester learned or should have learned of an adverse decision by the grantee or other basis of appeal to the LMRO.

- m. Contract Term Limitation. Grantees are expected to be judicious in establishing and extending contract terms no longer than minimally necessary to accomplish the purpose of the contract. Additional factors to be considered include competition, pricing, fairness and public perception. Once a contract has been awarded, an

extension of the contract term length that amounts to an out of scope change will require a sole source justification

- n. Revenue Contracts. Revenue contracts are those third party contracts whose primary purpose is to either generate revenues in connection with a transit related activity, or to create business opportunities utilizing an FTA-funded asset. FTA requires these contracts to be awarded utilizing competitive selection procedures and principles. The extent of and type of competition required is within the discretionary judgment of the grantee.
- o. Tag-ons. The use of tag-ons is prohibited and applies to the original buyer as well as to others as defined in paragraph 6f.
- p. Piggybacking. Piggybacking is permissible when the solicitation document and resultant contract contain an assignability clause that provides for the assignment of all or a portion of the specified deliverables as originally advertised, competed, evaluated, and awarded. If the supplies were solicited, competed and awarded through the use of an indefinite-delivery-indefinite-quantity (IDIQ) contract, then both the solicitation and contract award must contain both a minimum and maximum quantity that represent the reasonably foreseeable needs of the party(s) to the solicitation and contract. If two or more parties jointly solicit and award an IDIQ contract, then there must be a total minimum and maximum.
- q. E-Commerce. E-Commerce is an allowable means to conduct procurements. If a grantee chooses to utilize E-Commerce, written procedures need to be developed and in place prior to solicitation and all requirements for full and open competition must be met in accordance with this circular.

8. COMPETITION.

- a. Full and Open Competition. All procurement transactions will be conducted in a manner providing full and open competition. Some situations considered to be restrictive of competition include, but are not limited to:
 - (1) Unreasonable requirements placed on firms in order for them to qualify to do business;
 - (2) Unnecessary experience and excessive bonding requirements;
 - (3) Noncompetitive pricing practices between firms or between affiliated companies;
 - (4) Noncompetitive awards to any person or firm on retainer contracts;
 - (5) Organizational conflicts of interest. An organizational conflict of interest means that because of other activities, relationships, or contracts, a contractor is unable, or potentially unable, to render impartial assistance or advice to the grantee; a contractor's objectivity in performing the contract work is or might be otherwise impaired; or a contractor has an unfair competitive advantage;

- (6) Specifying only a "brand name" product instead of allowing "an equal" product to be offered without listing its' salient characteristics.

Grantees may define the salient characteristics in language similar to the following:

- (a) 'Original Equipment Manufacturer (OEM) part #123 or approved equal that complies with the original equipment manufacturer's requirements or specifications and will not compromise any OEM warranties'; or
- (b) 'Original Equipment Manufacturer part #123 or approved equal that is appropriate for use with and fits properly in [describe the bus, engine, or other component the part must be compatible with] and will not compromise any OEM warranties'; and

- (7) Any arbitrary action in the procurement process.

- b. Prohibition Against Geographic Preferences. Grantees shall conduct procurements in a manner that prohibits the use of statutorily or administratively imposed in-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. This does not preempt State licensing laws. However, geographic location may be a selection criterion in procurements for architectural and engineering (A&E) services provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.
- c. Written Procurement Selection Procedures. Grantees shall have written selection procedures for procurement transactions. All solicitations shall:
 - (1) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description shall not, in competitive procurements, contain features that unduly restrict competition. The description may include a statement of the qualitative nature of the material, product, or service to be procured and when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a "brand name or equal" description may be used as a means to define the performance or other salient characteristics of a procurement. The specific features of the named brand which must be met by offerors shall be clearly stated.
 - (2) Identify all requirements that offerors must fulfill and all other factors to be used in evaluating bids or proposals.
- d. Prequalification Criteria. Grantees shall ensure that all lists of prequalified persons, firms, or products that are used in acquiring goods and services are current and include enough qualified sources to ensure maximum full and open competition.

Also, grantees shall not preclude potential bidders from qualifying during the solicitation period, which is from the issuance of the solicitation to its closing date.

9. **METHODS OF PROCUREMENT.** The following methods of procurement may be used as appropriate:

- a. **Procurement by Micro-Purchases.** Micro-purchases are those purchases under \$2,500. Purchases below that threshold may be made without obtaining competitive quotations. There should be equitable distribution among qualified suppliers and no splitting of procurements to avoid competition. (The Davis-Bacon Act applies to construction contracts above \$2,000.) Minimum documentation is required: A determination that the price is fair and reasonable and how this determination was derived. The other requirements of paragraph 7(i) do not apply to micro-purchases.
- b. **Procurement by Small Purchase Procedures.** Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that cost more than \$2,500 but do not cost more than the simplified acquisition threshold fixed at 41 U.S.C. § 403(11) (currently set at \$100,000). If small purchase procedures are used, price or rate quotations shall be obtained from an adequate number of qualified sources.
- c. **Procurement By Sealed Bids/Invitation For Bid (IFB).** Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming to all the material terms and conditions of the invitation for bids, is the lowest in price.
 - (1) In order for sealed bidding to be feasible, the following conditions should be present:
 - (a) A complete, adequate, and realistic specification or purchase description is available;
 - (b) Two or more responsible bidders are willing and able to compete effectively for the business;
 - (c) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price; and
 - (d) No discussion with bidders is needed.
 - (2) If this procurement method is used, the following requirements apply:
 - (a) The invitation for bids will be publicly advertised and bids shall be solicited from an adequate number of known suppliers, providing them sufficient time to prepare bids prior to the date set for opening the bids;

- (b) The invitation for bids, which will include any specifications and pertinent attachments, shall define the items or services sought in order for the bidder to properly respond;
- (c) All bids will be publicly opened at the time and place prescribed in the invitation for bids;
- (d) A firm fixed-price contract award will be made in writing to the lowest responsive and responsible bidder. When specified in bidding documents, factors such as discounts, transportation costs, and life cycle costs shall be considered in determining which bid is lowest;

Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of;
and

- (e) Any or all bids may be rejected if there is a sound documented business reason.
- (3) The sealed bid method is the preferred method for procuring construction if the conditions in paragraph 9c(1) above apply.

d. Procurement by Competitive Proposal/Request for Proposals (RFP). The competitive proposal method of procurement is normally conducted with more than one source submitting an offer, i.e., proposal. Either a fixed price or cost reimbursement type contract is awarded. This method of procurement is generally used when conditions are not appropriate for the use of sealed bids. If this procurement method is used the following requirements apply:

- (1) Requests for proposals will be publicized. All evaluation factors will be identified along with their relative importance;
- (2) Proposals will be solicited from an adequate number of qualified sources;
- (3) Grantees will have a method in place for conducting technical evaluations of the proposals received and for selecting awardees;
- (4) Awards will be made to the responsible firm whose proposal is most advantageous to the grantee's program with price and other factors considered;
and
- (5) In determining which proposal is most advantageous, grantees may award (if consistent with State law) to the proposer whose proposal offers the greatest business value to the Agency based upon an analysis of a tradeoff of qualitative technical factors and price/cost to derive which proposal represents the "best value" to the Procuring Agency as defined in Section 6, Definitions. If the grantee elects to use the best value selection method as the basis for award, the solicitation must contain language which establishes that an award will be made on a "best value" basis.

- e. Procurement of Architectural and Engineering Services (A&E). Grantees may use qualifications-based competitive proposal procedures (i.e., Brooks Act procedures) when contracting for A&E services as defined in 40 U.S.C. §541 and 49 U.S.C. §5325(d). Services subject to this method of procurement are program management, construction management, feasibility studies, preliminary engineering, design, architectural, engineering, surveying, mapping, and related services.

Qualifications-based competitive proposal procedures require that:

- (1) An offeror's qualifications be evaluated;
- (2) Price be excluded as an evaluation factor;
- (3) Negotiations be conducted with only the most qualified offeror; and
- (4) Failing agreement on price, negotiations with the next most qualified offeror be conducted until a contract award can be made to the most qualified offeror whose price is fair and reasonable to the grantee.

These qualifications-based competitive proposal procedures should only be used for the procurement of the services listed above. This method of procurement should not be used to obtain other types of services even though a firm that provides A&E services is also a potential source to perform other types of services.

These requirements apply except to the extent the grantee's State adopts or has adopted by statute a formal procedure for the procurement of these services.

- f. Procurement of Design-Bid-Build. Grantees may procure design-bid-build services through means of sealed bidding or competitive negotiations. These services must be procured in a manner that conforms to applicable state and local law, the requirements of this guidance relative to the method of procurement used and all other applicable federal requirements.
- g. Procurement of Design-Build. Grantees may procure design-build services through means of qualifications-based competitive proposal procedures based on the Brooks Act as set forth in Section 9e when the preponderance of the work to be performed is considered to be for architectural and engineering (A&E) services as defined in Section 9e, Qualifications-based competitive proposal procedures should not be used to procure design-build services when the preponderance of the work to be performed is not of an A&E nature as defined in Section 9e, unless required by State law.
- h. Procurement By Noncompetitive Proposals (Sole Source). Sole Source procurements are accomplished through solicitation of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate. A contract change that is not within the scope of the original contract is considered a sole source procurement that must comply with this subparagraph.
- (1) Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids, or competitive proposals and at least one of the following circumstances applies:

- (a) The item is available only from a single source;
 - (b) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;
 - (c) The LMRO authorizes noncompetitive negotiations—e.g., if FTA provides a joint procurement grant or a research project grant with a particular firm or combination of firms, the grant agreement is the sole source approval;
 - (d) After solicitation of a number of sources, competition is determined inadequate; or
 - (e) **NOT APPLICABLE.**
- (2) A cost analysis, i.e., verifying the proposed cost data, the projections of the data, and the evaluation of the specific elements of costs and profit, is required.
- i. **Options.** Grantees may include options in contracts. An option is a unilateral right in a contract by which, for a specified time, a grantee may elect to purchase additional equipment, supplies, or services called for by the contract, or may elect to extend the term of the contract. If a grantee chooses to use options, the requirements below apply:
- (1) **Evaluation of Options.** The option quantities or periods contained in the contractor's bid or offer must be evaluated in order to determine contract award. When options have not been evaluated as part of the award, the exercise of such options will be considered a sole source procurement.
 - (2) **Exercise of Options.**
 - (a) A grantee must ensure that the exercise of an option is in accordance with the terms and conditions of the option stated in the initial contract awarded.
 - (b) An option may not be exercised unless the grantee has determined that the option price is better than prices available in the market or that the option is the more advantageous offer at the time the option is exercised.

10. **CONTRACT COST AND PRICE ANALYSIS FOR EVERY PROCUREMENT**

ACTION. Grantees must perform a cost or price analysis in connection with every procurement action, including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals.

- a. **Cost Analysis.** A cost analysis must be performed when the offeror is required to submit the elements (i.e., labor hours, overhead, materials, etc.) of the estimated cost, (e.g., under professional consulting and architectural and engineering services contracts, etc.).

A cost analysis will be necessary when adequate price competition is lacking and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or on the basis of prices set by law or regulation.

- b. Price Analysis. A price analysis may be used in all other instances to determine the reasonableness of the proposed contract price.
- c. Profit. Grantees will negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. To establish a fair and reasonable profit, consideration will be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.
- d. Federal Cost Principles. Costs or prices based on estimated costs for contracts under grants will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles. Grantees may reference their own cost principles that comply with applicable Federal cost principles.
- e. Cost Plus Percentage of Cost Prohibited. The cost plus a percentage of cost and percentage of construction cost methods of contracting shall not be used.

11. **BONDING REQUIREMENTS**. For those construction or facility improvement contracts or subcontracts exceeding \$100,000, the LMRO may accept the bonding policy and requirements of the grantee, provided the LMRO determined that the policy and requirements adequately protect the Federal interest. The LMRO has determined that grantee policies and requirements that meet the following minimum criteria adequately protect the Federal interest:

- a. A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified;
- b. A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract; and
- c. A payment bond on the part of the contractor. A payment bond is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract. Payment bond amounts determined to adequately protect the federal interest are as follows:

- (1) Fifty percent of the contract price if the contract price is not more than \$1 million;
 - (2) Forty percent of the contract price if the contract price is more than \$1 million but not more than \$5 million; or
 - (3) Two and a half million dollars if the contract price is more than \$5 million.
- d. A Grantee may seek LMRO approval of its bonding policy and requirements if they do not comply with these criteria.

12. PAYMENT PROVISIONS IN THIRD PARTY CONTRACTS.

- a. Advance Payments. FTA does not authorize and will not participate in funding payments to a contractor prior to the incurrence of costs by the contractor unless prior written concurrence is obtained from FTA.
- b. Progress Payments. Grantees may use progress payments provided the following requirements are followed:
 - (1) Progress payments are only made to the contractor for costs incurred in the performance of the contract.
 - (2) The grantee must obtain adequate security for progress payments. Adequate security may include taking title, letter of credit or equivalent means to protect the grantee's interest in the progress payment.

13. LIQUIDATED DAMAGES PROVISIONS. A grantee may use liquidated damages if it may reasonably expect to suffer damages and the extent or amount of such damages would be difficult or impossible to determine.

The assessment for damages shall be at a specific rate per day for each day of overrun in contract time; and the rate must be specified in the third party contract. Any liquidated damages recovered shall be credited to the project account involved unless the LMRO permits otherwise.

14. NOT APPLICABLE.

15. CONTRACT PROVISIONS. All contracts shall include provisions to define a sound and complete agreement. In addition, contracts and subcontracts shall contain contractual provisions or conditions that allow for:

- a. Administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, including sanctions and penalties as may be appropriate. (All contracts in excess of the small purchase threshold.)
- b. Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of \$10,000.)

16. STATUTORY AND REGULATORY REQUIREMENTS. A current but not all inclusive and comprehensive list of statutory and regulatory requirements applicable to

grantee procurements (such as Davis-Bacon Act, Clean Air, etc.) is contained in the LMRO Master Agreement. Grantees are responsible for evaluating these requirements for relevance and applicability to each procurement. Further guidance concerning these requirements and suggested wording for contract clauses may be found in FTA's Best Practices Procurement Manual.

For specific guidance concerning the crosscutting requirements of other Federal agencies, grantees are advised to contact those agencies.

PA AGREEMENT WTC-284.458(CM) – PCP-05-003

January 11, 2005

Phoenix Constructors, JV
505 Eighth Avenue,
Suite 601
New York, New York 10018

**SUBJECT: PERFORMANCE OF CONSTRUCTION MANAGEMENT SERVICES IN
CONNECTION WITH CONTRACT WTC-284.458 (CM/GC) - WORLD
TRADE CENTER TRANSPORTATION HUB CONSTRUCTION
MANAGER/GENERAL CONTRACTOR**

Gentlemen:

1. The Port Authority of New York and New Jersey (hereinafter referred to as the "Authority") hereby offers to retain Phoenix Constructors, JV (hereinafter referred to as "the CM/GC" or "you") to provide expert professional services in connection with the performance of construction management services for the construction of the World Trade Center Transportation Hub (WTC/Hub) Project as more fully set forth in Exhibit A, which is included herewith and made a part hereof.

Paragraphs 1 through 38 herein, and any referenced attachments thereto apply to the CM/GC's performance of Construction Management Services as contained in Exhibit A of this agreement, and are not intended to apply to the CM/GC's general contracting responsibilities as provided in WTC-284.458(GC) General Contracting Services Contract unless expressly noted as applying to all CM/GC services performed under this agreement.

The CM/GC shall at all times comply with all applicable Federal Transit Administration (FTA) regulations, policies, procedures and directives, including without limitation those listed herein and attached hereto. In addition, the Contractor shall comply with all applicable provisions of the agreement entitled "United States of America Department of Transportation Federal Transit Administration - Master Agreement for Lower Manhattan Recovery Grants", dated May 16, 2003 as delineated in Exhibit C. CM/GC's failure to do so comply shall constitute a material breach of this contract.

In case of a conflict between any provision of this agreement and the FTA requirements, the FTA requirements shall control unless otherwise directed by the Authority.

The Authority does not guarantee the ordering of any services under this Agreement and specifically reserves the right, in its sole discretion, to use any person or firm to perform the type of services required hereunder.

As used herein "Chief Engineer" shall mean the Chief Engineer of the Authority acting personally. On behalf of the Director, the Chief Engineer is responsible for the administration of this Agreement.

As used herein "Director," shall mean the Director, Priority Capital Programs, acting either personally or through his duly authorized representatives acting within the scope of the particular

authority vested in them.

"Engineer" shall mean the Chief Engineer, acting either personally or through his duly authorized representatives or acting within the scope of the particular authority vested in them.

"Project Manager" shall mean the designated Project Manager for the World Trade Center or his successor in duties, acting either personally or through his duly authorized representatives.

"CM/GC" shall mean the Construction Manager/General Contractor, Consultant or Contractor. These terms shall be interchangeable.

"Contract Documents", "Construction Documents", and "Construction Contract Documents" shall mean Contract Drawings and Specifications.

"Specifications" shall mean Division 1 of the Specifications included as part of the WTC-284.458(GC) General Contracting Services Contract and any Specifications issued as part of the individual Work packages issued by the Director which shall be complied with by the Contractor for all the Work performed under that individual Work package.

"Contract Drawings" shall mean the Contract Drawings designated in the clause of the Specifications entitled "Contract Drawings" of WTC-284.458(GC) General Contracting Services Contract, if any, and shall include any future alterations and revisions of said drawings, if any, and any drawings issued with an individual Work package by the Director.

"Contract" and "Agreement" are interchangeable.

"Contractor" shall be interchangeable with "Consultant".

"Subcontractor" shall be interchangeable with "Subconsultant".

For the purpose of administering this Agreement, the Director has designated Mr. Steve Plate, Deputy Director, Priority Capital Programs to act as my duly authorized representative. The Project Manager for this project is Mr. Mark Pagliettini, Deputy Program Director, Priority Capital Programs, telephone (212) 435-5531.

2. Your services shall be performed as expeditiously as possible and at the time or times required by the Director. Time is of the essence in the performance of all your services under this Agreement.

3. Upon notice to proceed from the Authority, you shall perform the services set out in Exhibit A attached hereto and forming a part hereof. This agreement will remain in effect until the completion of final design as determined by the Director.

4. When services to be performed by the CM/GC include the preparation of contract documents, or the performance of post award services, the CM/GC shall submit his specific Quality Control/Quality Assurance Program to the Engineer prior to the performance of said services. When the CM/GC has completed preparation of any contract documents required

hereunder he shall submit a letter to the Engineer certifying the CM/GC's conformance with the aforementioned Quality Control/Quality Assurance Program.

When the services to be performed by the Consultant include the preparation of computer aided design and drafting (CADD) documents, said documents must be submitted in the format of the latest available version of AutoDesk's design CAD software (.dwg) or as directed by the Engineer prior to the performance of specific services and shall be submitted to the Authority on compact disks, or as otherwise required.

When the services to be performed by the Consultant included the preparation of Architectural Graphics and said graphics are to be prepared using a system fully compatible with Authority's standard computer system. The graphics shall be prepared using the latest revision of the following software packages, as required: " Adobe Illustrator", " Quark Xpress" " Microsoft Word " and shall be submitted to the Authority on compact disk, or as otherwise required.

5. The CM/GC shall meet and consult with Authority staff as requested by the Director in connection with the services to be performed herein.

Any Contract Drawings, Technical Specifications or other items to be submitted or prepared by the CM/GC hereunder shall be subject to the review of the Chief Engineer. The Chief Engineer may disapprove, if in his sole opinion the said items are not in accordance with the requirements of this Agreement, all applicable jurisdictional Codes or Authority standards, sound engineering practice, or are impractical, uneconomical or unsuitable for the purpose that the construction is intended. If any of the said items or any portion thereof are so disapproved, the CM/GC shall forthwith revise said items until approved by the Chief Engineer, but the CM/GC shall not be compensated under any provision of this Agreement for performance of such revisions. No such approval or disapproval shall relieve the CM/GC of his responsibilities under this Agreement.

6. In order to effectuate the policy of the Authority, the Contract Drawings, Technical Specifications and all revisions and changes made therein by the CM/GC shall comply with all provisions of Federal, State, and Local laws, ordinances, rules, regulations, and orders which would affect or control said designs and concepts as if the construction were being performed for a private corporation, unless the Authority standards are more stringent, in which case the Authority standards shall prevail and be followed, or unless the CM/GC shall receive a written notification to the contrary signed by the Chief Engineer, in which case the requirements of said notification shall apply.

7. Your total compensation for performance of all services as identified in Exhibit A to Attachment D, shall not exceed the amount of \$11,099,145 Million. You shall inform the Director when your compensation reaches 80% of such amount. You shall continue to render services to completion after the point when your compensation reaches 100% of such amount. Actual costs under this Agreement shall be defined according to Federal Cost Principles as set forth in the Federal Acquisition Regulations, 48 CFR Part 31.

8. As full compensation for all your services and obligations in connection with this Agreement, the Authority will pay you the total of the amounts computed under subparagraphs

A, B, C and D below, subject to the limits on compensation and provisions set forth in paragraph 7.

- A. An amount equal to 1.96% times the actual salaries paid by you to permanent professional and technical personnel but not partners or principals for time actually spent by them in the performance of services hereunder, plus an amount equal to the number of hours actually spent by partners and principals of the joint venture in the performance of services hereunder times the billing rate (no multiplier applied) described below but in each case excluding premium payments for overtime work or night work. Attached hereto is a schedule of actual salaries and titles of permanent professional and technical personnel to be employed by you, as well as rates customarily billed for partners and principals on projects such as this. Said schedule shall be the basis for determining compensation, subject to audit and shall be updated by you in writing as required until your services under this Agreement are completed. For compensation purposes under this Agreement, no said salary or amount shall exceed the salary or amount received by said personnel or rate customarily billed for a partner or principal as of the effective date of this Agreement unless the Director has been notified in advance, in writing, of the increased salary, rate or amount and approves the increase. When requesting salary adjustments for one or more of its personnel, the CM/GC shall submit his/her name, title, current direct hourly rate, proposed new direct hourly rate, resulting percentage increase, effective date and reason for the requested change. The Authority reserves the right of approval of all personnel, amounts and salaries of said personnel performing services under this Agreement. For adjustments submitted after the effective date of this Agreement, approval will not be withheld if the CM/GC demonstrates that increases in salary, or partner's or principal's rate or amount are in accordance with the program of periodic merit and cost of living increases normally administered by it. For the purposes of this agreement, the multiplier set forth in the first line of this sub-paragraph shall be fixed and not subject to increase for the performance of all contemplated services hereunder.

Notwithstanding the above, the multipliers set forth in the first line of this subparagraph shall be applied only in the case of personnel other than partners or principals who are permanent employees.

- B. An amount equal to the premium payments for overtime work actually paid to professional and technical employees for time actually spent by them in the performance of services hereunder at Authority furnished offices, CM/GC furnished offices or on site when such premium payments have been demonstrated to be in accordance with the CM/GC's normal business practice and have been authorized in advance by the Director in writing. The Project Manager shall have the right to authorize and approve premium payments up to a total amount of \$1,000 per occasion. Payments above said total amount shall be subject to the prior written authorization of the Director. Such premium payments to supervisory employees, who do not receive such payments in the CM/GC's normal business practice, shall not be given under this Agreement.

- C. An amount equal to the amounts actually paid to subconsultants hereunder that have been retained after the written approval by the Director of the subconsultant and the compensation to be paid the subconsultant. The CM/GC shall submit a copy of the terms and conditions of the subconsultant's compensation (including multiplier, if applicable), as well as an estimate of the number of hours required by the subconsultant to perform his services, as part of any request for approval of the subconsultant.
- D. An amount equal to the out-of-pocket expenses, approved in advance by the Director, necessarily and reasonably incurred and actually paid by you in the performance of your services hereunder. Out-of-pocket expenses are expenses that are unique to the performance of your services under this Agreement, and generally contemplate the purchase of outside ancillary services, except that for the purpose of this Agreement, out-of-pocket expenses do include amounts for mailing and delivery charges for submittal of drawings, specifications and reports; long distance telephone calls; rentals of equipment; travel and local transportation; and meals and lodging on overnight trips.

Notwithstanding the above the Authority will pay an amount approved in advance by the Director and computed as follows for the reproduction of submittal drawings, specifications and reports:

- 1) If the Consultant uses its own facilities to reproduce such documents, an amount computed in accordance with the billing rates the Consultant customarily charges for reproduction of such documents on agreements such as this, or
- 2) If the Consultant uses an outside vendor for the reproduction of such documents, the actual, necessary and reasonable amounts for the reproduction of such documents.

Out-of-pocket expenses do not include expenses that are usually and customarily included as part of the Consultant's overhead. For the purposes of this Agreement out-of-pocket expenses do not include amounts for typing, utilization of computer systems, computer aided design and drafting (CADD), cameras, recording or measuring devices, flashlights and other small, portable equipment, safety supplies, phones, telephone calls, electronic messaging including FAX, Telex and telegrams, or expendable office supplies. Unless otherwise indicated, required insurance is not a reimbursable expense.

You shall obtain the Director's written approval prior to making expenditures for out-of-pocket expenses in excess of \$1,000 per specific expenditure and for all overnight trips which are reimbursable expenditures as set forth above. You shall substantiate all billings for out-of-pocket expenses in excess of \$25 with receipted bills, and provide said receipts with the appropriate billing.

"Salaries paid to employees" or words of similar import shall mean salaries and amounts actually paid (excluding payments or factors for holidays, vacations, sick time, bonuses, profit participations and other similar payments) to professional and technical employees of the CM/GC, for time actually spent directly in the performance of technical services hereunder and recorded on daily time records which have been approved by the employee's immediate

supervisor, excluding the time of any employee of the CM/GC to the extent that, the time of such employee of the CM/GC is devoted to typing/word processing, stenographic, clerical or administrative functions. Such functions shall be deemed to be included in the multiplier referred to in subparagraph A above. All such daily time records are to be submitted to the Project Manager for review and approval upon the completion of each workday.

9. You shall keep, and shall cause any subconsultants under this Agreement to keep daily records of the time spent in the performance of services hereunder by all persons whose salaries or amounts paid thereto will be the basis for compensation under this Agreement, as well as records of the amounts of such salaries and amounts actually paid for the performance of such services and records and receipts of reimbursable expenditures hereunder, and notwithstanding any other provisions of this Agreement, failure to do so shall be a conclusive and final waiver of any right to compensation for such services or expenses as are otherwise compensable hereunder. The Authority shall have the right to audit all such records.

The Authority shall have the right to inspect your records, and those of your sub consultants, pertaining to any compensation to be paid hereunder, such records to be maintained by you and your subconsultants for a period of four (4) years after completion of services to be performed under this Agreement.

10. On or about the fifteenth day of each month, you shall render a bill for services performed and reimbursable out-of-pocket expenses incurred in the prior month, accompanied by such records and receipts as required, to the Project Manager. Each invoice shall bear your taxpayer number and the purchase order number(s) provided by the Project Manager. Upon receipt of the foregoing, the Project Manager will estimate and certify to the Director the approximate amount of compensation earned by you up to that time. As an aid to you the Authority shall, within fifteen days after receipt of such certification by the Director, advance to you by check the sum certified minus all prior payments to you for your account, but subject to the limitation on compensation set forth in paragraph 7.

11. Termination – If the performance of the Agreement or any portion of it shall, in the opinion of the Director, be materially delayed, whether or not through the fault of the CM/GC, by any cause which affects the CM/GC's ability to perform the Agreement without affecting to the same degree the Authority's own ability to perform it, either directly or through others, the Authority shall have the right at any time during the existence of such delay to cancel this Agreement as to any portion not yet performed, without prejudice to the rights, liabilities and obligations of the parties under this Agreement arising out of portions already performed, provided, however, that such right of cancellation shall not exist if the delay be due to any wrongful act or omission of the Authority. In the event of such cancellation, no allowance shall be made for anticipated profits.

If at any time it shall be, from the viewpoint of the Authority, impracticable or undesirable in the judgment of the Director, to proceed with or continue the performance of the Agreement or any part thereof, whether or not for reasons beyond the control of the Authority, the Director shall have authority to suspend performance of any part or all of the Agreement until such time as the Director may deem it practicable or desirable to proceed. Moreover, if at any time it shall be, from the viewpoint of the Authority impracticable or undesirable in the judgment of the Director

to proceed with or continue the performance of the Agreement or any part thereof whether or not for reasons beyond the control of the Authority, the Director shall have authority to cancel this Agreement as to any or all portions not yet performed and as to any materials not yet installed even though delivered. Such cancellation shall be without prejudice to the rights and obligations of the parties arising out of portions already performed, but no allowance shall be made for anticipated profits.

12. Without the express written approval of the Director you shall keep confidential, and shall require your subconsultants and your employees to keep confidential:

- a) all information disclosed by the Authority or PATH or its consultants or contractors to you; or
- b) developed by you or your subconsultants in the performance of services hereunder.

You may be required to execute, and have your employees; subconsultants and their employees execute non-disclosure agreements as directed by the Authority concerning intellectual property and proprietary information of the Authority, PATH and third persons. Disclosure of any such information shall constitute a material breach of the Agreement. The obligation of confidentiality shall not however pertain to information

- a) which is in the public domain;
- b) information lawfully received from a third party; or
- c) information, which must be disclosed under law, provided the Authority's General Counsel is given reasonable notice of the legal obligation or legal process.

13. You shall not issue or permit to be issued any press release, advertisement, or literature of any kind, which refers to the Authority or the services performed in connection with this Agreement, unless you first obtain the written approval of the Director. Such approval may be withheld if for any reason the Director believes that the publication of such information would be harmful to the public interest or is in any way undesirable.

14. Under no circumstances shall you or your subconsultants communicate in any way with any contractors, department, board, agency, commission or other organization or any person whether governmental or private in connection with the services to be performed hereunder, unless required by Law, except upon prior written approval and instructions of the Director, provided, however that data from manufacturers and suppliers of material shall be obtained by you when you find such data necessary unless otherwise instructed by the Director .

15. Any services performed for the benefit of the Authority at any time by you or on your behalf, even though in addition to those described herein, even if expressly and duly authorized by the Authority, shall be deemed to be rendered under and subject to this Agreement (unless referable to another express written, duly executed agreement by the same parties), whether such additional services are performed prior to, during or subsequent to the services described herein, and no rights or obligations shall arise out of such additional services.

16. No certificate, payment (final or otherwise), acceptance of any work nor any other act or omission of the Authority or the Director shall operate to release you from any obligations under or upon this Agreement, or to estop the Authority from showing at any time that such certificate,

payment, acceptance, act or omission was incorrect or to preclude the Authority from recovering any money paid in excess of that lawfully due, whether under mistake of law or fact or to prevent the recovery of any damages sustained by the Authority.

17. Mylars of the contract drawings, originals of technical specifications, estimates, reports, records, data, charts, documents, renderings, computations, computer tapes or disks, and other papers of any type whatsoever, whether in the form of writing, figures or delineations, which are prepared or compiled in connection with this Agreement, shall become the property of the Authority, and the Authority shall have the right to use or permit the use of them and any ideas or methods represented by them for any purpose and at any time without other compensation than that specifically provided herein. The CM/GC hereby warrants and represents that the Authority will have at all times the ownership and rights provided for in the immediately preceding sentence free and clear of all claims of third persons whether presently existing or arising in the future and whether presently known to either of the parties of this Agreement or not. This Agreement shall not be construed, however, to require the CM/GC to obtain for the Authority the right to use any idea, design, method, material, equipment or other matter which is the subject of a valid patent, unless such patent be owned by the CM/GC or one of his employees, or his subconsultant or the subconsultant's employees, in which case such right shall be obtained without additional compensation. Whether or not your Proposal is accepted by the Authority, it is agreed that all information of any nature whatsoever which is in any way connected with the services performed in connection with this Agreement, regardless of the form of which has been or may be given by you or on your behalf, whether prior or subsequent to the execution of this Agreement, to the Authority, its Commissioners, officers, agents or employees, is not given in confidence and may be used or disclosed by or on behalf of the Authority without liability of any kind, except as may arise under valid existing or pending patents, if any.

18. If research or development is furnished in connection with the performance of this Agreement and if in the course of such research or development patentable subject matter is produced by the CM/GC, his officers, agents, employees, or sub consultants, the Authority shall have, without cost or expense to it, an irrevocable, non-exclusive royalty-free license to make, have made, and use, either itself or by anyone on its behalf, such subject matter in connection with any activity now or hereafter engaged in or permitted by the Authority. Promptly upon request by the Authority, the CM/GC shall furnish or obtain from the appropriate person a form of license satisfactory to the Authority, but it is expressly understood and agreed that, as between the Authority and the CM/GC the license herein provided for shall nevertheless arise for the benefit of the Authority immediately upon the production of said subject matter, and shall not await formal exemplification in a written license agreement as provided for above. Such license agreement may be transferred by the Authority to its successors, immediate or otherwise, in the operation or ownership of any real or personal property now or hereafter owned or operated by the Authority but such license shall not be otherwise transferable.

19. You shall promptly and fully inform the Chief Engineer in writing of any patents or patent disputes, whether existing or potential, of which you have knowledge, relating to any idea, design, method, material, equipment or other matter related to the subject matter of this Agreement or coming to your attention in connection with this Agreement.

20. This Agreement being based upon your special qualifications for the services herein contemplated, any assignment, subletting or other transfer of this Agreement or any part hereof or of any moneys due or to become due hereunder without the express consent in writing of the Authority shall be void and of no effect as to the Authority, provided, however, that you may sublet services to subconsultants with the expressed consent in writing of the Director. All persons to whom you sublet services, however, shall be deemed to be your agents and no subletting or approval thereof shall be deemed to release you from your obligations under this Agreement or to impose any obligation on the Authority to such subconsultant or give the subconsultant any rights against the Authority.

21. The Authority has a long-standing practice of encouraging Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs) to seek business opportunities with it, either directly or as sub consultants or subcontractors. "Minority-owned business" or "MBE" means a business entity which is at least 51 percent owned by one or more members of one or more minority groups, or, in the case of a publicly held corporation, at least 51 percent of the stock of which is owned by one or more members of one or more minority groups; and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens. "Women-owned business" or "WBE" means a business which is at least 51 percent owned by one or more women; or, in the case of a publicly held corporation, 51 percent of the stock of which is owned by one or more women; and whose management and daily business operations are controlled by one or more women who are citizens or permanent resident aliens.

"Minority group" means any of the following racial or ethnic groups:

- A. Black persons having origins in any of the Black African racial groups not of Hispanic origin;
- B. Hispanic persons of Puerto Rican, Mexican, Dominican, Cuban, Central or South American culture or origin, regardless of race;
- C. Asian and Pacific Islander persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands;
- D. American Indian or Alaskan Native persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification

To ensure maximum participation, to the extent feasible and consistent with the Proposer's exercise of good business judgment, the Authority has set an overall combined contract goal of 17 percent participation by MBEs and WBEs for all procurement, subcontracting and ancillary service opportunities associated with this agreement.

To be "certified", the Authority's Office of Regional and Economic Development/Small Business Programs must certify a firm.

In order to facilitate the meeting of this goal, the CM/GC shall use every good faith effort to utilize sub consultants who are certified MBEs or WBEs to the maximum extent feasible.

The Authority has a list of certified MBE/WBE service firms, which is available to you at your request. The CM/GC will be required to submit to the Authority's Office of Regional and Economic Development/Small Business Programs for certification the names of MBE/WBE firms he proposes to use who are not on the list of certified MBE/WBE firms.

22. The CM/GC assumes the following distinct and several risks, whether they arise from the acts or omissions (whether negligent or not) of the CM/GC, of the Authority or of third persons or from any other cause, and whether such risks are within or beyond the control of the CM/GC excepting only risks which arise solely from affirmative acts done by the Authority subsequent to the execution of this Agreement with actual and willful intent to cause the loss, damage and injuries described in subparagraphs A through D below:

- A. The risk of loss or damage to Authority property arising out of or alleged to arise out of or in connection with the performance of services hereunder;
- B. The risk of loss or damage to any property of the CM/GC arising out of or alleged to arise out of or in connection with the performance of services hereunder;
- C. The risk of claims, arising out of or alleged to arise out of or in connection with the performance of services hereunder, whether made against the CM/GC or the Authority, for loss or damage to any property of the CM/GC's agents, employees, subcontractors, sub consultants, material men and others performing services hereunder;
- D. The risk of claims, just or unjust, by third persons made against the CM/GC or the Authority on account of injuries (including wrongful death), loss or damage of any kind whatsoever arising or alleged to arise out of or in connection with the performance of services hereunder (whether or not actually caused by or resulting from the performance of the services hereunder) including claims against the CM/GC or the Authority for the payment of workers' compensation, whether such claims are made and whether such injuries, damage and loss are sustained at any time both before and after the completion of services hereunder.

The CM/GC shall indemnify the Authority, Metropolitan Transportation Authority and its affiliate agencies and the Government against all claims described in subparagraphs A through D above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys. If so directed, the CM/GC shall defend against any claim described in subparagraphs B, C and D above, in which event he shall not without obtaining express advance permission from the General Counsel of the Authority raise any defense involving in any way jurisdiction of the tribunal, immunity of the Authority, governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority, such defense to be at the CM/GC's cost.

The provisions of this clause shall also be for the benefit of the Commissioners, officers, agents and employees of the Authority, so that they shall have all the rights which they would have under this clause if they were named at each place above at which the Authority is named, including a direct right of action against the CM/GC to enforce the foregoing indemnity, except, however, that the Authority may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the completion of services hereunder nor the making of payment (final or otherwise) shall release the CM/GC from his obligations under this clause. Moreover, neither the enumeration in this clause nor the enumeration elsewhere in this Agreement of particular risks assumed by the CM/GC or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this clause or of any other clause of this Agreement relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this clause or in any other clause of this Agreement, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

This paragraph shall not limit the responsibilities the CM/GC would have in the absence of this paragraph. No third party rights are created by the Agreement, except to the extent that the Agreement specifically provides otherwise by use of the words "benefit" or "direct right of action".

Inasmuch as the Authority has agreed to indemnify the City of New York against claims of the types described in subparagraph D above made against said city, the CM/GC's obligation under subparagraph D above shall include claims by said city against the Authority for such indemnification, including those arising from acts or omissions (whether negligent or not) of said city.

In no event shall the CM/GC, its directors, officers, employees, agents, subconsultants or vendors of any tier, or its and their related affiliated entities, be liable to the Authority, whether due to default, negligence, strict liability or breach of contract, for consequential loss or damage, such as loss of use, loss of revenue, economic loss claims from firms under contract with the Authority, cost of capital, loss of interest and business interruption.

23. Insurance Procured by the Authority - In order to reduce the cost of this Agreement, the Authority will procure and will maintain in force and pay the premiums on:

1. A policy of primary public liability (Comprehensive - Commercial General Liability, including Contractual) insurance on which the Contractor and the subconsultants will be insureds issued by an insurance company satisfactory to the Authority, with current coverage limits of \$2 million per occurrence, combined single limit for bodily injury and property damage liability.
2. Policies of excess public liability insurance from various insurers, with combined coverage limits of \$998 million per occurrence excess of the primary \$2 million insurance coverage.

3. A policy of workers' compensation and employer's liability insurance fulfilling the CM/GC's and the subconsultant's obligations under the applicable State Workers' Compensation Law for those employees of the Contractor and the subconsultants employed pursuant to this Agreement in operations conducted at the site of the Work hereunder. Coverage under this policy may, as appropriate, include one or more of the following endorsements:
 - (a) Longshore and Harbor Workers' Compensation Act Coverage Endorsement. (Applies when performing work on or around navigable waters).
 - (b) Maritime Coverage Endorsement (Applies to masters or members of the crews of vessels, if vessels are used).
 - (c) Federal Employer's Liability Act Coverage Endorsement. (May apply to railroad related Work).

Determination in any instance as to the appropriateness of the included coverage described in 3. (a), (b), and (c) above will be made based upon information to be provided by the CM/GC relating to the mode of performance of Work to be done under the Agreement.

The policy described in 3. above will NOT provide coverage for any workers' compensation for the CM/GC and/or subconsultants who perform any asbestos Work. In such cases, the CM/GC and/or subconsultants shall procure and maintain, at their own expense, the workers' compensation insurance in accordance with the requirements of law in the state(s) where the work will take place, along with employer's liability insurance (in limits of not less than \$3 million per accident). The CM/GC and/or subconsultants may also be required by the Authority to provide insurance coverage for 3 (a), (b), and (c) above with the same limit as the employer's liability insurance as stated above.

Should the CM/GC and/or subconsultants be required to procure the workers' compensation insurance, within ten days after the acceptance of his Proposal, the CM/GC shall deliver to the General Manager, Risk Management, The Port Authority of New York and New Jersey, Treasury Department, 225 Park Avenue South, 12th Floor, New York, New York 10003. (Attn: Contract Insurance Review), an original certificate, stating the Contract number, from the insurer. A duplicate certificate evidencing the above insurance shall also be delivered to the Engineer. With regard to insurance required to be procured by a subconsultant, the CM/GC shall deliver the certificate described above at least ten days before the subconsultant commences Work.

The requirements for insurance procured by the CM/GC or subconsultants shall not in any way be construed as a limitation on the nature or extent of the obligations of the CM/GC or subconsultants.

4. A policy of builder's risk insurance, covering the improvements or other Work to be effectuated by the CM/GC and the subconsultants, with a coverage limit up to \$ one billion dollars per occurrence (subject to a \$50 million annual aggregate for flood and

earthquake damage and a limit of \$10 million per occurrence for damage to off-site storage, and property in-transit). The deductible is \$10,000 per occurrence for all losses except those caused by flood and earthquake, where a \$50,000 deductible per occurrence with respect to flood, and a \$25,000 deductible per occurrence with respect to earthquake are in effect. The policy form will contain various exclusions, including but not limited to the following property exclusions: automobiles; aircraft; and CM/GCs' and subconsultants' machinery, tools, and equipment and property of a similar nature, including forms, shoring, scaffolding, temporary structures, rental property/equipment and similar property, not intended to become a permanent part of a building or structure. When the policies are available, the CM/GC and the subconsultants must refer to the policy form to determine all properties and perils included and excluded and to determine their rights and responsibilities as insureds under the policy form. The CM/GC and the subconsultants are responsible for payment for all losses within the deductibles and losses not covered by the builder's risk policies.

5. A policy of Owner Controlled Contractor Pollution Liability Insurance in which the CM/GCs, approved subconsultants, and the Government will be included as insureds, covering bodily injury, death, and property damage liability insurance, including environmental damage, pollution legal liability, including any cleanup, on an occurrence basis, including completed operations, caused by any environmental condition, including but not limited to lead, asbestos, or mercury exposures, with a limit up to \$100 million per loss and policy aggregate, with a deductible of \$50,000 that is the responsibility of the CM/GC and subconsultant. The policy has limitations and exclusions.

It is anticipated the policies described in (1.), (2.), (3.), (4.), and (5.) of this insurance section will be on file and available for examination, by appointment in the office of the General Manager, Risk Management, The Port Authority of NY and NJ, Treasury Department 225 Park Avenue South, 12th Floor New York, New York 10003. The policies under (1.) and (2.) are subject to certain liability coverage exclusions, which include, but are not limited to, exclusions from liability from claims arising from pollution and exposure to asbestos.

The Port Authority Trans-Hudson Corporation (PATH), the Government (FTA), and the Metropolitan Transportation Authority and its affiliate agencies will be named as additional insureds on the Commercial General Liability Insurance described in paragraphs #1 and #2 above and on the Contractor Pollution Liability Insurance described in paragraph #5 above. In addition, the Government (FTA) will be named as additional insured on the Builders Risk Insurance described in paragraph #4 above, with the Authority as the loss payee.

The CM/GC and subconsultants shall comply with all obligations of the insured under or in connection with all of the policies described in clauses (1.) through (5.) above.

The Authority shall have the right at any time and from time to time at its option to procure insurance substituting in whole or in part for any or all of the policies described in (1.) through (5.) above or to require that the CM/GC and the subconsultants themselves obtain insurance substituting in whole or in part for that above referred to, provided always, however, that the

CM/GC and the subconsultants shall be afforded coverage as stipulated by the Authority and the Authority shall either pay the premiums on such substitute insurance or reimburse the CM/GC and the subconsultants therefore.

Neither the procurement of the above insurance or any substitute insurance nor the extent of the coverage or the limits of liability thereunder shall be construed to be a limitation on the nature or extent of the CM/GC's obligations, or to relieve the CM/GC of any such obligations, and the procurement of the above insurance is only for the purpose of reducing the cost of the Agreement without constituting any representation by the Authority as to the adequacy of the insurance to protect the CM/GC against the obligations imposed on them by law (except the applicable State Workers' Compensation Law) or by this or any other Agreement.

Notwithstanding any provision of this clause, however, no subconsultant shall be or have the right to be covered under the policies of insurance above referred to until they have been expressly approved in writing by the Engineer, as required under this Agreement, and such approval may be withheld, among other reasons, until execution by the subconsultant of agreements affirming his obligations provided in this clause with respect to the above insurance.

The provisions of this insurance section are not intended to create any rights in the CM/GC other than rights, which may be available to him under said policies themselves, whatever such rights may be. Moreover, the Authority makes no representation or guaranty, either by the provisions of this insurance section or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty, either by the provisions of this insurance section or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty or to offer any interpretation of or information on said policies. The Contractor warrants and represents that it has examined and is familiar with the above stated coverages and that in submitting his Proposal he has relied solely on his own interpretation thereof and not on any representations or statements, oral or written, of the Authority, its Commissioners, officers, agents, employees, consultants or CM/GCs.

All negotiations and adjustments with any insurer concerning payment for any loss, the risk of which is borne by the CM/GC under this Agreement, shall be the responsibility of and shall be conducted by the CM/GC unless the applicable policy provides otherwise. The CM/GC shall, however, inform the Engineer of the progress of all such negotiations and notify him sufficiently in advance of all meetings thereon so that he or his representatives may attend said negotiations if they so desire.

The Authority shall be entitled to all returned premiums, dividends and credits which may become payable at any time for any reason whatsoever in connection with the aforementioned insurance. The CM/GC hereby assigns to the Authority all such returned premiums, dividends and credits and the subconsultants shall be deemed to have assigned to the Authority all such returned premiums, dividends and credits by becoming subconsultants under this Agreement. The CM/GC shall execute and cause the subconsultants to execute any instrument necessary or convenient to evidence the Authority's right to such returned premiums, dividends and credits.

Notwithstanding any payment by the Authority of any insurance premiums, the Authority shall not be deemed the employer of any employees hired by the CM/GC or any subconsultant covered by such insurance nor shall it be liable for any of the obligations of such employer.

The CM/GC and the subconsultants shall cooperate to the fullest extent with the Authority in all matters relating to the aforementioned insurance and shall comply with all requirements of all insurance policies procured by the Authority. They shall also at their own expense furnish the Engineer or his duly authorized representative with paper and electronic copies of all certified payrolls, correspondence, papers, records and other things necessary or convenient for dealing with or defending against any claims and for procuring or administering the aforementioned insurance including furnishing the name of any of their employees, officers, or agents whose presence or testimony is necessary or convenient in any negotiations or proceedings involving such insurance.

24. Insurance Procured by the CM/GC - In addition to the insurance procured by the Authority pursuant to the clause of this Contract entitled, "Insurance Procured by the Authority," the Contractor, in its own name as assured, shall, where applicable, procure, maintain, and pay the premiums on a policy(ies) of insurance for coverage, as hereinafter described, which shall cover its operations hereunder, shall be effective through the completion of the contract, and shall afford coverage in not less than the amounts set forth below:

1. Automobile Liability Insurance: Covering any auto or owned, non-owned, and hired autos (scheduled autos must be listed on the certificate and in the policy) with a minimum of \$3 million combined single limit each accident for bodily injury and property damage liability. The Contractor shall also submit to the Engineer, before any work begins by any subcontractor, original certificates of insurance for automobile liability insurance for all its subcontractors, in all tiers, with the same coverages and limits as the Contractor. The certificate of insurance shall accompany the "subcontractor approval request" for each subcontractor. The Contractor shall keep on file, for inspection by the Authority, up-to date original certificates of insurance of automobile liability insurance for all its subcontractors.
2. Protection and Indemnity Insurance: If required by the Authority, Protection and Indemnity Insurance, and Chartered Legal Liability Insurance, where applicable. Prior to commencement of any work using watercraft, the Contractor shall furnish to the Engineer, evidence of Protection and Indemnity Insurance, and Chartered Legal Liability Insurance, where applicable, relating to the operation, maintenance, or use of any vessel (whether self-propelled or being towed) in connection with work to be performed in this contract, in a limit of liability of not less than \$5 million for any one occurrence.
3. Railroad Protective Liability Insurance: If required by the Authority, in the name of the applicable railroad, covering property damage and bodily injury liability, including death, with a minimum limit of \$2 million per occurrence and \$6 million in the aggregate, or with coverages and limits as specifically required by such railroad.
4. Workers' Compensation Insurance: The Contractor and any subcontractor who does asbestos work shall procure and maintain, at its own expense, workers' compensation

insurance. See paragraph #3 of the insurance requirements, in the clause entitled, "Insurance Procured by the Authority."

The Authority may, at any time during this contract, change or modify the limits and coverages of any the insurance stated in this section. The insurance procured by the Contractor and/or any subcontractor shall be primary and any insurance carried by the Authority and the Government or self-insurance of the Authority and the Government shall not contribute to any of these claims or losses.

The Port Authority will reimburse the Contractor for the policies described in items "2." and "3." Above for such insurance premiums on a cost reimbursement basis as specified in the clause entitled "Cost Reimbursement Work".

The Contractor and/or subcontractor(s) may not self-insure or carry any self-insurance retention (deductible) without written permission from the Authority.

With the exception of the Railroad Protective Insurance Policy, the Authority, the Port Authority Trans-Hudson Corporation (PATH), the Government (FTA), and the Metropolitan Transportation Authority and its affiliate agencies shall be named as an additional insureds on the liability policies set forth above. Moreover, the Commercial General Liability Insurance and the Automobile Liability Insurance Policies shall not contain any provisions for exclusions from liability other than provisions for exclusion forming part of the most up-to-date ISO forms, or their equivalent, of the Commercial General Liability and Automobile Liability Insurance Policies. The liability policy or policies stated above shall contain evidence of coverage for cross-liability/severability of interests, and both the Authority as an additional insured and the coverage for cross-liability/severability of interests shall be stated on the certificate(s) of insurance.

An original certificate(s) of insurance evidencing the existence thereof, shall be delivered to the Resident Engineer, at the job site, and to the General Manager, Risk Management/Treasury, The Port Authority of New York and New Jersey, 225 Park Avenue South, 12th Floor, New York, NY 10003, within thirty (30) days after the execution of this Contract by the Contractor. Such certificate or certificates shall state the contract number and shall contain a valid provision or endorsement that the policy or policies may not be canceled, terminated, changed or modified without thirty (30) days advance written notice to the Authority at the above address. The liability policy(ies), with the exception of the Railroad Protective Insurance Policy, evidencing the above insurance and the certificate(s) of insurance, shall contain an additional endorsement stating that, "The insurer shall not, without obtaining express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its commissioners, officers, agents or employees, the governmental nature of The Port Authority, or the provisions of any statutes respecting suits against the Port Authority." Renewal original certificates of insurance shall be delivered to the Engineer and the General Manager, Risk Management/Treasury stated above at least ten (10) days prior to the expiration date of each expiring policy. No work may resume until the renewal certificates of insurance are approved by Risk Management/Treasury. At any time any of the certificates or policies shall be or become unsatisfactory to the Authority as to form or substance, or if the carrier issuing any such certificate or policy shall be or become unsatisfactory to the Authority, the Contractor shall

Management/Treasury stated above at least ten (10) days prior to the expiration date of each expiring policy. No work may resume until the renewal certificates of insurance are approved by Risk Management/Treasury. At any time any of the certificates or policies shall be or become unsatisfactory to the Authority as to form or substance, or if the carrier issuing any such certificate or policy shall be or become unsatisfactory to the Authority, the Contractor shall promptly obtain a new and satisfactory certificate and policy. The Authority or the Government may request at any time certified copies of the above original policies, including the premiums.

If at any time the above policies should be cancelled, terminated, or modified so that the insurance is not in effect as above required, then, if the Manager shall so direct, the Contractor shall suspend performance of the contract at the premises. If the contract is so suspended, no extension of time shall be due on account thereof. If the contract is not suspended (whether or not because of omission on the Manager to order suspension), then the Authority may, at its option, obtain insurance affording coverage equal to the above required. The cost of such insurance to be payable by the Contractor to the Authority.

25. Attached hereto is Exhibit D entitled "FTA Professional Services Agreement Provisions" which is hereby incorporated herein and made a part hereof.

26. Disputes - To resolve all disputes and to prevent litigation the parties to this Agreement authorize the Chief Engineer to decide all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Agreement (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the CM/GC's Proposal and claims of a type which are barred by the provisions of this Agreement) and his decision shall be conclusive, final and binding on the parties. His decision may be based on such assistance as he may find desirable. The effect of his decision shall not be impaired or waived by any negotiations or settlement offers in connection with the question decided, whether or not he participated therein himself, or by any prior decision of the Engineer or Director or others, which prior decisions shall be deemed subject to review, or by any termination or cancellation of this Agreement.

All such questions shall be submitted in writing by the CM/GC to the Chief Engineer for his decision, together with all evidence and other pertinent information in regard to such questions, in order that a fair and impartial decision may be made. In any action against the Authority relating to any such question the CM/GC must allege in his complaint and prove such submission, which shall be a condition precedent to any such action. No evidence or information shall be introduced or relied upon in such an action that has not been so presented to the Chief Engineer.

This numbered clause shall be governed by and construed in accordance with the law of the State of New York, without giving effect to its choice law provisions.

27. Notification of Security Requirements - The Port Authority of New York & New Jersey has facilities, systems, and projects where terrorism or other criminal acts may have a significant impact on life safety and key infrastructures. The Authority reserves the right to impose multiple layers of security requirements on the CM/GC, its staff and subconsultants and their staffs

least one having an official photograph) to verify staff's name and residence; screening federal, state, and/or local criminal justice agency information databases and files; screening of any terrorist identification files; multi-year check of personal, employment and/or credit history; access identification to include some form of biometric security methodology such as fingerprint, facial or iris scanning, or the like;

- b. Issuance of Photo Identification cards;
- c. Access control, inspection, and monitoring by security guards.

The CM/GC shall be required to have its staff and that of its subconsultants undergo a criminal history background check and shall furnish proof to the Authority, in a form acceptable to the Authority, that such check has been performed. No employee of the CM/GC or any subconsultant will be permitted to perform work under this Agreement without proof that such check has been performed.

In addition, the Authority may increase and/or upgrade security requirements for the CM/GC, its staff and subconsultants and their staffs during the term of this Agreement to address changing security conditions and/or new governmental regulations.

Should the Authority increase and/or upgrade security requirements, the CM/GC will be compensated for the additional cost of such increase and/or upgrade in accordance with section 8.

27A. Protection of Security Information

1. The Contractor, subcontractors and others requiring access to Confidential and Privileged (C&P) security information and Sensitive Security Information (SSI) shall also be required to implement uniform security procedures regarding the identification, handling, care and storage of C&P security information belonging to the Authority; and SSI as defined in 49 CFR Parts 15 and 1520. Port Authority C&P security information is information that, if subject to unauthorized disclosure, access, alteration, loss or misuse would be detrimental to the public interest and/or might adversely affect, or compromise, public safety or security as it relates to Port Authority property, facilities, systems and/or operations, or which might otherwise adversely affect homeland security.

The Authority has developed requirements and other safeguards that are necessary both to prevent unauthorized disclosure of C&P security information and to control the authorized disclosure of this information for use internally within the Authority and when released by the Authority to outside entities for legitimate business purposes. These requirements and safeguards may be found in the Handbook for Protecting Security Information (November 1, 2004) and the Project's Security Information Practices and procedures manual, both of which will be made available to the Contractor and each subcontractor. Each Contractor, subcontractor and their staffs shall follow and implement the requirements and safeguards set forth in the aforementioned Handbook. Further, the staffs of the Contractor, subcontractors and others requiring access to C&P security information and SSI may also be required to sign a Non-Disclosure/ Confidentiality Agreement (NDA), or an Acknowledgement

thereof where an executed NDA is in place, prior to performing work activities in connection with this Contract.

2. The Contractor, each subcontractor and others requiring access to C&P security information and SSI, shall appoint a senior management level employee to be the company's Security Information Manager (SIM). The SIM is responsible for implementing and maintaining the firm's Program For Protecting C&P security information and/or SSI. A deputy SIM (DSIM) shall also be appointed in case the SIM is unavailable for any reason.
3. The SIM shall prepare an Authorized Personnel Contract Project List - a list of employees who are authorized to access C&P security information and the date each executed the NDA. A copy of this list shall be provided to the Authority and updated monthly. This list will be used to verify that individuals have been briefed into the program and are certified for access to C&P security information.

Protection of C&P security information and SSI is a material obligation of the Contractor hereunder and failure to do so is grounds for termination for cause.

In addition, an individual's access to C&P security information and SSI may be contingent upon the satisfactory completion of a security background check for such individual and proof of the implementation of satisfactory procedures for safeguarding such C&P security information and/or SSI.

Unauthorized disclosure of SSI may be grounds for a civil penalty and/or other enforcement or corrective action by the United States Department of Transportation and/or the United States Department of Homeland Security against individuals or entities they deem appropriate including but not limited to the Contractor, its subcontractors and their staffs. Corrective action may include issuance of an order requiring retrieval of SSI to remedy unauthorized disclosure or an order to cease future unauthorized disclosure.

4. The Contractor shall include and require the inclusion of this numbered provision in all subcontracts and contracts for Work, services or supplying materials required for this Contract of every tier.
28. With regard to work performed on Authority premises, the CM/GC will indemnify and hold harmless the Port Authority against claims, loss and damage, for bodily injury, death or damage to personal property arising out of the CM/GC's negligence.
29. **CERTIFICATION OF NO INVESTIGATION (CRIMINAL OR CIVIL ANTI-TRUST),
INDICTMENT, CONVICTION, DEBARMENT, SUSPENSION,
DISQUALIFICATION AND DISCLOSURE OF OTHER INFORMATION**

By signing this Agreement, the CM/GC and each person signing on behalf of the CM/GC certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that the CM/GC and each parent and/or affiliate of the CM/GC has not:

- A. been indicted or convicted in any jurisdiction;
- B. been suspended, debarred, found not responsible or otherwise disqualified from entering into any agreement with any governmental agency or been denied a government agreement for failure to meet standards related to the integrity of the CM/GC;
- C. had an agreement terminated by any governmental agency for breach of agreement or for any cause based in whole or in part on an indictment or conviction;
- D. ever used a name, trade name or abbreviated name, or an Employer Identification Number different from those inserted in the Proposal;
- E. had any business or professional license suspended or revoked or, within the five years prior to proposal opening, had any sanction imposed in excess of \$50,000 as a result of any judicial or administrative proceeding with respect to any license held or with respect to any violation of a federal, state or local environmental law, rule or regulation;
- F. had any sanction imposed as a result of a judicial or administrative proceeding related to fraud, extortion, bribery, proposal rigging, embezzlement, misrepresentation or anti-trust regardless of the dollar amount of the sanctions or the date of their imposition; and
- G. been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or a civil anti-trust investigation by any federal, state or local prosecuting or investigative agency.

30. NON-COLLUSIVE PROPOSING, AND CODE OF ETHICS CERTIFICATION, CERTIFICATION OF NO SOLICITATION BASED ON COMMISSION, PERCENTAGE, BROKERAGE, CONTINGENT OR OTHER FEES

By proposing on this Agreement, each CM/GC and each person signing on behalf of any CM/GC certifies, and in the case of a joint proposal, each party thereto certifies as to its own organization, that:

- A. the prices in its proposal have been arrived at independently without collusion, consultation, communication or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other consultant or with any competitor;

- B. the prices quoted in its proposal have not been and will not be knowingly disclosed directly or indirectly by the CM/GC prior to the official opening of such proposal to any other consultant or to any competitor;
- C. no attempt has been made and none will be made by the CM/GC to induce any other person, partnership or corporation to submit or not to submit a proposal for the purpose of restricting competition;
- D. this organization has not made any offers or agreements or taken any other action with respect to any Authority employee or former employee or immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics dated April 11, 1996 (a copy of which is available upon request to the individual named in the clause hereof entitled "CM/GC's Questions"), nor does this organization have any knowledge of any act on the part of an Authority employee or former Authority employee relating either directly or indirectly to this organization which constitutes a breach of the ethical standards set forth in said Code; and
- E. no person or selling agency other than a bona fide employee or bona fide established commercial or selling agency maintained by the CM/GC for the purpose of securing business, has been employed or retained by the CM/GC to solicit or secure this Agreement on the understanding that a commission, percentage, brokerage, contingent, or other fee would be paid to such person or selling agency.

The foregoing certifications shall be deemed to be made by the CM/GC as follows:

- * if the CM/GC is a corporation, such certification shall be deemed to have been made not only with respect to the CM/GC itself, but also with respect to each parent, affiliate, director, and officer of the CM/GC, as well as, to the best of the certifier's knowledge and belief, each stockholder of the CM/GC with an ownership interest in excess of 10%;
- * if the CM/GC is a partnership, such certification shall be deemed to have been made not only with respect to the CM/GC itself, but also with respect to each partner.

Moreover, the foregoing certifications, if made by a corporate CM/GC, shall be deemed to have been authorized by the Board of Directors of the CM/GC, and such authorization shall be deemed to include the signing and submission of the proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the CM/GC cannot make the foregoing certifications, the CM/GC shall so state and shall furnish with the signed proposal a signed statement that sets forth in detail the reasons therefor. If the CM/GC is uncertain as to whether it can make the foregoing certifications, it shall so indicate in a signed statement furnished with its proposal, setting forth in such statement the reasons for its uncertainty.

Notwithstanding that the CM/GC may be able to make the foregoing certifications at the time the proposal is submitted, the CM/GC shall immediately notify the Authority in writing during the term of this Agreement of any change of circumstances which might under this clause make it unable to make the foregoing certifications or require disclosure. The foregoing certifications or signed statement shall be deemed to have been made by the CM/GC with full knowledge that they would become a part of the records of the Authority and that the Authority will rely on their truth and accuracy in awarding this Agreement. In the event that the Authority should determine at any time prior or subsequent to the award of this Agreement that the CM/GC has falsely certified as to any material item in the foregoing certifications or has willfully or fraudulently furnished a signed statement which is false in any material respect, or has not fully and accurately represented any circumstance with respect to any item in the foregoing certifications required to be disclosed, the Authority may determine that the CM/GC is not a responsible CM/GC with respect to its proposal on the Agreement or with respect to future proposals on Authority agreements and may exercise such other remedies as are provided to it by the Agreement with respect to these matters. In addition, CM/GCs are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see, e.g. New York Penal Law, Section 175.30 et seq.). CM/GCs are also advised that the inability to make such certification will not in and of itself disqualify a CM/GC, and that in each instance the Authority will evaluate the reasons therefor provided by the CM/GC.

31. CM/GC ELIGIBILITY FOR AWARD OF AGREEMENTS – DETERMINATION BY AN AGENCY OF THE STATE OF NEW YORK OR NEW JERSEY CONCERNING ELIGIBILITY TO RECEIVE PUBLIC AGREEMENTS

CM/GC is advised that the Authority has adopted a policy to the effect that in awarding its agreements it will honor any determination by an agency of the State of New York or New Jersey that a consultant is not eligible to propose on or be awarded public agreements because the consultant has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing rate of wage legislation.

The policy permits a consultant whose ineligibility has been so determined by an agency of the State of New York or New Jersey to submit a proposal on an Authority agreement and then to establish that it is eligible to be awarded an agreement on which it has submitted a proposal because (i) the state agency determination relied upon does not apply to the consultant, or (ii) the state agency determination relied upon was made without affording the consultant the notice and hearing to which the consultant was entitled by the requirements of due process of law, or (iii) the state agency determination was clearly erroneous or (iv) the state agency determination relied upon was not based on a finding of conduct demonstrating a lack of integrity or violation of a prevailing rate of wage law.

The full text of the resolution adopting the policy may be found in the Minutes of the Authority's Board of Commissioners meeting of September 9, 1993.

32. NO GIFTS, GRATUITIES, OFFERS OF EMPLOYMENT, ETC.

During the term of this Agreement, the CM/GC shall not offer, give or agree to give anything of value either to a Authority employee, agent, job shopper, consultant or other person or firm representing the Authority, or to a member of the immediate family (i.e., a spouse, child, parent, brother or sister) of any of the foregoing, in connection with the performance by such employee, agent, job shopper, consultant or other person or firm representing the Authority of duties involving transactions with the CM/GC on behalf of the Authority, whether or not such duties are related to this Agreement or any other Port Authority agreement or matter. Any such conduct shall be deemed a material breach of this Agreement.

As used herein "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by the Agreement or any other Authority agreement), etc. which might tend to obligate the Authority employee to the CM/GC, and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include compensation contemplated by this Agreement or any other Authority agreement. Where used herein, the term "Authority" shall be deemed to include all subsidiaries of the Port Authority of New York & New Jersey.

The CM/GC shall insure that no gratuities of any kind or nature whatsoever shall be solicited or accepted by it and by its personnel for any reason whatsoever from the passengers, tenants, customers or other persons using the Facility and shall so instruct its personnel.

In addition, during the term of this agreement, the CM/GC shall not make an offer of employment or use confidential information in a manner proscribed by the Code of Ethics and Financial Disclosure dated April 11, 1996 (a copy of which is available upon request to the Office of the Secretary of the Port Authority).

The CM/GC shall include the provisions of this clause in each subagreement entered into under this Agreement.

33. Conflict of Interest - During the term of this agreement, the CM/GC shall not participate in any way in the preparation, negotiation or award of any contract (other than a contract for its own services to the Authority) to which it is contemplated the Port Authority may become a party, or participate in any way in the review or resolution of a claim in connection with such a agreement if the CM/GC has a substantial financial interest in the consultant or potential contractor of the Authority or if the CM/GC has an arrangement for future employment or for any other business relationship with said contractor or potential contractor, nor shall the CM/GC at any time take any other action which might be viewed as or give the appearance of conflict of interest on its part. If the possibility of such an arrangement for future employment or for another business arrangement has been or is the subject of a previous or current discussion, or if the CM/GC has reason to believe such an arrangement may be the subject of future discussion, or if the CM/GC has any financial interest, substantial or not, in a consultant or potential consultant of the Authority, and the CM/GC's participation in the preparation, negotiation or award of any agreement with such a consultant or the review or resolution of a claim in connection with such a agreement is contemplated or if the CM/GC has reason to believe that any other situation exists which might be viewed as or give the appearance of a conflict of interest, the CM/GC shall immediately inform the Director in writing of such

situation giving the full details thereof. Unless the CM/GC receives the specific written approval of the Director, the CM/GC shall not take the contemplated action which might be viewed as or give the appearance of a conflict of interest. In the event the Director shall determine that the performance by the CM/GC of a portion of its services under this Agreement is precluded by the provisions of this numbered paragraph, or a portion of the CM/GC's said services is determined by the Director to be no longer appropriate because of such preclusion, then the Director shall have full authority on behalf of both parties to order that such portion of the CM/GC's services not be performed by the CM/GC, reserving the right, however, to have the services performed by others and any lump sum compensation payable hereunder which is applicable to the deleted work shall be equitably adjusted by the parties. The CM/GC's execution of this document shall constitute a representation by the CM/GC that at the time of such execution the CM/GC knows of no circumstances, present or anticipated, which come within the provisions of this paragraph or which might otherwise be viewed as or give the appearance of a conflict of interest on the CM/GC's part. The CM/GC acknowledges that the Authority may preclude it from involvement in certain disposition/privatization initiatives or transactions that result from the findings of its evaluations hereunder or from participation in any agreements which result, directly or indirectly, from the services provided by the CM/GC hereunder.

In the opinion of the Authority, any entity performing construction management (CM) or general contracting (GC) services for the Authority or other WTC stakeholders/owners, such as LMDC, NYSDOT, WTC Net Lessee, responsible for building portions of the WTC site has a potential conflict of interest with the performance as CM/GC under this Agreement during its pendency. However, if the CM/GC desires to enter into such a third party relationship and believes that it can provide a mitigation plan that would address the Authority's perceived conflict of interest, it shall, before entering into such relationship, give written notice of its interest to the Authority and submit such plan for evaluation to the Authority. The Authority will evaluate the submitted mitigation plan and notify the CM/GC of its decision. In the event the Authority determines that a conflict of interest exists which in its sole opinion would make such third party relationship inappropriate, the CM/GC hereby agrees not to enter into such relationship. This provision is of the essence of this Agreement.

34. DEFINITIONS

As used in sections 28 to 32 above, the following terms shall mean:

Affiliate - Two or more firms are affiliates if a parent owns more than fifty percent of the voting stock of each of the firms, or a common shareholder or group of shareholders owns more than fifty percent of the voting stock of each of the firms, or if the firms have a common proprietor or general partner.

Agency or Governmental Agency - Any federal, state, city or other local agency, including departments, offices, public authorities and corporations, boards of education and higher education, public development corporations, local development corporations and others.

Investigation - Any inquiries made by any federal, state or local criminal prosecuting agency and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term

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Officer - Any individual who serves as chief executive officer, chief financial officer, or chief operating officer of the consultant by whatever titles known.

Parent - An individual, partnership, joint venture or corporation that owns more than 50% of the voting stock of the consultant.

35. The entire agreement between the parties is contained herein and no change in or modification, termination or discharge of this Agreement in any form whatsoever shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith, or his duly authorized representative, provided, however, that termination in the manner hereinbefore expressly provided shall be effective as so provided.

36. No Commissioner, officer, agent or employee of the Authority shall be charged personally by you with any liability or held liable to you under any term or provision of this Agreement, or because of its execution or attempted execution or because of any breach hereof.

37. This Agreement shall be governed by and construed in accordance with the Laws of the State of New York.

38. If the foregoing meets with your approval, please indicate your acceptance by signing the original and the additional enclosed copy in the lower left-hand corner and returning them to the Authority.

Very truly yours,

THE PORT AUTHORITY OF
NEW YORK AND NEW JERSEY

By: _____

Date: _____

ACCEPTED:

Phoenix Constructors, J.V.

By: 

Title: SVP, Flour Enterprises, Inc.,
Joint Venture Partner

Date: 1/12/2006

Investigation - Any inquiries made by any federal, state or local criminal prosecuting agency and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal, state, and local inquiries into tax returns.

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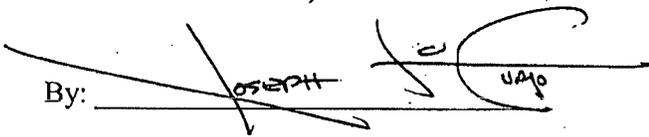
THE PORT AUTHORITY OF
NEW YORK AND NEW JERSEY

By: _____

Date: _____

ACCEPTED:

Phoenix Constructors, J.V.

By:  _____

Title: President, Slattery Skanska Inc., Joint
Venture Partner

Date: January 12, 2006

Investigation - Any inquiries made by any federal, state or local criminal prosecuting agency and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal, state, and local inquiries into tax returns.

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Very truly yours,

THE PORT AUTHORITY OF
NEW YORK AND NEW JERSEY

By: _____

Date: _____

ACCEPTED:

Company Granite Construction Northeast, Inc.

By: 

Title: R.C. Allbritton, Vice President

Date: January 11, 2006

Investigation - Any inquiries made by any federal, state or local criminal prosecuting agency and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal, state, and local inquiries into tax returns.

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Very truly yours,

THE PORT AUTHORITY OF
NEW YORK AND NEW JERSEY

By: _____

ACCEPTED:

Bovis Lend Lease LMB, Inc.

By: James Abadie
James Abadie

Title: Senior Vice President
Principal in Charge

Date: 1/12/06

EXHIBIT A

PERFORMANCE OF CONSTRUCTION MANAGEMENT SERVICES

I. BACKGROUND

The Port Authority of New York & New Jersey (the "Authority") is a corporate body created by Compact between the States of New Jersey and New York with the consent of the Congress of the United States of America. The mission of the Port Authority is to serve the people of the New York - New Jersey region by developing, operating and maintaining transportation and trade facilities and systems.

The Authority is a financially self-supporting public agency. It receives no tax revenues from any state or local jurisdiction and has no power to tax and relies almost entirely on revenues generated from its facilities, including tolls, fees, charges and rents.

The Authority's core businesses are transportation and trade. Its current operations include interstate tunnels, interstate bridges, bus terminals, the Port Authority Trans-Hudson (PATH) rail transit system, a regional airport system, marine terminals, industrial parks and the World Trade Center Site and Transportation Hub. Please visit our web site at <http://www.panynj.gov> for more information about the Port Authority's business areas, facilities and programs.

As a result of the September 11, 2001 attacks upon the World Trade Center, the Authority has focused its resources on the design and reconstruction of the World Trade Center Transportation Hub (WTC/Hub). In 2002, the Design Development Partnership was selected for the preliminary and final design of the WTC/Hub. Then, the Authority decided to utilize Construction Manager/General Contractor (CM/GC) approach for the construction of the WTC Hub.

CM/GC contracts for the construction of the WTC Hub are subject to federal funding through the Federal Transit Administration (FTA), and therefore must comply with their requirements. The solicitation for these services, as well as all services performed by the CM/GC hereunder shall comply with FTA requirements unless otherwise directed by the Director in writing.

II. SCOPE OF WORK

The services of the CM/GC shall generally consist of assisting the Authority in the advancement of the WTC/Hub final design drawings and Construction Documents. The CM/GC will be requested to perform a detailed review of the current design drawings for constructability, value engineering and cost savings opportunities, and to provide detailed cost estimates that reflect current market conditions and pricing. The CM/GC shall assist the Authority in developing bid packages to allow fast tracking of the construction in the most cost effective manner while assisting coordination with other work.

The CM/GC's role shall include the review of the preliminary engineering already completed and all drawings and specifications under preparation, and providing feedback to the Authority as directed and as required to ensure that the final design and Construction Documents provide for a WTC/Hub that can be constructed on schedule and budget with the highest possible level of quality.

III. DESCRIPTION OF THE CM/GC's CONSTRUCTION MANAGEMENT TASKS

Task 1 Quality Control/Quality Assurance Program

Submit your specific Quality Control/Quality Assurance Program for the construction management services to be performed in connection with the performance of your post award duties specified hereunder.

Task 2 General Coordination

- a. Participate with the Authority in the development of the construction program.
- b. Attend regular meetings with the Authority and others during the development of the design to provide input on items such as site usage, site improvements, selection of materials, building systems and equipment, and methods of delivery of materials, systems, and equipment.
- c. Provide recommendations and information to the Authority on: construction feasibility; availability of materials and labor; time requirements for installation and construction; assignment of responsibilities for safety precautions and programs; temporary facilities; equipment, materials and services for common use of the CM/GC and subcontractors, if any; cost factors, including costs of alternative materials or designs, preliminary budgets, and possible cost savings; methods of verification for determining that the requirements and assignment of responsibilities are included in the appropriate contract documents; and any other matters necessary to accomplish the Project in accordance with the schedule and Project construction budget.
- d. At the Authority's request, attend meetings and hearings concerning the development and schedule of the Project.
- e. Develop and update a "Constructability Review" report and a "Value Engineering Review" report, which will result from frequent communication with the Authority. Outline items that, in the CM/GC's opinion, may cause problems in the way the Project is to be constructed. Review the overall coordination of specifications, drawings, and details, and identify any issues or discrepancies that, if left unattended, may result in higher construction costs and in change orders or claims once Project construction commences.
- f. Develop and update a decision tracking system in a format acceptable to the Authority.

Task 3 Scheduling - Prepare Construction Schedules

- a. Develop a Critical Path Method Project Schedule for the Authority's review and approval that coordinates and integrates the CM/GC's services with the Authority's schedule as set forth in Attachment D. The CM/GC shall comply with the requirements specified in Attachment E.

- b. Update the schedule as is reasonably required, but at least monthly. As set forth in Attachment E, the schedule should include, but not be limited to, the following:
 - i) commencement, milestone and completion dates for design, proposing phase, and construction phase
 - ii) times of commencement and completion for each Subcontractor
 - iii) required activity sequences and durations
 - iv) subcontract and CM/GC self-performed contract document packages, completion dates, permit acquisition time requirements, Contract Document bid dates
 - v) submittal schedule including shop drawings, catalogue cuts and samples as set forth in Attachment E.
 - vi) recommended schedule for the purchase of materials and equipment requiring long lead time procurement, delivery dates of products requiring long lead time procurement, and methods to expedite and coordinate delivery of long lead-time procurements including coordination of the schedule with the early preparation of relevant portions of the contract documents by the Authority.
- c. Provide the necessary Critical Path Method Project Schedule control with a goal to attain the scheduled dates for Beneficial Occupancy and Completion of All Construction.
- d. Create and maintain the schedule using scheduling software program, Primavera Project Planner (P3), Version 3.1.

Task 4 Conduct of Work Plan

Prepare and submit a written COW Plan. Address construction phasing; staging and field office needs; parking requirements during construction; construction equipment storage; use of public roadways and PATH property; coordination of work with PATH and NYCT Operations; utility disruptions; protection of PATH and adjacent properties; diesel emissions, fugitive dust and noise mitigation; hazardous material remediation; storm water drainage management; temporary facilities; traffic management; vibration control; working hours including number of shifts and weekends; emergency provision; site access and logistics; public and worker safety; security; coordination with stakeholders and external agencies; and maintenance of construction work zones.

Task 5 Cost Estimating, Budget, and Cost Consultation

- a. Prepare Construction Cost Estimates during the design development phase as directed by the Authority.

- b. Provide monthly updates of ongoing cost and budget impact, and provide continuous cost and value engineering consultation services. Prepare and be responsible for all procurement and construction cost estimates. Advise the Authority immediately if at any time the CM/GC has knowledge or belief that the previously established budget or schedule will not be met, and make recommendations to the Authority for corrective action.
- c. At the completion of the Construction Documents for subcontract and CM/GC self-performed Contract packages, update and refine a comparison of actual and projected costs to the project construction estimate, and in the event such actual and projected costs exceed the original project construction budget, develop and implement reasonable strategies to be approved by the Authority to reduce the costs projected to be incurred during all phases of the Project.

Task 6 Coordinate Design and Construction Contract Documents

- a. Review all plans, specifications, and other design documents for subcontract and CM/GC self-performed Contract Document packages during the design phase, and advise the Authority on site use, foundations, systems, materials, equipment, construction feasibility, availability of labor and materials, procurement time requirements, installation and construction, relative costs, and provide recommendations to the Authority.
- b. Coordinate the incorporation of the Authority's standard contract requirements into the Contract Documents for subcontract and CM/GC self-performed work, as appropriate and as directed by the Authority.
- c. Coordinate with the Authority to ensure that the Construction Subcontract Documents comply with all applicable federal, state, and Authority procurement requirements.
- d. Consult with the Authority to determine what materials, equipment, component systems, and construction types should be specified in the subcontractor and CM/GC self-performed Construction Contract documents; suggest reasonable adjustments in the scope of the Project; and suggest alternate specifications in the Construction Contract Documents as appropriate.

Task 7 Contract Packaging Plan

- a. Develop a strategy to break the Project work into packages in order to meet schedule and cost targets, and to enhance subcontractor interest. Recommend bid packages.
- b. Identify and recommend to the Authority the need for purchase of items requiring extended delivery times ("long lead items"), and expedite the procurement of such items to ensure their delivery by the required dates.

- c. Provide an analysis of the types and quantities of labor required for the Project and review the appropriate categories of labor required for critical phases or stages. Make recommendations for actions, which will minimize adverse effects of labor shortages.

Task 8 Procurement Processes

- a. Recommend to the Authority processes regarding procurement. The processes shall comply with the terms of this RFP including, but not limited to, the attached forms of agreement and Federal Transit Administration (FTA) Third Party Contracting requirements, Appendix E to Attachment D. Develop a strategy regarding the qualification of CM/GC and subcontractors. All subcontractor selections are to be made by bid unless otherwise directed by the Authority. All selections are to be discussed with the Authority prior to award. All selections are to be based on criteria established before the issue of the Invitation for Bids (IFB).
- b. Coordinate and develop, with the Authority, bid packages and work scope descriptions for each separate bid category that represent the entirety of the scope of the work for each phase and stage of the Project.
- c. Refine, implement and monitor a MBE/WBE subcontracting plan.
- d. Review the subcontractor and CM/GC self-performed contract documents to ensure that they contain adequate provision for all temporary facilities necessary to enable the performance of the work, and provisions for all of the job site facilities necessary to manage, inspect, and supervise construction of their work.

Task 9 Safety and Quality Processes

- a. Initiate, maintain, and supervise a Safety Program in connection with the Work as depicted in Appendix F of Attachment D.
- b. Prepare and submit for the Authority's approval a site-specific safety plan. Provide recommendations and information to the Authority with respect to the assignment of responsibilities for safety precautions and programs, temporary facilities, and equipment, materials, and services for common use by the subcontractors. Verify that such assignments with respect to the subcontractors are included in the Construction Subcontract Documents.
- c. Initiate, maintain, and supervise a Quality Program in connection with the Work. Prepare and submit for the Authority's approval a project specific quality plan assuring the Authority that the construction will be performed in accordance with the requirements of the Authority's WTC Downtown PATH Restoration Program's Project Quality Assurance Plan as depicted in Appendix G of Attachment D. The Proposer shall prepare Quality Control Programs and Plans to establish a documented Quality Management System for submission, review and approval by the Authority. The Proposer is responsible for ensuring that each

subcontractor, supplier and vendor prepares a Quality Control Program with applicable Plans, and establishes a documented Quality Management System for submission, review and approval by the Proposer. These programs and plans shall be certified in writing by the Proposer and be incorporated in the Proposer's Quality Control Program. Provide recommendations and information to the Authority with respect to the assignment of responsibilities for the quality programs, for the CM/GC and all equipment, materials, and services for common use of the subcontractors. Verify that such assignments with respect to the subcontractors are included in the subcontract documents.

The CM/GC and its respective subcontractors, suppliers and vendors will conform to the applicable requirements outlined in the FTA Quality Assurance and Quality Control Guidelines FTA-IT-90-5001-02.1 and the ISO 9000: 2000 series' guidelines, principles and requirements.

IV. CONSTRUCTION MANAGER/GENERAL CONTRACTOR PROJECT TEAM

Each Proposer will be requested to identify specific individuals it will provide to perform the following roles, each meeting or exceeding the outlined position requirements. Each of the key personnel identified in this Section shall provide the management for the Project. Some of the key personnel shall be required to reside in the New York / New Jersey metropolitan area during the course of the Project, and each of the key personnel will be required to be present in the New York City area during critical Project periods. Some individuals proposed may fulfill multiple positions on the Project, as indicated in the individual key personnel descriptions set forth.

In the qualifications specified below, the word "shall" indicates a required minimum qualification. The word "should" indicates the Authority's preferred qualifications, but such qualification is not a mandatory requirement. It is the responsibility of the Proposer to propose a team that it believes will meet the stated objectives of the Authority.

- 1.) **Principal-in-Charge:** Shall be a Professional Engineer licensed in the State of New York and have a minimum of 20 years of relevant experience. The Principal-in-Charge shall have broad experience in the oversight and management of major construction projects. The Principal-in-Charge shall have acted previously in a position of a principal-in-charge for large construction projects. That experience shall contain projects where rail transit and/ or urban transportation facilities were a major component of the constructed work. The Principal-in-Charge shall have had previous interaction with, and negotiations and resolution of critical project issues with Federal, State and Local agencies. The Principal-in-Charge shall have the ability to bind the Proposer.
- 2.) **Project Manager:** Shall be a Professional Engineer licensed in the State of New York and have a minimum of 15 years experience in construction and management of construction on major projects with an emphasis on rail transit and / or urban transportation facility projects that included Work of a similar scope, nature, and complexity as the Project. The Project Manager shall have experience in the delivery of projects making use of the CM/GC contracting method where it was used in a manner similar to this Project. The Project

Manager shall have broad experience interacting with local governmental entities, as well as be able to demonstrate superior communication skills with the public and governmental entities.

- 3.) **Project Value Engineer:** Should have a minimum of 15 years of broad experience in Project Management of major construction. The Project Value Engineer shall have had experience related to the management of rail transit and/ or urban transportation facility projects. The Project Value Engineer's experience shall include work with methods or programs that successfully increased the value of those projects to the owner.
- 4.) **Construction Manager:** Shall be a Professional Engineer licensed in the State of New York and have a minimum of 15 years experience in construction and management of construction projects that required the coordination of complex components on major construction projects where the construction schedule is critical and the budget is constrained and limited. The Construction Manager shall have relevant experience on rail transit and /or urban transportation facility projects that included work of a similar scope, nature, and complexity as the Project. The Construction Manager should demonstrate previous experience with projects similar in size and complexity to this Project. The Construction Manager shall have experience in the delivery of projects making use of the CM/GC contracting method where it was used in a manner similar to this Project.
- 5.) **Minority and Women Business Enterprise Liaison:** Should have a minimum of five years experience in managing MBE/WBE, Equal Employment Opportunity (EEO), and Affirmative Action (AA) programs. The MBE/WBE Liaison may fulfill multiple roles on the Project.
- 6.) **Safety Manager:** The Safety Manager shall have a minimum of 10 years experience working on safety programs for rail transit and / or urban transportation facility construction projects. The Safety Manager shall have past experience working with Federal Railroad Administration (FRA) and FTA safety regulations and with OSHA regulations and shall be certified in accordance with the Building Code of the City of New York as a Site Safety Manager.
- 7.) **Quality Assurance/Quality Control (QA/QC) Manager:** Shall have a minimum of five years experience in rail transit and / or urban transportation facility construction and shall have at least 10 years experience in QA/QC activities, including preparation and implementation of Quality Plans and procedures for design and/or construction as required in the provisions of the clause entitled "Contractor's Quality Program Requirements" in Attachment E.
- 8.) **Project Control Manager:** Shall have a minimum of 10 years experience with at least five years of recent experience in budget management of rail transit and / or urban transportation facility projects, including experience with FTA regulations regarding finance and procurement, as well as Generally Accepted Accounting Practices. The Project Control Manager shall have demonstrated a minimum of

ten years experience in scheduling, including detailed knowledge of Critical Path Method (CPM) scheduling.

The CM/GC shall not remove or replace the Principal-In-Charge or any other key personnel without the written consent of the Authority and the Authority will not consent until the CM/GC's has proffered a candidate with similar and equal credentials acceptable to the Authority.

V. INFORMATION AND MATERIALS PROVIDED BY THE AUTHORITY

Available Documents prepared for other purposes are furnished to the Proposers to give such information as may be in the possession of the Authority. Available Documents do not form a part of this Agreement. The Authority makes no representation or guarantee as to, and shall not be responsible for their accuracy, completeness or pertinence, and, in addition, shall not be responsible for the conclusions to be drawn there from. They are made available to the Proposers for the purpose of providing such information as is in the possession of the Authority, whether or not such information may be accurate, complete or pertinent, or of any value. The documents are subject to change during the Final Design of the Project; and shall not be utilized to represent any determinations, findings, or conclusions of the Authority. Available documents are listed in Attachment C to the RFP and appended herein.

An indication on the Available Documents of the existence, nature or location of any utilities, structures, obstructions, conditions or materials does not constitute a representation as to the conclusions to be drawn there from, nor a representation that no others exist in addition to those shown, even in the same location; nor does the absence of any indication on said drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials constitute a representation that none exist.

VI. CONDITIONS AND PRECAUTIONS

A. General

The CM/GC shall immediately inform the Project Manager of any unsafe condition discovered at any time during the course of this work.

Pedestrians including PATH and NYCT patrons, vehicular traffic and PATH operations at the World Trade Center site shall always have priority over any and all of the CM/GC's operations, except as directed by the Engineer.

B. Work Areas

The CM/GC shall limit his work to the areas necessary for the performance of work related to the Tasks herein and shall not interfere with the operation of the facility without first obtaining specific approval from the Director.

During all periods of time when he is not performing operations at the work site, the CM/GC shall store all equipment being used for performance of work related to the Tasks herein in areas designated by the Project Manager and shall provide all security required for such equipment.

The CM/GC shall not permit any objects or pieces of equipment to lie unattended on sidewalks, roadways or structures at any time.

C. Work Hours

The CM/GC shall perform his work at the site between the hours of 8:00 A.M. and 4:00 P.M., Monday through Friday, unless otherwise directed by the Director.

In any case, no work shall be performed at the site on a legal holiday of either the State of New York or the State of New Jersey, unless otherwise directed by the Director.

EXHIBIT B
CONSTRUCTION MANAGER COMPENSATION

Compensation Proposal

1. The multiplier for direct billable labor referred to in the first line of subparagraph 8.A of the CM Services Agreement is **1.96** based on CM/GC furnished offices. This multiplier was developed based on the overhead rates, general & administrative (G&A) rates and fee (profit) markup shown in Attachment 1.
2. Attachment 2 provides the salary schedules, including job classifications, for architectural, engineering and other technical personnel and billing rates of partners or principals referred to in said subparagraph 8.A. Subject to the adjustment provisions set forth in the Standard Agreement, these amounts will be applicable for all Tasks.
3. The following Attachments provide an estimated cost schedule for the performance of all Tasks, by Task. The Authority agreed to a total amount for Tasks 1-9 listed in Section III of Attachment A to the Standard Agreement at the inception of the Agreement and on total amounts for succeeding Tasks ordered by the Authority as they are ordered, to be principally based upon the estimated cost schedule submitted as part of the Cost Proposal. Included are the following attachments:
 - a. Attachment 3.a is a CM Services estimate summary containing totals for bare labor costs, paid absences, statutory taxes and insurance, other overhead, other direct costs (out-of-pocket expenses), sub-consultant costs, G&A, and fee.
 - b. Attachment 3.b contains a breakdown by task of all assigned personnel, work hours, out-of-pocket expenses, G&A and fee.

The CM Services estimate reflects a start date of January 23, 2006 and completion of CM services within 12 months (January 20, 2007).

4. Attachment 4 provides an itemized estimate of out-of-pocket expenses for all Tasks, by Task.
5. Attachment 5 provides the compensation of intended sub consultant(s) and the estimated number of hours of sub consultant services for all Tasks, by Task. The form of subcontract will be developed in consideration of any Port Authority comments and reviewed with the Port prior to its use.

6. The limit on compensation (not-to-exceed price) for the performance of Tasks 1 through Task 9 shown in Exhibit C is eleven million ninety-nine thousand one hundred and forty-five dollars (\$11,099,145).

7. See Attachment 3.b for the fee (profit) by Task.

ATTACHMENT - 1 TO EXHIBIT B
Multiplier With Breakdown

Billable Labor Cost Components	Multiplier Breakdown	Cost Breakdown
Bare labor	1.00	3,619,463
Paid Absences	0.14	498,539
Statutory Taxes & Overhead	0.17	613,360
Other Overhead	0.41	1,463,430
General & Administrative (G&A)	0.09	500,955
Fee (Profit)	0.15	579,096
Total	1.96	7,274,843

ATTACHMENT - 2 TO EXHIBIT B
Salary Schedule and Job Classifications

**BASE Wage Rate By Pay Group
(no Cost Center)
Permanent Employees**

Print Date: 7/1/2005
Relevant Date: 3/7/2005

Exemption (2.b.)

Rates are subject to annual adjustment.

CM Pre-Construction Services

Direct Hourly Rate Schedule for Construction Services Skanska

(Rates are bare rates without Employee Fringes (e.g. Payroll Taxes, Pension, Medical, & etc...) & TOWP (Vacation, Holiday, & Sick Time).)

	Employee Title / Description	Direct Hourly Rate
PROJECT TEAM :		
PROFESSIONAL/CONSTRUCTION SERVICES TEAM:		
1	Principle / Executive Committee Member - Skanska	\$145.00
2	Project Manager	\$87.50
3	QA Manager	\$65.00
4	QA Engineer	\$45.67
5	Safety Manager	\$65.00
6	Safety Engineer	\$45.67
7	Deputy Project Manager	\$70.00
8	Construction Manager - Building	\$65.00
9	Assistant Construction Manager - Building	\$61.00
10	Transit Hall / Site - General Super	\$74.00
11	Structural Manager	\$65.00
12	Facade Manager	\$65.00
13	MEP Manager	\$65.00
14	Architectural Manager	\$65.00
15	Construction Manager - Site & Logistics	\$65.00
16	Assistant Construction Manager - Site & Logistics	\$61.00
17	Utilities Manager	\$65.00
18	MPT Manager	\$65.00
19	Landscaping Manager	\$65.00
20	Construction Manager - CIV/Structural	\$65.00
21	Assistant Construction Manager - CIV/Structural	\$65.00
22	CIV/Structural - General Superintendent	\$74.00
23	Trans' Hall Sub Structure - Manager	\$65.00
24	Path Facilities/Ancillary Area - Manager	\$65.00
25	Early Options/Greenwich/Dey/Church Connectors Mgr.	\$65.00
26	East/West Connectors Manager	\$65.00
27	Project Controls & Administrative Manager	\$65.00
28	Cost & Schedule Manager	\$61.00
29	Cost Engineer	\$48.30
30	Schedule Engineer	\$54.81
31	Risk Manager/Insurance Liaison	\$51.64
32	2 - Cost Accountant	\$48.56
33	Site Administration Manager (See Admin Staff Below)	\$62.10
34	Document Control Engineer Building	\$48.56
35	Document Control Engineer Site / Civil	\$48.56
36	Document Control Engineer Assistant	\$40.87
37	Procurement Contracts Manager	\$65.00
38	CMI Procurement Mgr.	\$60.52
39	Building Procurement Mgr.	\$60.52
40	Diversity Manager MDEAWBE	\$27.88
41	Estimating Manager	\$80.00
42	Building Estimator #1	\$60.52

**Granite Halmar Construction Company
AUDITABLE RATES FOR WTC PROPOSAL**

Note: Rates are based on June-30-2005 actuals and subject to annual adjustment.

- 1- Highest paid individuals are used as a basis for these rates
- 2- Recruiting cost are allowable costs and not included in the rate. CFR 31.205-34. Will be billed when incurred.
- 3- Severance pay is allowable and will be billed when incurred. 31.205-6. Severance cost is not included in the rate
- 4- Fringe benefits are allowable: vacations, sick leave, holidays, military leave, employee insurance, supplemental unemployment benefits-31.205-6
- 5- Cost of company vehicle is not included in the rates but allowable. Restrictions apply.

**** See attached detail of allowable and unallowable costs as per FAR Part 31.

AUDITABLE RATES FOR WTC PROPOSAL		
Rates are bare rates without Employee Fringes (Payroll taxes, pension, medical, vacation, holiday and sick time)		
TITLE	BASE PAY (monthly rates)	Hourly Bare rate
PROJECT MANAGER MID	\$ 13,500.00	\$ 77.88
PROJECT MANAGER MAX	\$ 14,583.33	\$ 84.13
ESTIMATOR SENIOR MAX	\$ 11,975.00	\$ 69.09
ESTIMATOR MID	\$ 8,583.33	\$ 49.52
ESTIMATOR JUNIOR MIN	\$ 6,800.00	\$ 39.23
GRANITE OPERATIONS EXECUTIVE (RM)	\$ 14,333.33	\$ 82.69
GRANITE PROPOSAL EXECUTIVE (AM)	\$ 13,333.33	\$ 76.92
ASST PROJECT MANAGER	\$ 10,193.73	\$ 58.81
PROJECT SUPERINTENDENT	\$ 13,053.73	\$ 75.31
ASST SUPERINTENDENT	\$ 12,300.00	\$ 70.96
PROJECT ENGINEER	\$ 10,193.73	\$ 58.81
FIELD ENGINEER	\$ 5,520.67	\$ 31.95
COST ENGINEER	\$ 6,309.33	\$ 36.40
SCHEDULING ENGINEER	\$ 9,344.40	\$ 53.91
QUALITY ENGINEER	\$ 7,857.20	\$ 45.33
SAFETY MANAGER	\$ 9,666.67	\$ 55.77
SAFETY ENGINEER	\$ 7,000.00	\$ 40.38
OFFICE MANAGER	\$ 4,314.27	\$ 24.89
DOCUMENT CONTROL MANAGER	\$ 4,995.47	\$ 28.82
ACCOUNTS PAYABLE CLERK	\$ 3,550.00	\$ 20.40
ACCOUNTS PAYABLE MANAGER	\$ 5,059.95	\$ 29.19
PAYROLL MANAGER	\$ 4,725.07	\$ 27.26
PAYROLL CLERK	\$ 3,550.00	\$ 20.48
HUMAN RESOURCES MANAGER	\$ 7,430.00	\$ 42.87
RECEPTIONIST	\$ 3,833.33	\$ 22.12
CONTRACTS MANAGER	\$ 10,833.33	\$ 62.50
COST CONTROL MANAGER	\$ 8,750.00	\$ 50.48
RISK MANAGEMENT INSURANCE LIASON	\$ 6,083.33	\$ 35.10
MAIL ROOM CLERK	\$ 2,250.00	\$ 12.98
BUSINESS MANAGER	\$ 7,583.33	\$ 43.76

**SUMMARY OF ALLOWABLE AND UNALLOWABLE COST
AS PER FAR PART 31**

ALLOWABLE COSTS

Bonuses and incentive compensation-based on an established plan
Bonding costs
Pension plan costs
Severance pay within defined limits
Costs of ESOP
Contingencies only for anticipated rejects/rework
Cost of money
Depreciation based on accepted methods
Economic planning costs
Employee morale, healths, welfare, food service, and dormitory
[house publications, health clinics, wellness/fitness centers, employee counseling services]
Bid proposal costs- see 31.205-18
Insurance- except self insurance charges for risks of catastrophic losses are unallowable
Labor relations/ Shop stewards
Plant protections costs: wages , uniforms, equipment etc.
Precontract costs
Professional and consultant services excluding lobbying and improper information gathering
Recruiting cost: help wanted advertising, travel costs for applicants and recruiting personnel
Relocation costs
Rental costs
Royalties to use a patent
Selling costs: see details / includes allowable and unallowable components
Service and warranty costs
Special tooling and special test equipment costs
Taxes: federal, state and local taxes Fines and penalties are not considered taxes
Termination costs
membership and subscription to /in trade, business technical, professional organizations
cost of attendance to symposiums
training and education costs: college level is excluded, part time college level included.
(pre college level or post graduate level. see details.)
Travel costs ; transportation, lodging, meals and incidentals: maximum per diem rate apply.
Cost of legal proceedings; based on outcome.

UNALLOWABLE COSTS

Bad debts
Gifts-Donations
Cost of recreation unallowable except company sponsored sport teams and company organizations
to improve morale, loyalty, team work and physical fitness.
Entertainment costs
Fines and penalties except when incurred as a result of compliance with terms and conditions
of the contract
Idle facility costs -see details 31-205-17 (if excess capacity needed than allowable for 1 year.)
Goodwill: unidentifiable intangible asset : goodwill = delta between assets minus liabilities.
Interest on borrowings, cost of financing/refinancing unallowable
Lobbying and political activity costs
Losses on other contracts
Cost of alcoholic beverages in any case.
Selling costs: see details / includes allowable and unallowable components
Federal income and excess profit taxes, taxes in connection to financing, refinancing, reorganization
see details

WTC Transportation HUB Project

Port Authority of NY& NJ, Contract WTC-284.458 CMS

CM/GC Construction Services

Direct Hourly Rate Schedule for Construction Services

Bovis Lend Lease LMB

(Rates are bare rates without Employee Fringes. (e.g. Payroll Taxes, Pension, Medical, & etc..) & TOWP (Vacation, Holiday, & Sick Time). Rates are subject to annual adjustment.

	Employee Title / Description	Direct Hourly Rate
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PROJECT TEAM:

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PROFESSIONAL/CONSTRUCTION SERVICES TEAM:

1	Bovis Operations Executive	\$142.50
2	QC/QA Engineer	\$71.96
3	Deputy Project Director - Building	\$121.37
4	Project Liason	\$50.00
5	Area Superintendent Terminal Hall/Construction	\$71.91
6	Bovis Estimator I	\$68.39
7	Bovis Estimator II	\$84.38
8	Architectural Engineer	\$45.75
9	Curtain Wall Engineer	\$79.57
10	Document Control Engineer - Building	\$53.04
11	Purchasing Agent	\$89.70
12	I.T. Support	\$29.98

ATTACHMENT - 3a TO EXHIBIT B
 CM Services Estimate Summary

Project: Performance of Construction Mangement Services for the World Trade Center Transportation Hub Project			
Contract #: WTC-284.458CMS			
As Proposed January 11, 2006			
	Direct Labor - Bare Rate		\$ 3,619,463
***	TOWP (Paid Absences)	\$ 498,539	
***	OH - Stat Taxes & Insurances	\$ 613,360	
***	OH - Other	\$ 1,463,430	
	Direct Labot - TOWP & Indirect / OH		\$ 2,575,329
	Billabe ODC		\$ 3,824,302
	Sub Total		\$ 10,019,094
	Effective G & A		\$ 500,955
	5.00%		
	Total Billable Cost		\$ 10,520,049
	Sub-Total		\$ 10,520,049
	Fee		\$ 579,096
	5.50%		
	Total		\$ 11,099,145

*** Noted components make up the total OH / Indirect Rates

Project: Performance of Construction Management Services for the World Trade Center
 Transportation Hub Project
 Contract #: WTC-284.458CMS
 Construction Management Compensation per Task

Sub Task	Resource Description	Location	Total Hours	Bare Labor Cost	Paid Absences and Overhead	Total Travel and Per Diem Cost	ODC's			G & A Cost per Task	Fee per Task	Total Cost Per Task
							Sub Contractor Cost	Other Expenses				
1	Agency Liaison	On-Site	920.3	\$ 46,017	\$ 42,243							
1	QC Engineer	On-Site	1,137.9	\$ 47,324	\$ 43,443							
1	Quality Assurance Manager	On-Site	1,137.9	\$ 81,981	\$ 75,167							
1	Co-Op Student	On-Site	0.0	\$ -	\$ -							
1	CADD Operator	On-Site	0.0	\$ -	\$ -							
	Out of Pocket Expenses (ODC's)			\$ 175,221	\$ 160,853	\$ -	\$ -	\$ 79,529	\$ 20,780	\$ 24,022	\$ 460,405	
	Task Sub Totals											
2	Project Manager	On-Site	1,255.0	\$ 113,698	\$ 57,155	\$ -						
2	Construction Manager - Building	On-Site	1,255.0	\$ 152,319	\$ 139,829							
2	Proj. Sup - Const Mangr - Logistic	On-Site	1,255.0	\$ 94,514	\$ 44,380							
2	Construction Manager - Civil	On-Site	1,196.4	\$ 80,519	\$ 40,477							
2	Project Value Engineer	On-Site	1,196.4	\$ 88,002	\$ 58,885	\$ 45,783						
2	Project Controls Manager	On-Site	1,196.4	\$ 95,137	\$ 63,659							
	Out of Pocket Expenses (ODC's)			\$ 624,188	\$ 404,395	\$ 45,783	\$ -	\$ 254,235	\$ 68,430	\$ 76,792	\$ 1,471,813	
	Task Sub Totals											
3	Schedule Control Engineer	On-Site	1,447.4	\$ 62,963	\$ 57,800							
	Out of Pocket Expenses (ODC's)			\$ 62,963	\$ 57,800	\$ -	\$ -	\$ 28,577	\$ 7,467	\$ 8,632	\$ 165,440	
	Task Sub Totals											

ATTACHMENT - 3b TO EXHIBIT B
 Estimated Cost Schedule by Task

Project: Performance of Construction Management Services for the World Trade Center
 Transportation Hub Project
 Contract #: WTC-284.458CMS

Construction Management Compensation per Task

Sub Task	Resource Description	Location	Total Hours	Bare Labor Cost	Paid Absences and Overhead	Total Travel and Per Diem	ODC's			G & A Cost per Task	Fee per Task	Total Cost Per Task
							Sub Contractor Cost	Other Expenses				
6	Structural Area Manager	On-Site	594.0	\$ 47,267	\$ 43,391							
6	MEP Area Manager	On-Site	0.0	\$ -	\$ -							
6	General Condition Manager	On-Site	0.0	\$ -	\$ -							
6	PATH Facilities/Ancillary Area Mg	On-Site	0.0	\$ -	\$ -							
	Out of Pocket Expenses (ODC's)							\$ 60,825				
	Task Sub Totals			\$ 143,868	\$ 113,169	\$ -	\$ -	\$ 60,825	\$ 15,893	\$ 16,372	\$ 352,128	

Construction Management Compensation per Task

Sub Task	Resource Description	Location	Total Hours	Bare Labor Cost	Paid Absences and Overhead	Total Travel and Per Diem	ODC's			Total Cost Per Task
							Sub Contractor Cost	Other Expenses	G & A Cost per Task	
7	Cost and Scheduling Manager	On-Site	1,121.1	\$ 65,741	\$ 43,990	\$ 42,690				
7	Cost Control Engineer	On-Site	0.0	\$ -	\$ -	\$ -				
7	Risk Manager	On-Site	1,238.3	\$ 84,013	\$ 56,216	\$ 47,180				
7	Risk Management Specialist	On-Site	0.0	\$ -	\$ -	\$ -				
7	Document Control	On-Site	1,238.3	\$ 65,678	\$ 60,282	\$ -				
7	Personnel/Office Manager	On-Site	945.4	\$ 28,241	\$ 18,897	\$ -				
7	IT Technical Support	On-Site	0.0	\$ -	\$ -	\$ -				
7	Material/Property Specialist **	On-Site	689.3	\$ 35,684	\$ 23,877	\$ 25,467				
7	Procurement Specialist **	On-Site	689.3	\$ 35,684	\$ 23,877	\$ 25,467				
7	Accounting/Payroll Specialist **	On-Site	0.0	\$ -	\$ -	\$ -				
7	Cost/Pricing Compliance Spec **	On-Site	1,238.3	\$ 66,015	\$ 44,172	\$ 47,180				
7	Compliance Assistant Specialist**	On-Site	0.0	\$ -	\$ -	\$ -				
7	IMBE/WBE Liaison	On-Site	1,238.3	\$ 35,744	\$ 17,988	\$ -				
7	FSS Project Finance	Home Office	502.0	\$ 29,436	\$ 24,194	\$ -				
7	Fluor Insurance	Home Office	502.0	\$ 29,436	\$ 24,194	\$ -				
7	Legal Counsel	Home Office	502.0	\$ 29,436	\$ 24,194	\$ -				
7	FSS Legal	Home Office	502.0	\$ 29,436	\$ 24,194	\$ -				
7	FSS Risk	Home Office	502.0	\$ 29,436	\$ 24,194	\$ -				
7	FSS Tax	Home Office	502.0	\$ 29,436	\$ 24,194	\$ -				
7	FGG Cost and Pricing	Home Office	502.0	\$ 39,357	\$ 32,347	\$ -				
7	FGG Estimating	Home Office	502.0	\$ 39,357	\$ 32,347	\$ -				
7	FGG Project Controls	Home Office	502.0	\$ 29,436	\$ 24,194	\$ -				
7	FGG Billing	Home Office	502.0	\$ 24,339	\$ 20,004	\$ -				
7	Lead Auditor	On-Site	0.0	\$ -	\$ -	\$ -				
7	Expeditor	On-Site	0.0	\$ -	\$ -	\$ -				
7	Document Control & Admin Support						\$ 340,000	\$ 544,267		
7	Out of Pocket Expenses (ODC's)						\$ 340,000	\$ 544,267		
	Task Sub Totals			\$ 988,995	\$ 735,826	\$ 235,165	\$ 340,000	\$ 544,267	\$ 142,213	\$ 3,150,860

Transportation Hub Project

Contract #: WTC-284.458CMS

Construction Management Compensation per Task

Sub Task	Resource Description	Location	Total Hours	Base Labor Cost	Paid Absences and Overhead	Total Travel and Per Diem	ODC's			G & A Cost per Task	Fee per Task	Total Cost Per Task
							Sub Contractor Cost	Other Expenses				
8	Cost and Accounting Manager	On-Site	0.0	\$ -	\$ -	\$ -						
8	Site Administration Manager	On-Site	1,196.4	\$ 53,267	\$ 35,642	\$ 36,803						
8	Procurement/Contracts Manager**	On-Site	962.2	\$ 75,434	\$ 50,475	\$ 45,783						
8	Finance Manager	On-Site	962.2	\$ 75,434	\$ 50,475	\$ -						
8	Audit Compliance Manager	On-Site	1,196.4	\$ 61,604	\$ 41,221	\$ 47,917						
8	MBE/WBE Consultants						\$ 200,000					
	Out of Pocket Expenses (ODC's)							\$ 183,172				
9	Security Manager	On-Site	0.0	\$ -	\$ -							
9	Site Safety Manager	On-Site	0.0	\$ -	\$ -							
9	Safety Manager	On-Site	1,255.0	\$ 126,315	\$ 84,521							
	Out of Pocket Expenses (ODC's)							\$ 49,892				
	Sub Total			\$ 126,315	\$ 84,521	\$ -	\$ -	\$ 49,892	\$ 13,036	\$ 16,070	\$ 288,634	
	Overall Sub-Totals			\$ 3,619,483	\$ 2,575,329	\$ 567,081	\$ 1,340,000	\$ 1,917,221				
	Totals			\$ 3,619,483	\$ 2,575,329			\$ 3,824,302	\$ 500,955	\$ 579,098	\$ 11,099,145	

ATTACHMENT - 4 TO EXHIBIT B
Out of Pocket Expenses by Tasks (ODC)

Project: Performance of Construction Management Services for the World Trade Center Transportation Hub Project					
Contract #: WTC-284.468CMS					
Billable ODC's					
Sub Task	Quantity	Units	Unit Price	Total	Resource Description
Other Direct Cost					
1	1	ea	\$ 567,081	\$ 567,081	Field Staff Travel & Per Diems / Relocation Allowance
				\$ 567,081	
5	1	LS	\$ 350,000	\$ 350,000	Engineering Consultants (E&K)
5	1	LS	\$ 50,000	\$ 50,000	System Engineer (E&K)
5	1	LS	\$ 200,000	\$ 200,000	MBE/WBE Consultants
5	1	LS	\$ 300,000	\$ 300,000	Transit Hall Consultant
6	1	LS	\$ 340,000	\$ 340,000	Document Control & Admin Support (MBE/WBE)
5	1	LS	\$ 100,000	\$ 100,000	Environmental/HSE Consultant
				\$ 1,340,000	
6	12	MO	\$ 8,000	\$ 96,000	Postage/Mail expense
6	12	MO	\$ 5,000	\$ 60,000	Reprographic expenses
	0	MO	\$ 1,800.00	\$ -	Survey Van
	0	MO	\$ 10,000.00	\$ -	Regist. Land Surveyor
	20	EA	\$ 200.00	\$ 4,000	Cellular Phones
	0	U-MO	\$ 300.00	\$ -	Nextel Radios/Cell Phones
	1	LS	\$ 10,000.00	\$ 10,000	Safety Equipment
	12	MO	\$ 100.00	\$ 1,200	Medical supplies
	1	LS	\$ 2,000.00	\$ 2,000	First Aid Kits
	0	LS	\$ 5,000.00	\$ -	Gas/Air Monitors
	1	EA	\$ 500.00	\$ 500	Medical Testing
	1	LS	\$ 5,000.00	\$ 5,000	Misc. Invoice Cost
	10,000	SFYR	\$ 35.00	\$ 350,000	Office Space Rental
	10,000	SF	\$ 25.00	\$ 250,000	Office Space Buildout Cost
	1	LS	\$ 5,000.00	\$ 5,000	Office Space Utility hookups
	12	MO	\$ 2,000.00	\$ 24,000	Office Space Utility charges
	12	MON	\$ 1,000.00	\$ 12,000	Monthly waste/garbage Service
	12	MON	\$ 2,000.00	\$ 24,000	Office Cleaning
	1	LS	\$ 10,000.00	\$ 10,000	Alarm System
	1	LS	\$ 10,000.00	\$ 10,000	Phone System
	1	EA	\$ 10,000.00	\$ 10,000	Computer-Server
	0	EA	\$ 2,000.00	\$ -	Computers (See Below)
	5	EA	\$ 5,000.00	\$ 25,000	Laser Printer/Plotters
	1	EA	\$ 20,000.00	\$ 20,000	CAD software/hardware
	6	EA	\$ 10,000.00	\$ 60,000	Copier
	2	EA	\$ 2,500.00	\$ 5,000	Fax machine
	1	LS	\$ 60,000.00	\$ 60,000	Furniture
	1	LS	\$ 2,000.00	\$ 2,000	Eng'g Supplies
	0	LS	\$ 2,000.00	\$ -	Survey Supplies
	12	MO	\$ 2,000.00	\$ 24,000	Field office expense
	12	MO	\$ 15,000.00	\$ 180,000	Reprographics Cost
	12	MO	\$ 200.00	\$ 2,400	Phone Service
	12	MO	\$ 1,500.00	\$ 18,000	Long Distance
	60	MO	\$ 75.00	\$ 4,500	Copier Service Agreement
	24	MO	\$ 35.00	\$ 840	Fax Service Agreement
	120	MO	\$ 50.00	\$ 6,000	Drinking Water & Coolers
	24	V-YR	\$ 2,500.00	\$ 60,000	Automobile Insurance
	1	LS	\$ 100,000.00	\$ 100,000	CGL Insurance
	1	LS	\$ -	\$ -	Deductible Costs
	0	LS	\$ 25,000.00	\$ -	Permit Fees
	100	Trips	\$ 428	\$ 42,786	Home Office Personnel Travel Expense
	400	days	\$ 242	\$ 96,867	Home Office Personnel Per Diem
	12	MO	\$ 3,000	\$ 36,000	Expense Acct./Petty Cash
	27,741	HRS	\$ 0.25	\$ 6,935	Office Supplies Hourly Charge
	1	LS	\$ 11,065	\$ 11,065	Additional Office Supply Allowance
	27,741	HRS	\$ 2.58	\$ 71,860	Computer Hourly Charge
	1	LS	\$ 28,150	\$ 28,150	Additional Site Computer Allowance
	98	MO	\$ 1,400.00	\$ 137,848	PM/Eng Vehicle
	65	MO	\$ 300.00	\$ 19,615	Parking
	55	MO	\$ 200.00	\$ 11,077	Tolls
	1,372	Mn Dy	\$ 15.00	\$ 20,580	Daily Trans Cost
		MON	\$ 3,000.00	\$ -	Petty Cash
		LS	\$ 75,000.00	\$ -	Proposal Cost
		LS	\$ 50,000.00	\$ -	Legal Services
		MON	\$ 6,000.00	\$ -	Sponsors Costs
		MO	\$ 1,600.00	\$ -	Supt. Truck
		MO	\$ 1,800.00	\$ -	Site Truck
		EA	\$ 5,000.00	\$ -	Relocation Expense
		LS	\$ 25,000.00	\$ -	Recruiting Expense
6	12	MO	\$ 500	\$ 6,000	Photographic expenses
				\$ 1,917,221	
Total Billable Other Direct Cost				\$ 3,824,302	

ATTACHMENT - 5 TO EXHIBIT B
 Terms and Conditions for the Compensation of Subcontractor's
**Project: Performance of Construction Management Services for the World Trade Center Transportation Hub
 Project**

Resource Description	Total	Estimated Hours	Estimated Hrly Rate	Estimated Lbr Cost	Estimated ODC Cost
Engineering Consultants (VE)	\$ 350,000	2,520	\$125.00	\$ 315,000	\$ 35,000
Systems Engineering Consultant	\$ 50,000	360	\$125.00	\$ 45,000	\$ 5,000
MBE/WBE Consultants	\$ 200,000	1,800	\$100.00	\$ 180,000	\$ 20,000
Transit Hall Consultant	\$ 300,000	1,800	\$150.00	\$ 270,000	\$ 30,000
Document Control & Admin Support	\$ 340,000	5,100	\$60.00	\$ 306,000	\$ 34,000
Environmental/HSE Consultant	\$ 100,000	720	\$125.00	\$ 90,000	\$ 10,000
	\$ 1,340,000				

1. Fluor's Infrastructure Estimating Group has developed the ODC Estimate for this proposal. All cost for ODC's and anticipated Consulting Services have been developed using historical data from projects of similar nature perform by the Joint Venture partners, located within the North East Region. Reference the "Anticipated Sub-consultant Services" chart above.

EXHIBIT C

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION**

MASTER AGREEMENT FOR "LOWER MANHATTAN RECOVERY GRANTS"

**For Federal Transit Administration Agreements authorized by
the 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to
Terrorist Attacks on the United States, Public Law 107-38;
the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107; the
Fiscal Year 2002 Department of Defense Appropriations Act, Public Law 107-117; the
Fiscal Year 2002 Department of Transportation and Related Agencies Appropriations Act,
Public Law 107-206; the Consolidated Appropriations Resolution, 2003, Public Law 208-7;
the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288,
42 U.S.C. § 5121-5206; and/or other Federal enabling legislation**

**LMRO Master Agreement
May 16, 2003**

N.B. This Agreement is based on the standard FTA Master Agreement which is incorporated by reference in all FTA grants and cooperative agreements. Inapplicable provisions of that agreement are marked "Not Applicable" in this Agreement and left in place for the benefit of Recipients who also receive funds authorized under the Federal Transit Laws who are familiar with the section numbers.

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UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

LOWER MANHATTAN RECOVERY MASTER AGREEMENT

The following terms and conditions apply to the Federal assistance authorized by the 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to Terrorist Attacks on the United States, Public Law 107-38; the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107; the Fiscal Year 2002 Department of Defense Appropriations Act, Public Law 107-117; the Fiscal Year 2002 Department of Transportation and Related Agencies Appropriations Act, Public Law 107-206; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Law 93-288; and/or other Federal enabling legislation administered by FTA.

This Agreement includes a comprehensive listing of requirements applicable to the various Projects that will be funded under the authorities listed above. Not every provision of this Agreement will apply to every Project for which FTA provides Federal financial assistance through a Grant Agreement. The type of Project, the federal statute authorizing financial assistance for the Project, and the legal status of the Recipient as a "State" or "local government" will determine which requirements apply. Requirements that do not apply will not be enforced. The provisions of this Agreement will continue to apply to the Project unless or until modified or superseded by subsequent Federal requirements or Agreements.

Thus, in consideration of the mutual covenants, promises, and representations herein, FTA and the Recipient agree as follows:

Section 1. Definitions.

a. Application means the electronically signed and dated request for Federal financial assistance, including any amendment thereto, with all explanatory, supporting, and supplementary documents filed with and accepted or approved by the FTA by or on behalf of the Recipient.

b. Approval, Authorization, Concurrence, Waiver means a written statement (transmitted electronically or in hard copy) by a Federal Government official authorized to permit the Recipient to perform or omit an action required by this Grant Agreement, which action may not be performed or omitted without such permission. Unless stated otherwise, an approval, authorization, concurrence, or waiver permitting the performance or omission of a specific action does not constitute permission to perform or omit other similar actions. **Oral permissions or interpretations have no legal force or effect.**

c. Approved Project Budget means the most recent statement, approved by the FTA, of the costs of the Project, the maximum amount of Federal assistance for which the Recipient is currently eligible, the specific tasks (including specified contingencies) covered, and the estimated cost of each task. As used in the "Approved Project Budget," the term "Scopes" means categories and the term "Scope Level Codes" means category codes. Although "Scopes" and "Scope Level Codes" generally indicate the type of activities encompassed by the Project, the data listed under "Scopes" and "Scope Level Codes" (for example), do not necessarily reflect, and are not intended to be treated as, prima facie evidence of the precise limits or boundaries of a Project, unless stated otherwise. Consequently, the data listed under "Scopes" and "Scope Level Codes" will not always constitute the precise parameters of the scope of the Project. FTA reserves the right to consider other information in determining the "Scope of the Project" when that term is used for legal purposes.

d. Environmental Protection Agency (EPA) is the Federal agency with primary authority to promulgate and enforce legislation to protect the environment.

e. Federal Government means the United States of America, including any executive department or agency thereof.

f. Federal Transit Administration (FTA) is the Federal agency designated to award funds and oversee implementation of the project. Any reference to the Urban Mass Transportation Administration is deemed a reference to the Federal Transit Administration.

g. Federal Transit Administrator also designates the former Urban Mass Transportation Administrator. Any reference in law, map, regulation, document, paper, or other record of the United States to the Urban Mass Transportation Administrator is deemed a reference to the Federal Transit Administrator.

h. "FEMA" is the Federal entity with primary authority to provide federal assistance following a Presidentially-declared major disaster or emergency. It is part of the Emergency Preparedness and Response Directorate of the Department of Homeland Security.

- i. FHWA is the acronym for the Federal Highway Administration, an operating administration of the U.S. Department of Transportation (U.S.DOT).
- j. FTA is the acronym for the Federal Transit Administration, an operating administration of the U.S. Department of Transportation (U.S. DOT).
- k. Grant Agreement means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project in which FTA does not take an active role or retain substantial control, in accordance with the requirements of 31 U.S.C. § 6304. The Grant Agreement consists of the FTA Award establishing the specific parameters of the Project, an Execution statement signed by the Recipient, and may include other Special Conditions or Requirements. This Master Agreement is incorporated by reference and made part of the Grant Agreement.
- l. Local Government includes a public transit authority, as well as a county, municipality, city, town, township, special district, council of governments (whether or not incorporated as a private nonprofit organization under State law), regional or interstate government entity, or any agency or instrumentality thereof. For purposes of the New York Recovery funding program, the Port Authority of New York and New Jersey, the New York Mass Transit Administration, and the City of New York are considered local governments.
- m. Lower Manhattan Recovery Office (LMRO) is an FTA office with responsibility for carrying out the Lower Manhattan Recovery projects.
- n. Project means the activity or activities (task or tasks) listed in Project Description, the Approved Project Budget, and any modifications stated in the Conditions to the Grant Agreement applicable to the Project
- o. Recipient means the entity that receives Federal assistance directly from FTA to support the Project. The term "Recipient" includes each FTA "Grantee." Except as FTA permits otherwise, the Recipient is the entire legal entity even if only a single organization within that entity is designated as the Recipient in the Grant Agreement. Unless expressly stated otherwise, in the case of a Recipient that is a consortium, partnership, or similar multi-party entity, each participant in, member of, or party to that consortium, partnership, or multi-party entity is treated as a "Recipient" for purposes of compliance with applicable requirements of this Grant Agreement.
- p. Secretary means the U.S. DOT Secretary, including his or her duly authorized designee.
- q. Subagreement means an agreement through which a Recipient awards financial assistance derived from FTA to the subrecipient as defined below. The term "subagreement" also includes the term "subgrant," but does not include the term "third party subcontract."
- r. Subrecipient means any entity that receives Federal assistance awarded by a FTA Recipient, rather than FTA directly. The term "subrecipient" also includes the term "subgrantee," but does not include "third party contractor" or "third party subcontractor."

- s. Third Party Contract means a contract or purchase order awarded by the Recipient or subrecipient to a vendor or contractor, financed in whole or in part with Federal assistance awarded by FTA.
- t. Third Party Subcontract means a subcontract at any tier entered into by the third party contractor or third party subcontractor, financed in whole or in part with Federal assistance originally derived from FTA.
- u. Transit means transportation by a conveyance, either publicly or privately owned, that provides regular and continuing general or special public transportation to the public, but does not include school bus, charter, or sightseeing transportation. The term "transit" also includes "mass transportation" and "public transportation."

Section 2. Project Implementation.

a. General Requirements.

(1) Project Description. The Recipient shall perform the work described in its Application which is incorporated by reference in the approved Grant.

(2) Effective Date. The effective date of this Agreement is the date on which the FTA Authorized Official signs it.

(3) Recipient's Capacity. The Recipient will maintain or acquire sufficient legal, financial, technical, and managerial capacity to plan, manage, and complete the Project, and provide for the use of Project facilities and equipment, to comply with the terms of the Grant Agreement, the Approved Project Budget, the Project schedules, the Recipient's annual certifications and assurances to FTA, and all applicable Federal laws, executive orders, regulations, directives, and published policies governing this Project.

(4) Completion Dates. The Recipient agrees to complete the Project in a timely manner. Milestone dates and other Project completion dates for the Project are to be treated as good faith estimates rather than precise obligations, except where otherwise provided.

b. U.S. DOT Administrative Requirements. The Recipient acknowledges that Federal administrative requirements differ based on the type of entity receiving Federal assistance: A Recipient that is a State or a local government will comply with U.S. DOT regulations, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments," 49 C.F.R. Part 18.

c. Application of Federal, State, and Local Laws and Regulations.

(1) Federal Laws and Regulations. Federal law or specific laws authorizing Project approval control Project implementation. Implementing regulations, policies, and related administrative practices applicable on the effective date of this Grant may be modified after the

date when the Recipient executes the Grant Agreement, and might apply to this project. New Federal laws, regulations, policies, and administrative practices may be promulgated after the date when the Recipient executes the Grant Agreement, and might apply to this project. The most recent of such Federal requirements will govern the administration of the Project at any particular time, unless FTA issues a written determination otherwise. All standards or limits within this Lower Manhattan Recovery Master Agreement are minimum requirements, unless modified by FTA.

(2) State, Territorial, and Local Law. In instances when a Federal statute or regulation preempts State, local, or territorial law, the Recipient must abide by the Federal statute or regulation. Otherwise, no provision of this Agreement shall require the Recipient to observe or enforce compliance with any provision, perform any other act, or do any other thing in contravention of State, territorial, or local law. If any provision herein would require the Recipient to violate State, territorial, or local law, the Recipient will notify FTA immediately in writing in order that appropriate action may be taken

d. Recipient's Primary Responsibility to Comply with Federal Requirements. Irrespective of participation by other parties in the Project, and unless notified otherwise in writing by the FTA, the Recipient is ultimately responsible for compliance with all Federal requirements applicable to this Project.

e. Recipient's Responsibility to Extend Federal Requirements to Other Entities. The Recipient is responsible for extending all applicable Federal requirements to all parties participating in the implementation of the Project.

f. No Federal Government Obligations to Third Parties. Absent the Federal Government's express written consent, the Federal Government shall not be subject to any obligations or liabilities to any subrecipient, any third party contractor, or any other person not a party to the Grant Agreement in connection with the performance of the Project. Notwithstanding that the Federal Government may have concurred in or approved any solicitation, subagreement, or third party contract, the Federal Government has no obligations or liabilities to any party, including any subrecipient or any third party contractor.

g. Changes in Project Performance (i.e., Disputes, Breaches, Defaults or Litigation). The Recipient will notify FTA immediately of any change in local law, conditions (such as its legal, financial, or technical capacity), or any other event that may significantly affect the Recipient's ability to perform the Project in accordance with the terms of the Grant Agreement. In addition, the Recipient will notify FTA immediately of any current or prospective major dispute, breach, default, or litigation that may affect the Federal Government's interests in the Project or the Federal Government's administration or enforcement of Federal laws or regulations. The Recipient will inform FTA before naming the Federal Government as a party to litigation for any reason, in any forum.

Section 3. Ethics.

a. Code of Ethics. The Recipient will maintain a written code or standards of conduct that shall govern the performance of its officers, employees, board members, or agents engaged in the award or administration of third party contracts or subagreements supported by Federal assistance. This code or standards of conduct shall provide that the Recipient's officers, employees, board members, or agents may neither solicit nor accept gratuities, favors, or anything of monetary value from any present or potential contractor or subrecipient. The Recipient may set *de minimis* rules where the financial interest is not substantial, or the gift is an unsolicited item of nominal intrinsic value. This code or standards shall also prohibit the Recipient's officers, employees, board members, or agents from using their respective positions for a purpose that constitutes or presents a real or apparent personal or organizational conflict of interest or personal gain. As permitted by State or local law or regulations, the code or standards shall include penalties, sanctions, or other disciplinary actions for violations by the Recipient's officers, employees, board members, or their agents, or by contractors or subrecipients or their agents.

(1) Personal Conflicts of Interest. The Recipient's code or standards of conduct will prohibit the Recipient's employees, officers, board members, or agents from participating in the selection, award, or administration of a third party contract or subagreement supported by Federal funds if a real or apparent conflict of interest would be involved. Such a conflict would arise when any of the following parties has a financial or other interest in the entity selected for award: (a) an employee, officer, board member, or agent; (b) any member of his or her immediate family; (c) his or her partner; or (d) an organization that employs, or intends to employ, any of the above.

(2) Organizational Conflicts of Interest. The Recipient's code or standards of conduct will include procedures for identifying and preventing real and apparent organizational conflicts of interest. An organizational conflict of interest exists when the nature of the work to be performed under a proposed third party contract or subagreement may, without some restrictions on future activities, result in an unfair competitive advantage to the third party contractor or subrecipient or impair its objectivity in performing the contract work.

b. Debarment and Suspension. The Recipient will itself comply, and assure the compliance of each third party contractor and subrecipient at any tier, with Executive Orders Nos. 12549 and 12689, "Debarment and Suspension," 31 U.S.C. § 6101 note, and U.S. DOT regulations, "Governmentwide Debarment and Suspension (Nonprocurement)," within 49 C.F.R. Part 29. Recipients, third party contractors and subrecipients will review the Excluded Parties Listing System at <http://epls.arnet.gov> before entering into any contracts.

c. Bonus or Commission. The Recipient affirms that it has not paid, and agrees not to pay, any bonus or commission to obtain approval of its Federal assistance application for the Project.

d. Lobbying Restrictions. The Recipient will itself comply and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with U.S. DOT regulations, "New Restrictions on Lobbying," 49 C.F.R. Part 20, modified as necessary by 31 U.S.C. § 1352.

e. Employee Political Activity. The Recipient will comply with the provisions of the Hatch Act, 5 U.S.C. §§ 1501 - 1508, 7324 - 7326, and U.S. Office of Personnel Management regulations, "Political Activity of State or Local Officers or Employees," 5 C.F.R. Part 151. Note that, in accordance with 23 U.S.C. § 142(g), the Hatch Act does not apply to a nonsupervisory employee of a transit system or of any other agency or entity performing related functions receiving FTA assistance to whom the Hatch Act would otherwise apply.

f. False or Fraudulent Statements or Claims. The Recipient certifies or affirms the truthfulness and accuracy of each statement it has made, it makes, or it may make in connection with the Project covered by the Grant Agreement pursuant to the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§ 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31 and 18 U.S.C. § 1001.

Section 4. Federal Financial Assistance.

FTA will provide Federal financial assistance for the Project in an amount up to one hundred percent (100%) of the eligible project costs consistent with the approved Project scope and budget.

Section 5. Local Share.

If the Recipient provides a local share for the Project, the Recipient agrees as follows:

a. Restrictions on the Source of the Local Share. Except as permitted otherwise by Federal law, the Recipient agrees to provide sufficient funds that, together with the Federal financial assistance awarded, will ensure payment of the actual cost of each Project activity covered by the Grant Agreement. The Recipient agrees that no local share funds provided will be derived from receipts from the use of Project facilities or equipment, revenues of the transit system in which such facilities or equipment are used, or other Federal funds, except as permitted by law.

b. Duty to Obtain the Local Share. Unless FTA otherwise approves, the Recipient agrees to complete all proceedings necessary to provide the local share of the Project costs at or before the time those funds are needed to meet Project expenses.

c. Calculation of the Local Share. Unless FTA expressly approves otherwise in writing, the Recipient agrees that the local share will apply to each Project activity in the Grant Agreement.

d. Completion of Project with Local Funds. If the Project expenses exceed the approved Project budget, additional funds to complete the Project must be made available from non-federal sources.

Section 6. Approved Project Budget.

The Recipient will prepare a Project budget which, upon approval by FTA, is designated the

"Approved Project Budget." The Recipient will incur obligations and make disbursements of Project funds only as authorized in the latest Approved Project Budget. The latest Approved Project Budget is incorporated herein by reference and made part the Grant Agreement for the Project.

An amendment to the Approved Project Budget requires the issuance of a formal amendment to the Grant Agreement, except that re-allocation of funds among budget items or fiscal years that does not increase the total amount of the Federal financial assistance awarded may be made in accordance with applicable Federal regulations and directives. Prior FTA approval is required when funds are to be transferred from non-construction to construction categories or vice versa or when, in non-construction grants, cumulative transfers of funds between total direct cost categories exceed ten percent of the total budget.

The Recipient shall obtain prior written approval for any budget revision that would result in the need for additional funds. Award of additional Federal financial assistance requires a new Approved Project Budget.

If a Recipient estimates that it will have unobligated funds remaining after the end of the performance period, the recipient should report this to FTA at the earliest possible time and ask for disposition instructions.

Section 7. Accounting Records.

a. Project Accounts. The Recipient will establish and maintain for the Project either a separate set of accounts, or separate accounts within the framework of an established accounting system, that can be identified with the Project, in accordance with applicable Federal regulations and other requirements that FTA may impose. The Recipient agrees that all checks, payrolls, invoices, contracts, vouchers, orders, or other accounting documents related in whole or in part to the Project shall be clearly identified, readily accessible and available to FTA upon its request, and, to the extent feasible, kept separate from documents not related to the Project.

b. Funds Received or Made Available for the Project. The Recipient will deposit, in a financial institution, all advance Project payments it receives from the Federal Government and record in the Project Account all amounts provided by the Federal Government in support of the Project and all other funds provided for, accruing to, or otherwise received on account of the Project (Project funds) in accordance with applicable Federal regulations and other requirements FTA may impose.

c. Documentation of Project Costs and Program Income. The Recipient will support all costs charged to the Project, including any approved services contributed by the Recipient or others, with properly executed payrolls, time records, invoices, contracts, or vouchers describing in detail the nature and propriety of the charges. The Recipient also will maintain accurate records of all program income derived from implementing the Project, except certain income determined by FTA to be exempt from the general Federal program income requirements.

d. Checks, Orders, and Vouchers. The Recipient will refrain from drawing checks, drafts, or orders for goods or services to be charged against the Project Account until it has received and filed a properly signed voucher describing in proper detail the purpose for the expenditure.

Section 8. Reporting, Record Retention, and Access.

a. Types of Reports. The Recipient will submit to FTA the reports specified in this Agreement, the Lower Manhattan Recovery Program Guidance and any other reports the Federal Government may require.

b. Format Requirements for Reports. All reports and other documents or information intended for public availability developed in the course of the Project and required to be submitted to FTA must be prepared and submitted in electronic and or hard copy formats as FTA may require. Electronic submissions must comply with the electronic accessibility requirements of Subsection 12.g, and Section 15.s of this Lower Manhattan Recovery Master Agreement. FTA may require records to be submitted in other formats.

c. Timing of Filing Reports. The Grantee shall electronically submit financial reports (Financial Status Report) and milestone reports to FTA within thirty (30) calendar days after the end of each quarter of the performance period (normally the Federal fiscal quarter). Reports are due by January 31, April 30, July 31, and December 31, unless notified otherwise in writing by FTA.

d. Record Retention. The Recipient will maintain intact and readily accessible data, documents, reports, records, contracts, and supporting materials relating to the Project as the Federal Government may require during the course of the Project and for three years thereafter from the date of transmission of the final expenditure report.

e. Access to Records of Recipients and Subrecipients. Upon request, the Recipient will permit, and require its Subrecipients to permit, the U.S. Secretary of Transportation, the Comptroller General of the United States, and, to the extent appropriate, the State, or their authorized representatives, to inspect all Project work, materials, payrolls, and other data, and to audit the books, records, and accounts of the Recipient and its Subrecipients pertaining to the Project.

f. Project Closeout. Project closeout does not alter the reporting and record retention requirements of this Section 8 of this Lower Manhattan Recovery Master Agreement.

Section 9. Payments.

a. Recipient's Request for Payment. To obtain a Federal assistance payment for the Project from FTA, the Recipient will:

- (1) Submit to FTA all financial and progress reports required to date by this Agreement, and

(2) Identify the source(s) of financial assistance provided for the Project from which the payment is to be derived.

b. Payment by FTA. FTA will make all payments through the Automated Clearing House (ACH) method of payment, regardless of the amount involved but not before execution of this Agreement.

(1) Electronic Clearing House Operation Payments. If payment is made through the FTA Electronic Clearinghouse Operation (ECHO) using an ECHO Control Number, the Recipient will comply with: FTA's ECHO requirements that implement U.S. Department of Treasury Circular 1075, Part 205, "Withdrawal of Cash from the Treasury for Advances Under Federal Grants and Other Programs;" Treasury Financial Manual, Vol. 1, Part 6, Chapter 2000; the ECHO System Operations Manual, "Guidelines for Disbursements" used for FTA Projects; and the requirements of this Subsection 9.b(1). If the Recipient fails to comply with the following requirements of this Subsection 9.b (1), the Federal Government may revoke the unexpended portion of Federal assistance awarded for the Project.

(a) The Recipient may draw down cash only when an expense is incurred and cash is needed for immediate disbursement required for Project purposes. Unless provided otherwise by Federal law or regulation, the Recipient will expend all Federal funds obtained under the Project for Project purposes no later than three (3) working days after receiving those funds. If the Recipient fails to expend those Federal assistance funds within three (3) working days of their receipt or fails to return those funds to FTA within a reasonable period, or fails to establish procedures to minimize the time elapsing between cash advances and the disbursement, the Federal Government may revoke or temporarily suspend the Recipient's ECHO Control Number and the Recipient's access to the ECHO System. In addition, a Recipient's failure to adhere to these requirements may result in other remedies or penalties authorized by Federal law or regulation.

(b) The Recipient will report its cash disbursements and balances promptly in compliance with Federal requirements.

(c) The Recipient will provide for control and accountability for all Project funds consistent with Federal requirements and procedures for use of the ECHO system.

(d) The Recipient will not draw down funds for a Project in an amount exceeding the sum obligated by the Federal Government or the current available balance for that Project.

(e) The Recipient will draw down funds only for allowable and eligible Project costs.

(f) The Recipient will refrain from drawing down Federal assistance until needed for disbursement.

(g) The Recipient will notify the LMRO when a single draw down will exceed \$50 million three days before the drawdown is anticipated.

(h) The Recipient will remit interest to the Federal Government on any Federal assistance prematurely drawn down, irrespective of whether that Federal assistance has been deposited in an interest-bearing account. A debt for any premature draw down of Federal assistance funds does not qualify as a "claim" covered by the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720. Thus, the interest provisions of this Subsection 9.b (1)(h) of this Lower Manhattan Recovery Master Agreement, rather than the interest provisions of the Debt Collection Act of 1982, as amended, will determine amount of interest due on any debt for Federal assistance prematurely drawn down. A Recipient that is a State or State instrumentality will remit interest to the Federal Government calculated as provided by U.S. Department of Treasury regulations, "Rules and Procedures for Funds Transfers," 31 C.F.R. Part 205 that implement section 5(b) of the Cash Management Improvement Act of 1990, as amended, 31 U.S.C. § 6503(b). Interest on any debt that a State or state instrumentality may incur for Federal assistance prematurely drawn down does not qualify for the interest exemption of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 and 3717.

(2) Requisition. If the requisition method of payment is used, the Recipient will:

(a) Complete and submit the "Payment Information Form - ECHO-ACH Payment System," Revised 10/92, to FTA's Accounting Division, and

(b) Complete and submit Standard Form 270, "Request for Advance or Reimbursement," to the FTA LMRO.

Upon receiving a request for payment and adequate supporting information, FTA will approve payment by direct deposit, provided that the Recipient is in compliance with the requirements of the Grant Agreement, has satisfied FTA that the Federal funds requested are needed in that requisition period, and is making adequate progress toward Project completion. After these requirements have been fulfilled, the Federal Government may reimburse the apparent allowable costs incurred (or to be incurred in the requisition period), not to exceed the maximum amount of Federal funds payable through the Federal fiscal year of that requisition, as set forth in the Approved Project Budget for the Project.

c. Costs Reimbursed. Project costs, to be eligible for Federal participation, must:

(1) Conform to the Project Description, the Approved Project Budget, and all other terms of the Grant Agreement,

(2) Be necessary in order to accomplish the Project,

(3) Be reasonable for the goods or services purchased,

(4) Be actual net costs to the Recipient (*i.e.*, the price paid minus any refunds, rebates, or other items of value received by the Recipient that have the effect of reducing the cost actually incurred, excluding program income),

(5) Be incurred for work performed after the Effective Date of the Grant Agreement, unless

the Federal Government has provided otherwise in writing,

(6) Be satisfactorily documented,

(7) Be treated consistently in accordance with accounting principles and procedures approved by the Federal Government for the Recipient, and with accounting principles and procedures approved by the Recipient for its contractors,

(8) Be eligible under Federal law, regulation, or guidelines for Federal participation,

(9) Comply with the provisions of OMB Circular A-87, Revised, "Cost Principles for State and Local Governments," and

(10) Comply with 44 CFR Subchapter D, Subparts G, H and I and implementing policies and administrative guidance if funding for the Project is authorized by the Stafford Act.

d. Bond Interest and Other Financing Costs. To the extent permitted in writing by FTA, bond interest and other similar financing costs are allowable. FTA's participation in Project interest costs will be limited to an amount that does not exceed the most favorable financing terms reasonably available for the Project at the time of borrowing. For projects funded with FEMA funds, financing costs are not an allowable cost.

e. Excluded Costs:

(1) In determining the amount of Federal assistance FTA will provide, FTA will exclude the following:

(a) Any Project cost incurred by the Recipient before the Effective Date of the Grant Agreement or Amendment thereto, unless otherwise permitted by Federal law or regulation, or unless an authorized FTA official states in writing to the contrary;

(b) Any cost that is not included in the latest Approved Project Budget;

(c) Any cost for goods or services received in connection with a third party contract or other arrangement required to be, but has not been, concurred in or approved in writing by the Federal Government;

(d) Any ordinary governmental or nonproject operating cost;

(e) Any cost ineligible for FTA participation as required by Federal law, regulation, or guidelines for Federal participation.

(2) The Federal Government will not make a final determination about the eligibility of any cost until an audit of the Project has been completed.

f. Federal Claims, Excess Payments, Disallowed Costs, including Interest.

(1) Recipient's Obligation to Pay. Upon notification to the Recipient that specific amounts are owed to the Federal Government, whether for Federal claims for funds recovered from third parties or elsewhere, for excess payments, or for disallowed costs, the Recipient will remit to the Federal Government promptly the amounts owed, including any interest due.

(2) Amount of Interest Due. The Recipient agrees that the amount of interest due depends on whether the Federal Government treats the principal portion of the debt as a Federal claim or as a debt owed to the Federal Government. Thus, Recipient will pay interest calculated as follows:

(a) Federal Claims against the Recipient. The Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720, exempts State governments and units of general local government from the obligation to pay interest on claims pursued by the Federal Government under that Act, 31 U.S.C. §§ 3701 and 3717. Interest on claims against other parties will be calculated in accordance with the interest provisions of U.S. Treasury/U.S. DOJ regulations, "Standards for the Administrative Collection of Claims," at 31 C.F.R. § 901.9(i).

(b) Excess Payments. A debt for any excess payment does not qualify as a "claim" for purposes of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720; Accordingly, interest on any debt for excess payments does not qualify for the interest exemption for State and local governments at 31 U.S.C. §§ 3701 and 3717. Thus, the Recipient will pay common law prejudgment interest and related charges for excess payments made by the Federal Government, as permitted by U.S. Treasury/U.S. DOJ regulations, "Standards for the Administrative Collection of Claims," at 31 C.F.R. § 901.9(i).

(c) Disallowed Costs. A debt for any disallowed cost does not qualify as a "claim" for purposes of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720; thus the interest exemption for State governments and units of general local government provided by that Act will not apply to interest on the debt for the disallowed cost. Accordingly, a Recipient that is a State government or a unit of general local government agrees that interest on any debt for a disallowed cost does not qualify for the interest exemption for State and local governments at 31 U.S.C. §§ 3701 and 3717. Thus, the Recipient will pay common law prejudgment interest and related charges for excess payments made by the Federal Government, as permitted by 31 C.F.R. § 901(i).

g. De-obligation of Funds. The Recipient agrees that the Federal Government may de-obligate unexpended Federal funds before Project closeout.

h. Duplication of Benefits. Pursuant to Section 312 of the Stafford Act, 42 U.S.C. § 5155, the Recipient is liable to the United States for the receipt of any financial assistance for the Project to the extent such assistance duplicates benefits available to the Recipient from another source, including insurance.

Section 10. Project Completion, Audit, Settlement, and Closeout.

a. Project Completion. Within ninety (90) calendar days following Project completion or termination by the Federal Government, the Recipient will submit a final Financial Status Report (either electronically or on Standard Form 269A), a certification of Project expenses, and third party audit reports, as applicable.

b. Audit Requirements.

(1) Audit of Recipients. The Recipient will have the financial and compliance audits required by the Single Audit Act Amendments of 1996, 31 U.S.C. §§ 7501 *et seq.*, performed in accordance with OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations," and the OMB A-133 Compliance Supplement provisions for the Department of Transportation, March, 2002, and any further revision or supplement thereto. Project closeout will not alter the Recipient's audit responsibilities. Audits will be conducted in accordance with U.S. General Accounting Office, "Government Auditing Standards."

(2) Audit Costs. Audit costs for Project administration and management are allowable to the extent authorized by OMB Circular A-87, Revised, OMB Circular A-21, Revised, OMB Circular A-122, Revised, or 48 C.F.R. Chapter I, Subpart 31.2, whichever is applicable.

c. Funds Due the Federal Government. The Recipient will remit to the Federal Government any excess payments made to the Recipient, any costs disallowed by the Federal Government, and any amounts recovered by the Recipient from third parties or from other sources, as well as any interest required by Subsection 9.f (2)(b) of this Agreement.

d. Project Closeout. Project closeout occurs when FTA notifies the Recipient that FTA has closed out the Project, and then either forwards the final Federal assistance payment or acknowledges that the Recipient has remitted the proper refund. Project closeout by FTA does not invalidate any continuing obligations imposed on the Recipient by the Grant Agreement or by the Federal Government's final notification or acknowledgment.

Section 11. Right of the Federal Government to Terminate.

Upon written notice, the Federal Government may suspend or terminate all or part of the Federal financial assistance provided herein if the Recipient has violated the terms of the Grant Agreement, or if the Federal Government determines that the purposes of the statute authorizing the Project would not be adequately served by the continuation of Federal financial assistance for the Project. Any failure to make reasonable progress on the Project or other violation of the Grant Agreement that endangers substantial performance of the Project shall provide sufficient grounds for the Federal Government to terminate the Grant Agreement. Termination of any Federal financial assistance for the Project will not invalidate obligations properly incurred by the Recipient before the termination date, to the extent those obligations cannot be canceled. If, however, the Federal Government determines that the Recipient has willfully misused Federal assistance funds by failing to make adequate progress, failing to make reasonable and

appropriate use of the Project real property, facilities, or equipment, or has failed to comply with the terms of the Grant Agreement, the Federal Government reserves the right to require the Recipient to refund the entire amount of Federal funds provided for the Project or any lesser amount as the Federal Government may determine. Expiration of any Project time period established for the Project does not, by itself, constitute an expiration or termination of the Grant Agreement.

Section 12. Civil Rights.

The Recipient will comply with all applicable civil rights statutes and implementing regulations including, but not limited to, the following:

a. Nondiscrimination in General. The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier under the Project with 42 U.S.C. §5151, which requires the distribution of supplies, the processing of applications, and other relief and assistance activities in an equitable and impartial manner, without discrimination on the grounds of race, color, religion, nationality, sex, age, or economic status, and with 49 U.S.C. §5332, which prohibits discrimination on the basis of race, color, creed, national origin, sex, or age, and prohibits discrimination in employment or business opportunity.

b. Nondiscrimination -- Title VI of the Civil Rights Act. The Recipient will comply, and assures the compliance of each third party contractor and each subrecipient at any tier under the Project, with all requirements prohibiting discrimination on the basis of race, color, or national origin of Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000d *et seq.*, and U.S. DOT regulations, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation--Effectuation of Title VI of the Civil Rights Act," 49 C.F.R. Part 21.

c. Equal Employment Opportunity. (1) The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with all requirements of Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e. Accordingly, the Recipient agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, sex, disability, age, or national origin. The Recipient will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, sex, disability, age, or national origin. Such action shall include, but not be limited to, employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

(2) Equal Employment Opportunity Requirements for Construction Activities. With respect to activities deemed by the U.S. Department of Labor (U.S. DOL) to qualify as "construction," the Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with all applicable EEO requirements of U.S. DOL regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive

Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000(e) note,) and any Federal statutes, executive orders, regulations, and Federal policies affecting construction undertaken as part of the Project.

d. Contracting with Small and Minority Firms, Women's Business Enterprise and Labor Surplus Area Firms. Pursuant to Executive Order 12432 as implemented by 49 CFR § 18.36(e), Recipient and its subrecipients will take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.

e. Nondiscrimination on the Basis of Sex. The Recipient will comply with all applicable requirements of Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. §§ 1681 *et seq.*, with U.S. DOT regulations, "Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance," 49 C.F.R. Part 25, and with any implementing directives that U.S. DOT or FTA may promulgate, which prohibit discrimination on the basis of sex.

f. Nondiscrimination on the Basis of Age. The Recipient will comply with all applicable requirements of the Age Discrimination Act of 1975, as amended, 42 U.S.C. §§ 6101 *et seq.*, and implementing regulations, which prohibit employment and other discrimination against individuals on the basis of age.

g. Access Requirements for Persons with Disabilities. The Recipient will comply with all applicable requirements of section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, with the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 *et seq.*, which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments to that Act, and with the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 *et seq.*, which requires that buildings and public accommodations be accessible to persons with disabilities, including any subsequent amendments to that Act. In addition, the Recipient will comply with all applicable requirements of the following regulations and any subsequent amendments thereto:

(1) U.S. DOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 C.F.R. Part 37;

(2) U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27;

h. Drug or Alcohol Abuse - Confidentiality and Other Civil Rights Protections. The Recipient will comply with confidentiality and other civil rights protections of the Drug Abuse Office and Treatment Act of 1972, as amended, 21 U.S.C. §§ 1174 *et seq.*, with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended, 42 U.S.C. §§ 4581 *et seq.*, and with the Public Health Service Act of 1912, as amended, 42 U.S.C. §§ 290dd-3 and 290ee-3, and any subsequent amendments to these acts.

i. Access to Services for Persons with Limited English Proficiency. The Recipient will comply

with guidance set forth in Executive Order No. 13166, "Improving Access to Services for Persons with Limited English Proficiency," August 11, 2000, 42 U.S.C. § 2000d-1 note, and with the requirements and provisions of U.S. DOT Notice, "DOT Guidance to Recipients on Special Language Services to Limited English Proficient (LEP) Beneficiaries," 66 Fed. Reg. 6733 *et seq.*, January 22, 2001.

j. Environmental Justice. The Recipient will comply with the policies of Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 42 U.S.C. § 4321 note.

k. Other Nondiscrimination Statutes. The Recipient will comply with applicable requirements of other nondiscrimination statute(s) that may apply to the Project.

Section 13. Planning and Private Enterprise.

a. Not Applicable.

b. Not Applicable.

c. Infrastructure Investment. During the implementation of the Project, the Recipient will take into consideration the recommendations of Executive Order No. 12803, "Infrastructure Privatization," 31 U.S.C. § 501 note, and Executive Order No. 12893, "Principles for Federal Infrastructure Investments," 31 U.S.C. § 501 note.

Section 14. Preference for United States Products and Services.

a. Not Applicable.

b. Not Applicable.

c. Fly America. The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for the Project unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

Section 15. Procurement.

a. Federal Standards. The Recipient will comply with 49 CFR § 18.36.

b. Not Applicable.

c. FTA Technical Review. The Recipient will permit FTA to review and approve the Recipient's technical specifications and requirements, to the extent FTA believes necessary to ensure proper Project administration.

d. Exclusionary or Discriminatory Specifications. The Recipient will refrain from using any

Federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications. 49 CFR §18.36(c).

e. Not Applicable.

f. Clean Air and Clean Water. The Recipient will include in third party contracts and subgrants exceeding \$100,000 adequate provisions to ensure that Project participants report the use of facilities placed or likely to be placed on U.S. EPA's "List of Violating Facilities," refrain from using violating facilities, report violations to FTA and the Regional EPA Office, and comply with the inspection and other applicable requirements of:

(1) Section 306 of the Clean Air Act, as amended, 42 U.S.C. § 7414, and other applicable provisions of the Clean Air Act, as amended, 42 U.S.C. §§ 7401 *et seq.*; and

(2) Section 508 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1368, and other provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 *et seq.*

g. Preference for Recycled Products. To the extent applicable, the Recipient will comply with U.S. EPA's "Comprehensive Procurement Guidelines for Products Containing Recovered Materials," 40 C.F.R. Part 247, implementing section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962, and otherwise provide a competitive preference for products and services that conserve natural resources and protect the environment and are energy efficient.

h. Geographic Restrictions. The Recipient will refrain from using any State or local geographic preference, except those expressly mandated or encouraged by Federal statute such as in 42 U.S.C. § 5150, 44 CFR § 206.10, which allows preference to local firms "to the extent feasible and practicable."

i. Architectural, Engineering, Design, or Related Services. Recipients may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services consistent with 49 CFR §18.36(d)(3)(v).

j. Force Account. Where the total amount of force account work to be performed under the grant is greater than \$10,000,000, FTA prior review of the Recipient's force account plan and justification is required. The Recipient is directed to the section of Force Account in the LMRO Program Guidance for further guidance.

k. Award to Other than the Lowest Bidder. A Recipient may award a third party contract to a party other than the lowest bidder, when such an award furthers objectives consistent with the purposes of 49 CFR §18.36 and any implementing directives, circulars, manuals, or other guidance FTA may issue. (See 49 CFR §18.36(b)(8) and §18.36(d)(2)(E).)

l. Not Applicable.

m. Bonding. The Recipient will comply with the requirements in 49 CFR §18.36(h) as may be modified by LMRO Program Guidance issued by FTA.

n. Not Applicable.

o. Access to Third Party Contract Records. The Recipient will require its third party contractors and third party subcontractors to provide access by the FTA, FEMA and the Comptroller General of the United States, or their duly authorized representatives, any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transactions, as per 49 CFR 18.36§(i)(10).

p. National Intelligent Transportation Systems Architecture and Standards. The Recipient will use its best efforts to ensure that any Intelligent Transportation System solutions used in its Project do not preclude interface with other Intelligent Transportation Systems in the Region. (See FTA Notice, "FTA National ITS Architecture Policy on Transit Projects" 66 Fed. Reg. 1455 *et seq.*, January 8, 2001 and other FTA Program Guidance that may be issued.)

q. Not Applicable.

r. Neutrality in Labor Relations. To the extent permitted by law, the Recipient will comply with Executive Order No. 13202, "Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal and Federally Funded Construction Projects," Executive Order No. 13202, February 17, 2001, as amended by Executive Order No. 13208, April 6, 2001, 41 U.S.C. § 251 note, which among other things, prohibits including requirements for affiliation with a labor organization as a condition for award of any contract or subcontract for construction or construction management services.

s. Electronic and Information Technology. Electronic and information technology procured under this Project will meet the applicable accessibility standards of section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and Architectural and Transportation Barriers Compliance Board regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

t. Use of Local Firms and Individuals. Pursuant to 42 U.S.C. § 5150 and any implementing regulation, in the expenditure of FEMA funds for debris clearance, distribution of supplies, reconstruction, and other major disaster or emergency assistance activities which may be carried out by contract or agreement with private organizations, firms, or individuals, the Recipient will give preference, to the extent feasible and practicable, to those organizations, firms and individuals residing or doing business primarily in the area affected by a major disaster or emergency.

Section 16. Not Applicable.

Section 17. Patent Rights.

a. General. If any invention, improvement, or discovery of the Recipient or any of its third party contractors is conceived or first actually reduced to practice in the course of or under the Project, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the Recipient will notify FTA immediately and

provide a detailed report.

b. Federal Rights. The rights and responsibilities of the Recipient, and those of each third party contractor at any tier and each subrecipient at any tier, pertaining to that invention, improvement, or discovery will be determined in accordance with applicable Federal laws, regulations, including any waiver thereof.

Section 18. Rights in Data and Copyrights.

a. Definition. The term "subject data" used in this section means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the Project. Examples include, but are not limited to: computer software, standards, specifications, engineering drawings and associated lists, process sheets, manuals, technical reports, catalog item identifications, and related information. "Subject data" does not include financial reports, cost analyses, or similar information used for Project administration.

b. General Requirement. Except for its own internal use, the Recipient may not publish or reproduce "subject data" whether in whole or in part, in any manner or form, nor may the Recipient authorize others to do so, without the prior written consent of the Federal Government, unless the Federal Government has previously released or approved the release of such data to the public.

c. – h. Requirements condensed into a. & b. above.

Section 19. Use of Real Property, Equipment, and Supplies.

a. Use of Project Property. The Recipient will use Project real property, equipment, and supplies for appropriate Project purposes (which may include joint development purposes that generate program income, both during and after the award period used to support transit activities) for the duration of the useful life of that property, as required by FTA. Should the Recipient unreasonably delay or fail to use Project property during the useful life of that property, the Recipient may be required to return the entire amount of the Federal assistance expended on that property. The Recipient further will notify FTA immediately when any Project property is withdrawn from Project use or when Project property is used in a manner substantially different from the representations the Recipient has made in its Application or the Project Description for the Grant Agreement for the Project.

b. General Federal Requirements. A Recipient that is a State or a local government will comply with property management standards of 49 C.F.R. §§ 18.31 through 18.34, including any amendments thereto, and other applicable guidelines or regulations the Federal Government may issue. In addition, the Recipient will comply with FTA's established reimbursement requirements for premature dispositions of certain Project equipment (*i.e.*, when Project equipment is withdrawn from appropriate use before the expiration of the equipment's useful life established by FTA), as explained in Subsection 19.g of this Lower Manhattan Recovery Master Agreement.

c. Maintenance. The Recipient will maintain Project real property and keep equipment in good operating order, in compliance with any guidelines, directives, or regulations FTA may issue.

d. Records. The Recipient will keep satisfactory records regarding the use of Project real property, equipment, and supplies, and submit to the FTA upon request such information as may be required to assure compliance with Section 19 of this Agreement.

e. Encumbrance of Project Property. The Recipient will maintain satisfactory continuing control of Project real property or equipment. Thus, absent written authorization by FTA permitting otherwise:

(1) Written Transactions. The Recipient will refrain from executing any transfer of title, lease, lien, pledge, mortgage, encumbrance, third party contract, grant anticipation note, alienation, or any other obligation that in any way would affect the Federal interest in any Project real property or equipment.

(2) Oral Transactions. The Recipient will refrain from obligating itself in any manner to any third party with respect to Project real property or equipment.

(3) Other Actions. The Recipient will refrain from taking any action that would either adversely affect the Federal interest or impair the Recipient's continuing control of the use of Project real property or equipment.

f. Transfer of Project Property.

(1) Federal Government Direction. The Federal Government may direct the disposition of, and even require the Recipient to transfer title to, any real property, equipment, or supplies financed with Federal assistance made available for the Grant Agreement.

(2) Leasing Project Property to Another Party. If the Recipient leases any Project asset to another party, the Recipient will retain ownership of the leased asset, and assure that the lessee will use the Project asset appropriately, either through a "Lease and Supervisory Agreement" between the Recipient and lessee, or another similar document. Upon request by FTA, the Recipient will provide a copy of any relevant documents.

g. Disposition of Project Property. With prior FTA approval, the Recipient may sell, transfer, or lease Project property and use the proceeds to reduce the gross project cost of other eligible capital transit projects. FTA may establish the useful life for Project property: The Recipient will use Project property continuously and appropriately throughout that useful life.

(1) Project Property Whose Useful Life Has Expired. When the useful life of Project Property has expired, the Recipient will comply with FTA's disposition requirements.

(2) Project Property Prematurely Withdrawn from Use. For property withdrawn from appropriate use before its useful life has expired, the Recipient agrees as follows:

(a) Notification Requirement. The Recipient will notify FTA immediately when any Project real property, equipment, or supplies are prematurely withdrawn from appropriate use, whether by planned withdrawal, misuse, or casualty loss.

(b) Calculating the Fair Market Value of Prematurely Withdrawn Project Property. The Federal Government retains a Federal interest in the fair market value of Project property prematurely withdrawn from mass transportation use. The amount of the Federal interest in the property shall be determined on the basis of the ratio of the Federal assistance awarded by the Federal Government for the property to the actual cost of the Property. The fair market value of property prematurely withdrawn from use will be calculated as follows:

1. Equipment and Supplies. Unless otherwise determined in writing by FTA, fair market value shall be calculated by straight-line depreciation of the equipment or supplies, based on the useful life of the equipment or supplies established or approved by FTA. In addition, the fair market value of equipment and supplies shall be the value immediately before the occurrence prompting the withdrawal of that property from use. In the case of equipment or supplies lost or damaged by fire, casualty, or natural disaster, the fair market value shall be calculated on the basis of the condition of that property immediately before the fire, casualty, or natural disaster, irrespective of the extent of insurance coverage. As authorized by 49 C.F.R. § 18.32(b), a State may use its own disposition procedures, provided that those procedures comply with the State's laws.

2. Real Property. The fair market value of real property shall be determined either by competent appraisal based on an appropriate date approved by the Federal Government, as provided by 49 C.F.R. Part 24, or by straight line depreciation, whichever is greater.

3. Exceptional Circumstances. The Federal Government may require the use of another method of determining the fair market value of property. In unusual circumstances, the Recipient may request that another reasonable valuation method be used including, but not limited to, accelerated depreciation, comparable sales, or established market values. In determining whether to approve such a request, the Federal Government may consider any action taken, omission made, or unfortunate occurrence suffered by the Recipient with respect to the preservation or conservation of Project property withdrawn from appropriate use.

(c) Obligations to the Federal Government. Unless otherwise approved in writing by the Federal Government, the Recipient will remit to the Federal Government the Federal interest in the fair market value of Project real property, equipment, or supplies prematurely withdrawn from appropriate use. In the case of fire, casualty, or natural disaster, the Recipient may fulfill its responsibilities with respect to the Federal interest remaining in the damaged equipment or supplies by either:

1. Investing an amount equal to the remaining Federal interest in like-kind equipment or supplies that are eligible for assistance within the scope of the Project that provided financial assistance for the damaged equipment or supplies; or

2. Returning to the Federal Government an amount equal to the remaining Federal interest in the damaged property.

h. Insurance Proceeds. If the Recipient receives insurance proceeds as a result of damage or destruction to the Project property, the Recipient will:

(1) Apply those insurance proceeds to the cost of replacing the damaged or destroyed Project property taken out of service, or

(2) Return to the Federal Government an amount equal to the remaining Federal interest in the damaged or destroyed property.

i. Transportation - Hazardous Materials. The requirements of Research and Special Programs Administration, "Shippers - General Requirements for Shipments and Packagings," 49 C.F.R. Part 173, apply to the transportation of hazardous materials.

j. Misused or Damaged Project Property. If any damage to Project real property, equipment, or supplies results from abuse or misuse of that property occurring with the Recipient's knowledge and consent, the Recipient will restore that real property or equipment to its original condition or refund the value of the Federal interest in the damaged property, as the Federal Government may require.

k. Obligations After Project Closeout Project closeout will not alter the Recipient's property management obligations of Section 19 of this Agreement and applicable Federal regulations and other FTA requirements or directives.

Section 20. Insurance.

a. Minimum Requirements. At a minimum, the Recipient will comply with the insurance requirements normally imposed by the laws, regulations, and ordinances imposed by its State and local governments. This includes, but is not limited to, the Recipient's obtaining all necessary environmental liability insurance.

b. Flood Hazards. To the extent applicable, the Recipient will comply with the flood insurance purchase requirements of section 102(a) of the Flood Disaster Protection Act of 1973, 42 U.S.C. § 4012a(a), with respect to any Project activity involving construction or acquisition having an insurable cost of \$10,000 or more.

c. FEMA Requirements. For assistance received pursuant to the Stafford Act, including Section 406, 42 U.S.C. § 5172, the Recipient agrees to comply with 42 U.S.C. § 5154 and 44 CFR Part 206, Subpart I, to obtain and maintain insurance reasonable and necessary to protect against future loss from the type of hazard that caused the major disaster.

Section 21. Relocation.

When relocation of individuals or businesses is required, the Recipient will comply with the following requirements:

- a. Relocation Protections. The Recipient will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. §§ 4601 *et seq.*; and U.S. DOT regulations, "Uniform Relocation and Real Property Acquisition for Federal and Federally Assisted Programs," 49 C.F.R. Part 24, which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally assisted programs. These requirements apply to all interests in real property acquired for Project purposes regardless of Federal participation in purchases.
- b. Nondiscrimination in Housing. The Recipient will comply with Title VIII of the Civil Rights Act of 1968, as amended, 42 U.S.C. §§ 3601 *et seq.* and Executive Order No. 12892, "Leadership and Coordination of Fair Housing in Federal Programs: Affirmatively Furthering Fair Housing," 42 U.S.C. § 3608 note, when carrying out its responsibilities to provide housing used to meet Federal relocation requirements.
- c. Prohibition Against Use of Lead-Based Paint. In undertaking construction or rehabilitation of residence structures on behalf of individuals affected by land acquisition in connection with the Project, the Recipient will refrain from using lead-based paint in accordance with Section 401(b) of the Lead-Based Paint Poisoning Prevention Act, 42 U.S.C. § 4831(b).

Section 22. Real Property.

- a. Land Acquisition. The Recipient will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. §§ 4601 *et seq.*; and U.S. DOT regulations, "Uniform Relocation and Real Property Acquisition for Federal and Federally Assisted Programs," 49 C.F.R. Part 24. These requirements apply to all interests in real property acquired for Project purposes regardless of Federal participation in purchases.
- b. Covenant Assuring Nondiscrimination. The Recipient will include a covenant in the title of the real property acquired for the Project to assure nondiscrimination during the useful life of the Project.
- c. Recording Title to Real Property. To the extent required by FTA, the Recipient will record the Federal interest in the title of real property.
- d. FTA Approval of Changes in Real Property Ownership. The Recipient will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from FTA.

Section 23. Construction.

- a. Drafting, Review, and Approval of Construction Plans and Specifications. The Recipient will comply with FTA requests pertaining to the drafting, review, and approval of construction plans and specifications.
- b. Supervision of Construction. The Recipient will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms to the approved plans and specifications.
- c. Construction Reports. The Recipient will provide progress reports and such other information as may be required by FTA or the State.
- d. Project Management. The FTA will manage the Project consistent with the FTA Project Management and Oversight Regulation applicable to major capital investments. (See 49 CFR Part 633.)
- e. Seismic Safety. The Recipient will comply with the Earthquake Hazards Reduction Act of 1977, as amended, 42 U.S. C. §§ 7701 *et seq.*, Executive Order No. 12699, "Seismic Safety of Federal and Federally-Assisted or Regulated New Building Construction," 42 U.S.C. § 7704 note, and implementing U.S. DOT regulations, "Seismic Safety," 49 C.F.R. Part 41, (specifically, 49 C.F.R. § 41.117).
- f. Minimum Standards for Public and Private Structures. Pursuant to the Stafford Act at 42 U.S.C. § 5176, and any implementing regulation, the Recipient will ensure that any repair or construction to be financed pursuant to this agreement will be in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards.

Section 24. Employee Protections.

- a. Construction Activities. The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with the following employee protection requirements for construction employees:

- (1) Davis-Bacon Act, as amended, 40 U.S.C. §§ 276a - 276a(7), requiring compliance with the Davis-Bacon Act, and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

- (2) Contract Work Hours and Safety Standards Act, as amended, particularly with the requirements of section 102 of the Act, 40 U.S.C. §§ 327 - 332; and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts

Subject to the Contract Work Hours and Safety Standards Act), 29 C.F.R. Part 5; and with section 107 of the Act, 40 U.S.C. § 333, and U.S. DOL regulations, "Safety and Health Regulations for Construction," 29 C.F.R. Part 1926; and

(3) Copeland "Anti-Kickback" Act, as amended, 18 U.S.C. § 874 and 40 U.S.C. § 276c, and U.S. DOL regulations, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in part by Loans or Grants from the United States," 29 C.F.R. Part 3.

b. Activities Not Involving Construction. The Recipient will comply, and assure the compliance of each third party contractor and each subrecipient at any tier, with any applicable employee protection requirements for nonconstruction employees of section 102 of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. §§ 327 - 332, and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

c. Activities Involving Commerce. The Recipient will comply with the provisions of the Fair Labor Standards Act, 29 U.S.C. §§ 201 *et seq.*, applies to employees performing Project work involving commerce.

d. Not Applicable.

Section 25. Environmental Requirements.

The Recipient recognizes that many Federal and State laws imposing environmental and resource conservation requirements may apply to the Project. The Recipient also recognizes that U.S. EPA, FHWA and other Federal agencies have issued, and in the future are expected to issue, regulations, guidelines, standards, orders, directives, or other requirements that may affect the Project. Thus, the Recipient will comply, and assures the compliance of each subrecipient and each third party contractor, with any such Federal requirements as the Federal Government may now or in the future promulgate. Listed below are requirements of particular concern to FTA and the Recipient.

a. Environmental Protection. Federal assistance is contingent upon the Recipient's facilitating FTA's compliance with all applicable requirements and implementing regulations of the National Environmental Policy Act of 1969, as amended, (NEPA) 42 U.S.C. §§ 4321 *et seq.* (as interpreted by 42 U.S.C. 5159); Executive Order No. 11514, as amended, "Protection and Enhancement of Environmental Quality," 42 U.S.C. § 4321 note; and Council on Environmental Quality regulations pertaining to compliance with the National Environmental Policy Act of 1969, as amended, 40 C.F.R. Part 1500 *et seq.* For purposes of NEPA, FTA is designated as Lead Agency.

b. Air Quality. The Recipient will comply with all applicable regulations, standards, or orders implementing the Clean Air Act, as amended, 42 U.S.C. §§ 7401 *et seq.* In addition:

(1) The Recipient will comply with the applicable requirements of the U.S. EPA

regulations, "Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act," 40 C.F.R. Part 51, Subpart T; and "Determining Conformity of Federal Actions to State or Federal Implementation Plans," 40 C.F.R. Part 93. To support the requisite air quality conformity finding for the Project, the Recipient will implement each air quality mitigation or control measure incorporated in the Project. The Recipient further agrees that any Project identified in an applicable State Implementation Plan (SIP) as a Transportation Control Measure will be wholly consistent with the design concept and scope of the Project described in the SIP.

(2) U.S. EPA also imposes requirements implementing the Clean Air Act, as amended, that may apply to transit operators, particularly operators of large transit bus fleets. Accordingly, the Recipient will comply with the following U.S. EPA regulations to the extent they are applicable to the Project: "Control of Air Pollution from Motor Vehicles and Motor Vehicle Engines," 40 C.F.R. Part 85; "Control of Air Pollution from New and In-Use Motor Vehicles and New and In-Use Motor Vehicle Engines: Certification and Test Procedures," 40 C.F.R. Part 86; and "Fuel Economy of Motor Vehicles," 40 C.F.R. Part 600.

(3) The Recipient will comply with the notification of violating facilities requirements of Executive Order No. 11738, "Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans," 42 U.S.C. § 7606 note.

c. Clean Water. The Recipient will comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 *et seq.* In addition:

(1) The Recipient will protect underground sources of drinking water consistent with the provisions of the Safe Drinking Water Act of 1974, as amended, 42 U.S.C. §§ 300f *et seq.*

(2) The Recipient will comply with the notification of violating facilities requirements of Executive Order No. 11738, "Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans," 42 U.S.C. § 7606 note.

d. Use of Public Lands. The Recipient will refrain from using publicly owned land from a park, recreation area, or wildlife or waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from a historic site of national, State, or local significance for the Project unless FTA makes the specific findings required by 49 U.S.C. § 303.

e. Wild and Scenic Rivers. The Recipient will comply with the Wild and Scenic Rivers Act of 1968, as amended, 16 U.S.C. §§ 1271 *et seq.* relating to protecting components of the national wild and scenic rivers system.

f. Coastal Zone Management. The Recipient will assure Project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972, as

amended, 16 U.S.C. §§ 1451 *et seq.*

g. Wetlands. The Recipient will facilitate compliance with the protections for wetlands in accordance with Executive Order No. 11990, as amended, "Protection of Wetlands," 42 U.S.C. § 4321 note.

h. Floodplains. The Recipient will facilitate compliance with the flood hazards protections in floodplains in accordance with Executive Order No. 11988, as amended, "Floodplain Management" 42 U.S.C. § 4321 note.

i. Endangered Species. The Recipient will comply with protections for endangered species of the Endangered Species Act of 1973, as amended, 16 U.S.C. §§ 1531 *et seq.*

j. Historic Preservation. The Recipient will facilitate compliance with the Federal historic and archaeological preservation requirements of section 106 of the National Historic Preservation Act, as amended, 16 U.S.C. § 470f; of Executive Order No. 11593, "Protection and Enhancement of the Cultural Environment," 16 U.S.C. § 470 note; and of the Archaeological and Historic Preservation Act of 1974, as amended, 16 U.S.C. §§ 469a *et seq.* as follows:

(1) In accordance with U. S. Advisory Council on Historic Preservation regulations, "Protection of Historic and Cultural Properties," 36 C.F.R. Part 800, the Recipient will consult with the State Historic Preservation Officer concerning investigations to identify properties and resources included in or eligible for inclusion in the National Register of Historic Places that may be affected by the Project, and will notify FTA of any affected properties.

(2) The Recipient will comply with all Federal requirements to avoid or mitigate adverse effects on those historic properties.

l. Mitigation of Adverse Environmental Effects. Should the Proposed project cause or result in adverse environmental effects, the Recipient agrees to take all reasonable measures to minimize those adverse effects, as required by 23 C.F.R. Part 771 and 49 C.F.R. Part 622. The Recipient will comply with all environmental mitigation measures that may be identified as commitments in applicable environmental documents (*i.e.*, environmental assessments, environmental impact statements, memoranda of agreement, and documents required by 49 U.S.C. § 303) and will comply with any conditions the Federal Government might impose in a finding of no significant impact or a record of decision. Those mitigation measures are incorporated by reference and made part of this Grant Agreement. Deferred mitigation measures will be incorporated by reference and made part of the Grant Agreement as soon as agreement with the Federal Government is reached. Those mitigation measures agreed upon may not be modified or withdrawn without the express written approval of the Federal Government.

Section 26. Energy Conservation.

The Recipient will comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and

Conservation Act, 42 U.S.C. §§ 6321 *et seq.*

Sections 27. - 29 Not Applicable.

Section 30. Metric System.

The Recipient will use the metric system of measurement in its Project activities, pursuant to the Metric Conversion Act, as amended by the Omnibus Trade and Competitiveness Act, 15 U.S.C. §§ 205a *et seq.*; Executive Order No. 12770, "Metric Usage in Federal Government Programs," 15 U.S.C. § 205a note; and other U.S. DOT or FTA regulations, guidelines, and policies. To the extent practicable and feasible, the Recipient will accept products and services with dimensions expressed in the metric system of measurement.

Section 31. Substance Abuse.

- a. Drug-Free Workplace. The Recipient will comply with U.S. DOT regulations, "Drug-Free Workplace Requirements (Grants)," 49 C.F.R. Part 29, Subpart F, as modified by 41 U.S.C. §§ 702 *et seq.*
- b. Not Applicable.

Section 32. Not Applicable.

Section 33. Seat Belt Use.

Pursuant to Executive Order No. 13043, "Increasing Seat Belt Use in the United States," April 16, 1997, 23 U. S. C. § 402 note, the Recipient is encouraged to adopt on-the-job seat belt use policies and programs for its employees when operating company-owned, rented, or personally-operated vehicles and include this provision in third party contracts, third party subcontracts, and subagreements entered into under this Project.

Section 34. Protection of Sensitive Security Information.

To the extent applicable, the Recipient will comply with section 101(e) of the Aviation and Transportation Security Act, 49 U.S.C. § 40119(b), and U.S. Transportation Security Administration regulations, "Protection of Sensitive Security Information," 49 C.F.R. Part 1520, and any implementing regulations, requirements or guidelines, that the Federal Government may issue.

Sections 35. 43 Not Applicable.

Section 44. Disputes, Breaches, Defaults, or Other Litigation.

FTA has a vested interest in the settlement of any dispute, breach, default, or litigation involving the Project. Accordingly:

- a. Notification to FTA. The Recipient will notify FTA of any current or prospective major dispute, breach, default, or litigation that may affect the Federal Government's interests in the Project or the Federal Government's administration or enforcement of Federal laws or regulations. If the Recipient seeks to name the Federal Government as a party to litigation for any reason, in any forum, the Recipient will inform FTA before doing so.
- b. Federal Interest in Recovery. The Federal Government retains the right to a proportionate share, based on the percentage of the Federal share awarded for the Project, of proceeds derived from any third party recovery, except that the Recipient may return any liquidated damages recovered to its Project Account in lieu of returning the Federal share to the Federal Government.
- c. Enforcement. The Recipient will pursue all legal rights provided within any third party contract.
- d. FTA Concurrence. FTA reserves the right to concur in any compromise or settlement of any claim involving the Project and the Recipient.
- e. Alternative Dispute Resolution. FTA encourages the Recipient to use alternative dispute resolution procedures, as may be appropriate.
- f. Indemnification. Pursuant to 42 U.S.C. § 5173, the Recipient will, in the case of debris or wreckage removal from private property, indemnify the Federal Government against any claim arising from such removal.

Section 45. Amendments to the Project.

A change in Project conditions causing an inconsistency with the terms of the Grant Agreement will require an amendment to the Grant Agreement signed by the original signatories. A change in the fundamental information submitted in its Application will also require an Amendment to its Application or the Grant Agreement.

Section 46. FTA's Electronic Award and Management System.

Except as otherwise permitted by FTA, the Recipient will use FTA's electronic award and management system to submit information and reports to FTA. FTA, however, reserves the right to determine the extent to which the Recipient may use FTA's electronic award and management system to execute legal documents pertaining to FTA Projects.

Section 47. Information Obtained Through Internet Links.

This Agreement may include electronic links to Federal statutes, regulations, directives, guidance, and other documents. FTA does not guarantee the accuracy of information accessed through such links. Accordingly, information obtained through any electronic link within this Master Agreement does not represent an official version of a Federal statute, regulation, requirement, guidance, or document, and might be inaccurate. Thus, information obtained through such links is neither incorporated by reference nor made part of this Agreement. The Federal Register and the Code of Federal Regulations are the official sources for regulatory information pertaining to the Federal Government.

Section 48. Severability.

If any provision of this Agreement is held invalid, the remainder of the Agreement shall not be affected, if that remainder would continue to conform to the requirements of applicable law.

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FTA PROFESSIONAL SERVICES ATTACHMENT

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1. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION TERMS

This Agreement is anticipated to be partially funded by the Federal Transit Administration, pursuant to the Agreement entitled, “United States of America Department of Transportation Federal Transit Administration – Master Agreement for ‘Lower Manhattan Recovery Grants’, dated May 16, 2003, (“Master Agreement”) which is attached hereto and incorporated herein by reference.

All contractual provisions required by DOT, as set forth in FTA Circular 4220.1E as modified by LMRO Third Party Contracting Requirements, dated August 21, 2003, are attached hereto for reference. Anything to the contrary herein notwithstanding, all FTA-mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Authority requests which would cause the Authority to be in violation of the FTA terms and conditions.

Each and every provision required by the FTA to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein. If any provision of this Contract shall be such as to effect non-

compliance with any FTA requirement, such provision shall not be deemed to form part hereof, but the balance of this Contract shall remain in full force and effect.

2. SEISMIC SAFETY

If this is a contract for the construction of new buildings or additions to existing buildings, the Contractor agrees that any new building or addition to an existing building will be constructed in accordance with standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify compliance to the extent required by the regulation. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance. The completed certification of compliance is to be submitted to the Engineer. The seismic safety standards applicable to this Contract are contained in Section 2312 ICBO Uniform Building Code (UBC), as modified by the Appendix to Title 27, Chapter 1 (Volume 7), of the Administrative Code and Charter of the City of New York at RS 9-6 Earthquake Loads.

3. ENERGY CONSERVATION

The Contractor agrees to comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and Conservation Act, 42 U.S.C. §6321 et seq. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a Subcontractor is in compliance with the requirements of this Section.

4. CLEAN WATER REQUIREMENTS – CONTRACTS EXCEEDING \$100,000

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC §1251 *et seq.*
- B. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.
- C. The Contractor also agrees to include the requirements of this Article in all subcontracts exceeding \$100,000 issued pursuant to this Contract.

5. CERTIFICATION - LOBBYING RESTRICTIONS –CONTRACTS EXCEEDING \$100,000

A. Definitions. As used in this Clause:

"Agency," as defined in 5 U.S.C. 552(f), includes Federal executive departments and agencies as well as independent regulatory commissions and Government corporations, as defined in 31 U.S.C. 9101(1).

"Covered Federal action" means any of the following Federal actions:

1. The awarding of any Federal contract;
2. The making of any Federal grant;
3. The making of any Federal loan;

4. The entering into of any cooperative agreement; and
5. The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization" have the meaning provided in Section 4 of the Indian Self Determination and Education Assistance Act (25 U.S.C. 450B). Alaskan natives are included under the definitions of Indian tribes in that Act.

"Influencing or attempting to influence" means making, with the intent to influence, any communication to or appearance before an officer or employees of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government" means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency" includes the following individuals who are employed by an agency:

- a. An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment;
- b. A member of the uniformed services as defined in section 101(3), title 37, United States Code;
- c. A special government employee as defined in Section 202, title 18, United States Code; and
- d. An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code Appendix 2.

"Person" means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian Organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable Compensation" means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable Payment" means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient" includes all contractors and subcontractors at any tier in connection with a Federal Contract. The term excludes an Indian Tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly Employed" means, with respect to an officer or employee of a person requesting or receiving a Federal Contract, an officer or employee who is employed by such person for at least one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for one hundred and thirty (130) working days.

"State" means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-state, regional, or interstate entity having governmental duties and powers.

B. Prohibition.

1. Section 1352 of title 31, United States Code provides in part that no appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. The prohibition does not apply as follows:

a. Agency and legislative liaison by own employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B.1.) of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract if the payment is for agency and legislative liaison activities not directly related to a covered Federal Action.

(ii) For purposes of subparagraph B. 2.) a.(i) of this Section, providing any information specifically requested by an agency or Congress is allowable at any time.

(iii) For purposes of subparagraph B. 2.) a.(i) of this Section, the following agency and legislative liaison activities are allowable at any time only where they are not related to specific solicitation for any covered Federal action.

(a) Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sales and service capabilities; and,

(b) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(iv) For purposes of paragraph B. 2)a.(i) of this Section, the following agency and legislative liaison activities are allowable only where they are prior to formal solicitation of any covered Federal action:

(a) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(b) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(c) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Public Law 95-507 and other subsequent amendments.

(iv) Only those activities expressly authorized by subparagraph B. 2)a. of this Section are allowable under subparagraph B. 2)a.

b. Professional and technical services by Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or an extension, continuation, renewal, amendment, or modification of a Federal contract if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.

(ii) For purposes of subparagraph B. 2.) b. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this

Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Only those services expressly authorized by subparagraph B. 2.) b. this Section are allowable under subparagraph B. 2.) b.

c. Reporting for Own Employees.

No reporting is required with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

d. Professional and technical services by Other than Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. 1.) of this Section, does not apply in the case of any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.

(ii) For purposes of subparagraph B. 2.) d. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or

proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(v) Only those services expressly authorized by subparagraph B. 2.) d. of this Section are allowable under subparagraph B. 2.) d.

C. Disclosure.

1. Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a certification entitled "Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352," as set forth in the Appendix to this Attachment that the person has not made, and will not make, any payment prohibited by subparagraph B. of this Clause.

2. Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a disclosure form entitled "Disclosure of Lobbying Activities Pursuant to 31 U.S.C. 1352" (Standard Form-LLL), as set forth in the Appendix to this Attachment, if such person has made or has agreed to make any payment using non-appropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph B. of this Clause if paid for with appropriated funds.

3. Each person shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph C.2) of this Section. An event that materially affects the accuracy of the information reported includes:

a. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

b. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

c. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

4. Any person who requests or receives from a person referred to in subparagraph C.1) of this Section a subcontract exceeding \$100,000 at any tier under a Federal contract shall file a certification, and a disclosure form, if required, to the next tier above.

5. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in subparagraph C.1) of this Section. That person shall forward all disclosure forms to the Authority.

D. Agreement.

In accepting any contract resulting from this solicitation, the person submitting the offer agrees not to make any payment prohibited by this Clause.

E. Penalties.

1. Any person who makes an expenditure prohibited under subparagraph A of this Clause shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure.

2. Any person who fails to file or amend the disclosure form to be filed or amended if required by the Clause, shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. Contractors may rely without liability on the representations made by their Subcontractors in the certification and disclosure form.

F. Cost Allowability.

Nothing in this Clause is to be interpreted to make allowable or reasonable any costs which would be unallowable or unreasonable in accordance with Part 31 of the Federal Acquisition Regulation. Conversely, costs made specifically unallowable by the requirements in this Clause will not be made allowable under any of the provisions of Part 31 of the Federal Acquisition Regulation.

6. ACCESS TO RECORDS AND REPORTS

The Contractor agrees to provide the Authority, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions. The Contractor also agrees, pursuant to 49 CFR 633.15 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to the Contractor's records and construction sites pertaining to the project.

The Contractor agrees to provide the Authority, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions.

The Contractor shall make available records related to the contract to the Authority, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

The Contractor agrees to maintain all books, records, accounts and reports required under this Contract for a period of not less than three (3) years after final payment is made by the Authority and all other pending matters are closed, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case the Contractor agrees to maintain same until the Authority, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

This requirement is independent of the Authority's requirements for record retention contained elsewhere in the contract documents.

7. FEDERAL CHANGES

The Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement, as they may be amended or promulgated from time to time during the term of this Contract. Contractor's failure to so comply shall constitute a material breach of this Contract. The most recent Federal laws, regulations, policies, and administrative practices apply to this Contract at any particular time, unless FTA issues a written determination otherwise. All standards or limits within the Master Agreement are minimum requirements, unless modified by the FTA.

8. CLEAN AIR REQUIREMENTS – CONTRACTS EXCEEDING \$100,000

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 USC §7401 *et seq.* The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include the requirements of this Clause in all subcontracts exceeding \$100,000 issued pursuant to this Contract.

9. PREFERENCE FOR RECYCLED PRODUCTS – CONTRACTS EXCEEDING \$10,000

The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recover Act (RCRA), as amended (42.U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

10. NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

The Authority and the Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the Authority, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal Assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provisions.

11. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS.

- A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, apply to its actions pertaining to this Project. The Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the contract or project. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.
- B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under this Contract, financed in whole or in part with Federal assistance, the Federal Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.
- C. The Contractor agrees to include the above two clauses in each subcontract related to this Contract. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

12. CERTIFICATION - DEBARMENT AND SUSPENSION – CONTRACTS EXCEEDING \$25,000

This Contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that none of the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its proposal, the Proposer provides the "Certification regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tiered Covered Transactions" as set forth in the Appendix to this Attachment.

In the event that the Contractor has certified prior to award that it is not proposed for debarment, debarred, suspended, or voluntarily excluded from covered transactions by any Federal Department or agency and such certification is found to be false, this Contract may be canceled, terminated or suspended by the Authority and the Contractor will be liable for any and all damages incurred by the Authority because of such cancellation, termination or suspension because of such false certification.

Prior to the award of any Subcontracts or Supplier agreements expected to equal or exceed the Federal procurement small purchase threshold fixed at 10 U.S.C. 253(g) (currently \$25,000), regardless of tier, any prospective Subcontractor or Supplier who has not previously submitted a certification for this Contract must execute and submit to the Contractor a certification in the form in the Appendix to this Attachment which will be deemed a part of the resulting Subcontract and Supplier agreement.

The originals of any Certifications or correspondence relating hereto shall be sent by the Contractor to the Director of Procurement, One Madison Avenue, 7th Floor, New York, NY 10010.

The Contractor shall not knowingly enter into any Subcontracts or Supplier agreements with a person that is proposed for debarment, debarred, suspended, declared ineligible or voluntarily excluded from covered transactions.

As required by FTA, the Contractor and its Subcontractors or Suppliers required to file the certification have a continuing duty to disclose, and shall provide immediate written notice to the Authority if, at any time, it learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

13. CIVIL RIGHTS

- A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, and section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, the Contractor agrees that it will not discriminate

against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:

i. Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

ii. Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

iii. Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

C. The Contractor also agrees to include these requirements in each subcontract related to this project, modified only if necessary to identify the affected parties.

14. FLY AMERICA

The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for the Project unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

David B. Eppinger

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1 352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor, , certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 18th of January,
20 06



By: David B. Eppinger Signature of Authorized Official

Vice President

Official Name and Title of Authorized

Official

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned JAMES ABADIE OF BOVUS LEAD LEASE LMS, INC.

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 13th of JANUARY, 20 06

By: James Abadie Signature of Authorized Official

JAMES ABADIE, Senior VP, Program In Charge Official Name and Title of Authorized Official

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

Joseph LoCurto

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

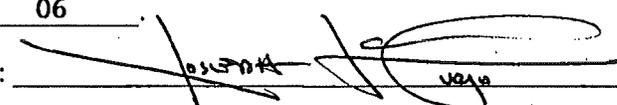
This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

***Slattery Skanska Inc.**

The Contractor, Slattery Skanska Inc. certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 12th of January,
20 06

By:  Signature of Authorized Official

Joseph LoCurto, President Official Name and Title of Authorized
Official

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

GRANITE CONSTRUCTION NORTHEAST, INC., by Michael F. Donnino

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1 352(c)(I)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor, , certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 18th of January,

20 06

GRANITE CONSTRUCTION NORTHEAST, INC.

By: Michael F. Donnino Signature of Authorized Official

Michael F. Donnino, Sr. Vice President

Official Name and Title of Authorized

Official

STANDARD FORM LLL - DISCLOSURE OF LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

- | | | |
|---|--|--|
| 1. Type of Federal Action:
[] a. contract

b. grant

c. cooperative agreement

_____d. loan

e. loan guarantee

f. loan insurance | 2. Status of Federal Action:
[] a. bid//offer/application

b. Initial award

c. post-award | 3. Report Type:
[] a. initial filing

b. material change

For Material Change Only:
year quarter

_____date of last report |
|---|--|--|

- | | |
|---|--|
| 4. Name and Address of Reporting Entity:

Prime Subawardee
Tier____, <i>if known:</i>
Congressional District, <i>if known:</i> | 5. If Reporting Entity in No.4 is a Subawardee, Enter Name and Address of Prime:

Congressional District, <i>if known:</i> |
|---|--|

- | | |
|--|--|
| 6. Federal Department/Agency: | 7. Federal Program Name/Description:
CFDA Number, <i>if applicable:</i> |
| 8. Federal Action Number, <i>if known:</i> | 9. Award Amount, <i>if known:</i>
\$ |

- | | |
|--|---|
| 10. a. Name and Address of Lobbying Registrant
<i>(if individual, last name, first name, MI):</i> | b. Individuals Performing Services <i>(including address if different from No.10a)</i>
<i>(last name, first name, MI):</i> |
|--|---|

11. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more that \$100,000 for such failure.

Signature _____

Print Name

Title

Telephone No.

Date:

INSTRUCTIONS FOR COMPLETION OF DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER
COVERED TRANSACTIONS PURUSUANT TO FTA CIRCULAR
2015.1**

1. The prospective lower tier participant,

Fluor Enterprises, Inc.,
certifies, by submission of this bid or proposal, that neither it nor its
principals are presently debarred, suspended, proposed for debarment,
declared ineligible, or voluntarily excluded from participation in this
transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of
the statements in this certification, such prospective participant shall attach
an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written
notice to the Authority (and the Contractor, if applicable) if at any time the
prospective lower tier participant learns that its certification was erroneous
when submitted or has become erroneous by reason of changed
circumstances.

Executed this day

18th of January

2006 =

David B. Eppinger

By Signature of
Authorized
Official

David B. Eppinger, Vice President

Name and Title of Authorized Official



CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER
COVERED TRANSACTIONS PURSUANT TO FTA CIRCULAR
2015.1

1. The prospective lower tier participant,

Boris Lend Lease LMB, Inc.

certifies, by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day

13th

of

JANUARY

2006

James Abadio
By Signature of Authorized Official

JAMES ABADIO, SENIOR VP, PRINCIPAL IN CHARGE

Name and Title of Authorized Official

APPENDIX

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER COVERED TRANSACTIONS PURSUANT TO FTA CIRCULAR 2015.1

1. The prospective lower tier participant,

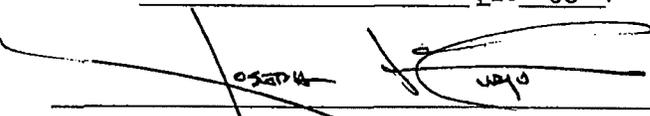
Slattery Skanska Inc.

certifies, by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day 12th of January
20 06


By Signature of Authorized Official

Joseph LoCurto, President
Name and Title of Authorized Official

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER
COVERED TRANSACTIONS PURSUANT TO FTA CIRCULAR
2015.1**

1. The prospective lower tier participant,

GRANITE CONSTRUCTION NORTHEAST, INC.

certifies, by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day

18th of January

20 06

GRANITE CONSTRUCTION NORTHEAST, INC.

BY: Michael F. Donnino

By Signature of
Authorized
Official

Michael F. Donnino, Sr. Vice President

Name and Title of Authorized Official

**INSTRUCTIONS FOR COMPLETION OF CERTIFICATION REGARDING
DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION -
LOWER TIER COVERED TRANSACTIONS**

1. By signing and submitting this Proposal, the prospective lower tier participant is providing the signed certification set out on the previous page.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Authority may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the Authority if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. The Proposer may contact the Procurement Representative for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Authority.
6. The prospective lower tier participant further agrees by submitting this proposal that it will include the "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.
8. Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under sub-paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, the Authority may pursue available remedies including suspension and/or debarment.



APPENDIX E

GUIDANCE

U.S. Department of
Transportation
**Federal Transit
Administration**

August 21, 2003

Subject: LMRO THIRD PARTY CONTRACTING REQUIREMENTS

1. **PURPOSE.** This document sets forth the requirements a grantee must adhere to in the solicitation, award and administration of its third party contracts funded by the FTA/FEMA grants for the Lower Manhattan Recovery projects. These requirements are based on the common grant rules, Federal statutes, Executive Orders and their implementing regulations, and FTA policy. This document is based on FTA Circular 4220.1E. Inapplicable provisions of that circular are marked "Not Applicable" in this document and are left in place for the benefit of grantees who also receive funds authorized under the Federal Transit Laws who are familiar with the section numbers.
2. **NOT APPLICABLE**
3. **REFERENCES.**
 - a. Federal Transit Laws, 49 U.S.C. Chapter 53 – definitions only.
 - b. 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to Terrorist Attacks on the United States, Public Law 107-38; the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107; the Fiscal Year 2002 Department of Defense Appropriations Act, Public Law 107-117; the Fiscal Year 2002 Department of Transportation and Related Agencies Appropriations Act, Public Law 107-206; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, 42 U.S.C. § 5121-5206.
 - c. Sections 4001 and 1555 of the Federal Acquisition Streamlining Act of 1994, 41 U.S.C. § 403(11) and 40 U.S.C. § 481(b), respectively,
 - d. 49 C.F.R. part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments.
 - e. 49 C.F.R. part 19, Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations.
 - f. Executive Order 12612, "Federalism," dated 10-26-87.
 - g. Not Applicable.
 - h. LMRO Master Agreement.
 - i. Appendix D, Best Practices Procurement Manual.

4. **APPLICABILITY**. This guidance applies to all FTA grantees and subgrantees that contract with outside sources under the joint FTA/FEMA assistance programs for the Lower Manhattan Recovery projects. These requirements do not apply to procurements undertaken in support of capital projects completely accomplished without FTA or FEMA funds.
5. **POLICY**. FTA's role in grantee procurements is reflective of Executive Order 12612, Federalism which directs Federal agencies to refrain from substituting their judgment for that of their recipients unless the matter is primarily a Federal concern and to defer, to the maximum extent feasible, to the States to establish standards rather than setting national standards.
 - a. **Grantee Self-Certification**. Since most FTA grantees have experience with the third party contracting requirements of the "common grant rules" (49 C.F.R. parts 18 and 19), the LMRO will rely primarily on grantees' "self-certifications" that their procurement system meets FTA/FEMA requirements to support the required finding that a grantee has the technical capacity to comply with Federal procurement requirements. All grantees must "self certify" as part of the Annual Certification/Assurance Process.

The LMRO will monitor compliance with this guidance as part of its routine oversight responsibilities and if it becomes aware of circumstances that might invalidate a grantee's self-certification, the LMRO will investigate and recommend appropriate measures to correct whatever deficiency may exist.
 - b. **Review of Third Party Contracts**. The LMRO relies on the validity of each grantee's self-certification and on periodic, post-grant reviews rather than on a pre-award review of third party contracts to ensure that grantees comply with Federal requirements and standards. Grantees are still free to request FTA's pre-award review of their procurements as part of the LMRO's technical assistance program. Conversely, if the LMRO requests to review the record of a particular procurement, grantees must make their procurement documents available for the LMRO's pre-award (or post-award) review.
 - c. **Procurement System Reviews**. The LMRO will fully review and evaluate the performance of grantees in carrying out grant programs with specific reference to their compliance with statutory and administrative requirements. Accordingly, the LMRO will perform a baseline procurement system review as part of its on-going oversight responsibility and may recommend "best practices" in order to assist the grantee in improving its procurement practices. In such cases, the LMRO will identify such recommendations as "advisory."
 - d. **Procurement Technical Assistance**. The LMRO will provide procurement training and technical assistance as requested to enable the grantees to better understand and meet LMRO requirements.
 - e. **Contract Clauses and Provisions**. The LMRO Master Agreement, issued annually and incorporated into each grant, lists many but not all the FTA/FEMA and other

crosscutting Federal requirements applicable to LMRO grantees. Many of these requirements are related to grantee procurements. Further explanations and interpretations of this guidance is can be found in the footnotes of FTA Circular 4220.1E. Suggested wording for contract clauses and provisions are available in FTA's "Best Practices Procurement Manual" available on the FTA website at fta.dot.gov.

f. Not Applicable.

6. **DEFINITIONS.** All definitions in 49 U.S.C. §5302 are applicable to this guidance. The following additional definitions are provided:

- a. "Best Value" is a selection process in which proposals contain both price and qualitative components, and award is based upon a combination of price and qualitative considerations. Qualitative considerations may include technical design, technical approach, quality of proposed personnel, and/or management plan. The award selection is based upon consideration of a combination of technical and price factors to determine {or derive} the offer deemed most advantageous and of the greatest value to the procuring agency.
- b. "Design-Bid-Build" refers to the project delivery approach where the grantee commissions an architect or engineer to prepare drawings and specifications under a design services contract, and separately contracts for at-risk construction, by engaging the services of a contractor through sealed bidding or competitive negotiations.
- c. "Design-Build" refers to a system of contracting under which one entity performs both architectural/engineering and construction under one contract.
- d. "FEMA" is the Federal entity with primary authority to provide federal assistance following a Presidentially-declared major disaster or emergency. It is part of the Emergency Preparedness and Response Directorate of the Department of Homeland Security.
- e. "FTA" refers to the Federal Transit Administration
- f. "Grantee" means the public or private entity to which a grant or cooperative agreement is awarded by the joint FTA/FEMA effort. The grantee is the entire legal entity even if only a particular component of the entity is designated in the assistance award document.

For the purposes of this circular, "grantee" also includes any subgrantee of the grantee. Furthermore, a grantee is responsible for assuring that its subgrantees comply with the requirements and standards of this guidance, and that subgrantees are aware of requirements imposed upon them by Federal statutes and regulations.

- g. Lower Manhattan Recovery Office (LMRO) refers to the FTA office with responsibility for carrying out the Lower Manhattan Recovery projects.

- h. "Piggybacking" is an assignment of existing contract rights to purchase supplies, equipment, or services.
- i. "State" means any of the several states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, any territory or possession of the United States, or any agency or instrumentality of a State exclusive of local governments. "State" does not include any public and Indian housing agency under the United States Housing Act of 1937.
- j. "Tag-on" is defined as the addition of work (supplies, equipment or services) that is beyond the scope of the original contract that amounts to a cardinal change as generally interpreted in Federal practice by the various Boards of Contract Appeals. "In scope" changes are not tag-ons.
- k. "Third party contract" refers to any purchase order or contract awarded by a grantee to a vendor or contractor using Federal financial assistance awarded by FTA.

7. **GENERAL PROCUREMENT STANDARDS APPLICABLE TO THIRD-PARTY PROCUREMENTS.**

- a. Conformance with State and Local Law. Grantees and subgrantees shall use their own procurement procedures that reflect applicable State and local laws and regulations, provided that the procurements conform to applicable Federal law, including the requirements and standards identified in this circular. If there is no State law on a particular aspect of procurement, then Federal contract law principles will apply.
- b. Contract Administration System. Grantees shall maintain a contract administration system that ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.
- c. Written Standards of Conduct. Grantees shall maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer, agent, immediate family member, or Board member of the grantee shall participate in the selection, award, or administration of a contract supported by FTA/FEMA funds if a conflict of interest, real or apparent, would be involved.

Such a conflict would arise when any of the following has a financial or other interest in the firm selected for award:

- (1) The employee, officer, agent, or Board member,
- (2) Any member of his/her immediate family,
- (3) His or her partner, or
- (4) An organization that employs, or is about to employ, any of the above.

The grantee's officers, employees, agents, or Board members will neither solicit nor accept gifts, gratuities, favors, or anything of monetary value from contractors, potential contractors, or parties to subagreements. Grantees may set minimum rules when the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by state or local law or regulations, such standards of conduct will provide for penalties, sanctions, or other disciplinary action for violation of such standards by the grantee's officers, employees, or agents, or by contractors or their agents.

- d. Ensuring Most Efficient and Economic Purchase. Grantee procedures shall provide for a review of proposed procurements to avoid purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase.

Where appropriate, an analysis will be made of lease versus purchase alternatives and any other appropriate analysis to determine the most economical approach.

- e. Intergovernmental Procurement Agreements.

- (1) Grantees are encouraged to utilize available state and local intergovernmental agreements for procurement or use of common goods and services. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included, whether in the master intergovernmental contract or in the grantee's purchase document.
- (2) Grantees are also encouraged to jointly procure goods and services with other grantees. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included in the resulting joint solicitation and contract documents.
- (3) Grantees may assign contractual rights to purchase goods and services to other grantees if the original contract contains appropriate assignability provisions. Grantees who obtain these contractual rights (commonly known as 'piggybacking') may exercise them after first determining the contract price remains fair and reasonable.

- f. Use of Excess Or Surplus Federal Property. Grantees are encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property, whenever such use is feasible and reduces project costs.
- g. Use of Value Engineering in Construction Contracts. Grantees are encouraged to use value engineering clauses in contracts for construction projects.
- h. Awards to Responsible Contractors. Grantees shall make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration shall be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

- i. Written Record of Procurement History. Grantees shall maintain records detailing the history of each procurement. At a minimum, these records shall include:
 - (1) the rationale for the method of procurement,
 - (2) selection of contract type,
 - (3) reasons for contractor selection or rejection, and
 - (4) the basis for the contract price.

- j. Use of Time and Materials Type Contracts. Grantees will use time and material type contracts only:
 - (1) After a determination that no other type of contract is suitable; and
 - (2) If the contract specifies a ceiling price that the contractor shall not exceed except at its own risk.

- k. Responsibility for Settlement of Contract Issues/Disputes. Grantees alone will be responsible in accordance with good administrative practice and sound business judgment for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the grantee of any contractual responsibility under its contracts.

The LMRO will not substitute its judgment for that of the grantee or subgrantee, unless the matter is primarily a Federal concern. Violations of the law will be referred to the local, State, or Federal authority having proper jurisdiction.

- l. Written Protest Procedures. Grantees shall have written protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding protests to the LMRO. All protest decisions must be in writing. A protester must exhaust all administrative remedies with the grantee before pursuing a protest with the FTA.

Reviews of protests by FTA will be limited to:

- (1) a grantee's failure to have or follow its protest procedures, or its failure to review a complaint or protest; or
- (2) violations of Federal law or regulation.

An appeal to FTA must be received by the LMRO within five (5) working days of the date the protester learned or should have learned of an adverse decision by the grantee or other basis of appeal to the LMRO.

- m. Contract Term Limitation. Grantees are expected to be judicious in establishing and extending contract terms no longer than minimally necessary to accomplish the purpose of the contract. Additional factors to be considered include competition, pricing, fairness and public perception. Once a contract has been awarded, an

extension of the contract term length that amounts to an out of scope change will require a sole source justification

- n. Revenue Contracts. Revenue contracts are those third party contracts whose primary purpose is to either generate revenues in connection with a transit related activity, or to create business opportunities utilizing an FTA-funded asset. FTA requires these contracts to be awarded utilizing competitive selection procedures and principles. The extent of and type of competition required is within the discretionary judgment of the grantee.
- o. Tag-ons. The use of tag-ons is prohibited and applies to the original buyer as well as to others as defined in paragraph 6f.
- p. Piggybacking. Piggybacking is permissible when the solicitation document and resultant contract contain an assignability clause that provides for the assignment of all or a portion of the specified deliverables as originally advertised, competed, evaluated, and awarded. If the supplies were solicited, competed and awarded through the use of an indefinite-delivery-indefinite-quantity (IDIQ) contract, then both the solicitation and contract award must contain both a minimum and maximum quantity that represent the reasonably foreseeable needs of the party(s) to the solicitation and contract. If two or more parties jointly solicit and award an IDIQ contract, then there must be a total minimum and maximum.
- q. E-Commerce. E-Commerce is an allowable means to conduct procurements. If a grantee chooses to utilize E-Commerce, written procedures need to be developed and in place prior to solicitation and all requirements for full and open competition must be met in accordance with this circular.

8. COMPETITION.

- a. Full and Open Competition. All procurement transactions will be conducted in a manner providing full and open competition. Some situations considered to be restrictive of competition include, but are not limited to:
 - (1) Unreasonable requirements placed on firms in order for them to qualify to do business;
 - (2) Unnecessary experience and excessive bonding requirements;
 - (3) Noncompetitive pricing practices between firms or between affiliated companies;
 - (4) Noncompetitive awards to any person or firm on retainer contracts;
 - (5) Organizational conflicts of interest. An organizational conflict of interest means that because of other activities, relationships, or contracts, a contractor is unable, or potentially unable, to render impartial assistance or advice to the grantee; a contractor's objectivity in performing the contract work is or might be otherwise impaired; or a contractor has an unfair competitive advantage;

- (6) Specifying only a “brand name” product instead of allowing “an equal” product to be offered without listing its’ salient characteristics.

Grantees may define the salient characteristics in language similar to the following:

- (a) ‘Original Equipment Manufacturer (OEM) part #123 or approved equal that complies with the original equipment manufacturer’s requirements or specifications and will not compromise any OEM warranties’; or
- (b) ‘Original Equipment Manufacturer part #123 or approved equal that is appropriate for use with and fits properly in [describe the bus, engine, or other component the part must be compatible with] and will not compromise any OEM warranties’; and

- (7) Any arbitrary action in the procurement process.

- b. Prohibition Against Geographic Preferences. Grantees shall conduct procurements in a manner that prohibits the use of statutorily or administratively imposed in-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. This does not preempt State licensing laws. However, geographic location may be a selection criterion in procurements for architectural and engineering (A&E) services provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.
- c. Written Procurement Selection Procedures. Grantees shall have written selection procedures for procurement transactions. All solicitations shall:
- (1) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description shall not, in competitive procurements, contain features that unduly restrict competition. The description may include a statement of the qualitative nature of the material, product, or service to be procured and when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a “brand name or equal” description may be used as a means to define the performance or other salient characteristics of a procurement. The specific features of the named brand which must be met by offerors shall be clearly stated.
- (2) Identify all requirements that offerors must fulfill and all other factors to be used in evaluating bids or proposals.
- d. Prequalification Criteria. Grantees shall ensure that all lists of prequalified persons, firms, or products that are used in acquiring goods and services are current and include enough qualified sources to ensure maximum full and open competition.

Also, grantees shall not preclude potential bidders from qualifying during the solicitation period, which is from the issuance of the solicitation to its closing date.

9. **METHODS OF PROCUREMENT.** The following methods of procurement may be used as appropriate:

- a. **Procurement by Micro-Purchases.** Micro-purchases are those purchases under \$2,500. Purchases below that threshold may be made without obtaining competitive quotations. There should be equitable distribution among qualified suppliers and no splitting of procurements to avoid competition. (The Davis-Bacon Act applies to construction contracts above \$2,000.) Minimum documentation is required: A determination that the price is fair and reasonable and how this determination was derived. The other requirements of paragraph 7(i) do not apply to micro-purchases.
- b. **Procurement by Small Purchase Procedures.** Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that cost more than \$2,500 but do not cost more than the simplified acquisition threshold fixed at 41 U.S.C. § 403(11) (currently set at \$100,000). If small purchase procedures are used, price or rate quotations shall be obtained from an adequate number of qualified sources.
- c. **Procurement By Sealed Bids/Invitation For Bid (IFB).** Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming to all the material terms and conditions of the invitation for bids, is the lowest in price.
 - (1) In order for sealed bidding to be feasible, the following conditions should be present:
 - (a) A complete, adequate, and realistic specification or purchase description is available;
 - (b) Two or more responsible bidders are willing and able to compete effectively for the business;
 - (c) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price; and
 - (d) No discussion with bidders is needed.
 - (2) If this procurement method is used, the following requirements apply:
 - (a) The invitation for bids will be publicly advertised and bids shall be solicited from an adequate number of known suppliers, providing them sufficient time to prepare bids prior to the date set for opening the bids;

- (b) The invitation for bids, which will include any specifications and pertinent attachments, shall define the items or services sought in order for the bidder to properly respond;
- (c) All bids will be publicly opened at the time and place prescribed in the invitation for bids;
- (d) A firm fixed-price contract award will be made in writing to the lowest responsive and responsible bidder. When specified in bidding documents, factors such as discounts, transportation costs, and life cycle costs shall be considered in determining which bid is lowest;

Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and

- (e) Any or all bids may be rejected if there is a sound documented business reason.
- (3) The sealed bid method is the preferred method for procuring construction if the conditions in paragraph 9c(1) above apply.
- d. Procurement by Competitive Proposal/Request for Proposals (RFP). The competitive proposal method of procurement is normally conducted with more than one source submitting an offer, i.e., proposal. Either a fixed price or cost reimbursement type contract is awarded. This method of procurement is generally used when conditions are not appropriate for the use of sealed bids. If this procurement method is used the following requirements apply:
- (1) Requests for proposals will be publicized. All evaluation factors will be identified along with their relative importance;
 - (2) Proposals will be solicited from an adequate number of qualified sources;
 - (3) Grantees will have a method in place for conducting technical evaluations of the proposals received and for selecting awardees;
 - (4) Awards will be made to the responsible firm whose proposal is most advantageous to the grantee's program with price and other factors considered; and
 - (5) In determining which proposal is most advantageous, grantees may award (if consistent with State law) to the proposer whose proposal offers the greatest business value to the Agency based upon an analysis of a tradeoff of qualitative technical factors and price/cost to derive which proposal represents the "best value" to the Procuring Agency as defined in Section 6, Definitions. If the grantee elects to use the best value selection method as the basis for award, the solicitation must contain language which establishes that an award will be made on a "best value" basis.

- e. Procurement of Architectural and Engineering Services (A&E). Grantees may use qualifications-based competitive proposal procedures (i.e., Brooks Act procedures) when contracting for A&E services as defined in 40 U.S.C. §541 and 49 U.S.C. §5325(d). Services subject to this method of procurement are program management, construction management, feasibility studies, preliminary engineering, design, architectural, engineering, surveying, mapping, and related services.

Qualifications-based competitive proposal procedures require that:

- (1) An offeror's qualifications be evaluated;
- (2) Price be excluded as an evaluation factor;
- (3) Negotiations be conducted with only the most qualified offeror; and
- (4) Failing agreement on price, negotiations with the next most qualified offeror be conducted until a contract award can be made to the most qualified offeror whose price is fair and reasonable to the grantee.

These qualifications-based competitive proposal procedures should only be used for the procurement of the services listed above. This method of procurement should not be used to obtain other types of services even though a firm that provides A&E services is also a potential source to perform other types of services.

These requirements apply except to the extent the grantee's State adopts or has adopted by statute a formal procedure for the procurement of these services.

- f. Procurement of Design-Bid-Build. Grantees may procure design-bid-build services through means of sealed bidding or competitive negotiations. These services must be procured in a manner that conforms to applicable state and local law, the requirements of this guidance relative to the method of procurement used and all other applicable federal requirements.
- g. Procurement of Design-Build. Grantees may procure design-build services through means of qualifications-based competitive proposal procedures based on the Brooks Act as set forth in Section 9e when the preponderance of the work to be performed is considered to be for architectural and engineering (A&E) services as defined in Section 9e. Qualifications-based competitive proposal procedures should not be used to procure design-build services when the preponderance of the work to be performed is not of an A&E nature as defined in Section 9e, unless required by State law.
- h. Procurement By Noncompetitive Proposals (Sole Source). Sole Source procurements are accomplished through solicitation of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate. A contract change that is not within the scope of the original contract is considered a sole source procurement that must comply with this subparagraph.
- (1) Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids, or competitive proposals and at least one of the following circumstances applies:

- (a) The item is available only from a single source;
 - (b) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;
 - (c) The LMRO authorizes noncompetitive negotiations—e.g., if FTA provides a joint procurement grant or a research project grant with a particular firm or combination of firms, the grant agreement is the sole source approval;
 - (d) After solicitation of a number of sources, competition is determined inadequate; or
 - (e) **NOT APPLICABLE.**
- (2) A cost analysis, i.e., verifying the proposed cost data, the projections of the data, and the evaluation of the specific elements of costs and profit, is required.
- i. **Options.** Grantees may include options in contracts. An option is a unilateral right in a contract by which, for a specified time, a grantee may elect to purchase additional equipment, supplies, or services called for by the contract, or may elect to extend the term of the contract. If a grantee chooses to use options, the requirements below apply:
- (1) **Evaluation of Options.** The option quantities or periods contained in the contractor's bid or offer must be evaluated in order to determine contract award. When options have not been evaluated as part of the award, the exercise of such options will be considered a sole source procurement.
 - (2) **Exercise of Options.**
 - (a) A grantee must ensure that the exercise of an option is in accordance with the terms and conditions of the option stated in the initial contract awarded.
 - (b) An option may not be exercised unless the grantee has determined that the option price is better than prices available in the market or that the option is the more advantageous offer at the time the option is exercised.

10. CONTRACT COST AND PRICE ANALYSIS FOR EVERY PROCUREMENT

ACTION. Grantees must perform a cost or price analysis in connection with every procurement action, including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals.

- a. **Cost Analysis.** A cost analysis must be performed when the offeror is required to submit the elements (i.e., labor hours, overhead, materials, etc.) of the estimated cost, (e.g., under professional consulting and architectural and engineering services contracts, etc.).

A cost analysis will be necessary when adequate price competition is lacking and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or on the basis of prices set by law or regulation.

- b. Price Analysis. A price analysis may be used in all other instances to determine the reasonableness of the proposed contract price.
- c. Profit. Grantees will negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. To establish a fair and reasonable profit, consideration will be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.
- d. Federal Cost Principles. Costs or prices based on estimated costs for contracts under grants will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles. Grantees may reference their own cost principles that comply with applicable Federal cost principles.
- e. Cost Plus Percentage of Cost Prohibited. The cost plus a percentage of cost and percentage of construction cost methods of contracting shall not be used.

11. BONDING REQUIREMENTS. For those construction or facility improvement contracts or subcontracts exceeding \$100,000, the LMRO may accept the bonding policy and requirements of the grantee, provided the LMRO determined that the policy and requirements adequately protect the Federal interest. The LMRO has determined that grantee policies and requirements that meet the following minimum criteria adequately protect the Federal interest:

- a. A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified;
- b. A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract; and
- c. A payment bond on the part of the contractor. A payment bond is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract. Payment bond amounts determined to adequately protect the federal interest are as follows:

- (1) Fifty percent of the contract price if the contract price is not more than \$1 million;
 - (2) Forty percent of the contract price if the contract price is more than \$1 million but not more than \$5 million; or
 - (3) Two and a half million dollars if the contract price is more than \$5 million.
- d. A Grantee may seek LMRO approval of its bonding policy and requirements if they do not comply with these criteria.

12. PAYMENT PROVISIONS IN THIRD PARTY CONTRACTS.

- a. Advance Payments. FTA does not authorize and will not participate in funding payments to a contractor prior to the incurrence of costs by the contractor unless prior written concurrence is obtained from FTA.
- b. Progress Payments. Grantees may use progress payments provided the following requirements are followed:
 - (1) Progress payments are only made to the contractor for costs incurred in the performance of the contract.
 - (2) The grantee must obtain adequate security for progress payments. Adequate security may include taking title, letter of credit or equivalent means to protect the grantee's interest in the progress payment.

13. LIQUIDATED DAMAGES PROVISIONS. A grantee may use liquidated damages if it may reasonably expect to suffer damages and the extent or amount of such damages would be difficult or impossible to determine.

The assessment for damages shall be at a specific rate per day for each day of overrun in contract time; and the rate must be specified in the third party contract. Any liquidated damages recovered shall be credited to the project account involved unless the LMRO permits otherwise.

14. NOT APPLICABLE.

15. CONTRACT PROVISIONS. All contracts shall include provisions to define a sound and complete agreement. In addition, contracts and subcontracts shall contain contractual provisions or conditions that allow for:

- a. Administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, including sanctions and penalties as may be appropriate. (All contracts in excess of the small purchase threshold.)
- b. Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of \$10,000.)

16. STATUTORY AND REGULATORY REQUIREMENTS. A current but not all inclusive and comprehensive list of statutory and regulatory requirements applicable to

grantee procurements (such as Davis-Bacon Act, Clean Air, etc.) is contained in the LMRO Master Agreement. Grantees are responsible for evaluating these requirements for relevance and applicability to each procurement. Further guidance concerning these requirements and suggested wording for contract clauses may be found in FTA's Best Practices Procurement Manual.

For specific guidance concerning the crosscutting requirements of other Federal agencies, grantees are advised to contact those agencies.

DOWNTOWN RESTORATION PROGRAM

THE WORLD TRADE CENTER
TRANSPORTATION HUB
SITE SAFETY PROGRAM

HEALTH AND SAFETY REQUIREMENTS

PREPARED BY: PORT AUTHORITY of NEW YORK and NEW JERSEY

May 21, 2005

THE WORLD TRADE CENTER TRANSPORTATION HUB
SITE SAFETY PROGRAM

HEALTH AND SAFETY REQUIREMENTS

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SECTION 1.0 PROJECT INFORMATION

1.01 Program Objective

The Port Authority of New York and New Jersey (the "Port Authority") has prepared this Site Safety Program to promote safety, and to mitigate and/or control all hazards and risks associated with the construction at the World Trade Center (WTC) Site including the WTC Port Authority Trans-Hudson (PATH) Transportation Hub (WTC/HUB). The goals of this program are to prevent personal injury, property damage, environmental matters and to reduce all direct and indirect costs and productivity losses attributable to accident occurrences.

1.02 Program Approach

The Port Authority approach to safety management begins with the establishment of minimum site requirements as contained in this document for worker protection, public safety, and protection of adjoining properties/utilities/streets, and the environment. All measures are intended to ensure regulatory compliance and best management practices during the performance of any work at the WTC Site.

Work to be performed at the WTC Site is to be accomplished in conjunction and coordination with the operation of the PATH rail rapid transit system. Constant care must be exercised to avoid any adverse impacts attributable to construction activities on PATH's patrons, employees or the general operation of the system.

1.03 Program Effectiveness And Cooperation

The effectiveness of this program is dependent on the active participation and cooperation of all project stakeholders including the Port Authority, its consultants, all contractors, subcontractors, and employees thereof, tradesmen, vendors, participating city, state and Federal officials and authorized visitors. The success of the program, its implementation and maintenance requires the careful coordination of all activities on the WTC Site respectful of the following items:

- a) All work must be planned prior to execution to ensure that appropriate care is taken to anticipate and eliminate all risks or potential for personal injury, property damage, and environmental contamination;
- b) The means and methods decided for the performance of any work must comply with the safety requirements of all applicable Federal, state and local jurisdictional rules and regulations, ordinances, codes, statutes, industry standards, Port Authority policies and procedures and the Contract Documents;

- c) Reliable, verifiable and uniform safety and health procedures must be established and maintained for the entire WTC Site to ensure the prompt detection and remediation of unsafe conditions or work practices;
- d) Comprehensive safety training must be established and maintained for WTC Site workers to enhance safety awareness, and to promote a cooperative approach in the identification and mitigation of unsafe or unhealthy conditions and work practices;
- e) Comprehensive, enforceable, and site-specific Health and Safety Plans (HASPs) and Job Hazard Analyses (JHAs) must be established, and be readily available at the worksite to ensure that all work is performed in a manner that eliminates predictable worker, property, and environmental hazards. All HASPs and JHAs, at a minimum, shall be updated every six months, or as required by the Port Authority Resident Engineer, based upon any changes in the scope of work or the intended method of execution;
- f) A comprehensive communications system must be established and maintained to ensure that all emergency response contacts and related information are readily available throughout the WTC Site for the prompt reaction to, and investigation of, all accidents/incidents;
- g) All emergency activities and response must be coordinated among all Port Authority, city, state and Federal responders and entities.

1.04 Titles and Responsibilities of WTC Site Personnel

Engineer of Construction

The Engineer of Construction is the duly authorized representative of the Chief Engineer, the final authority regarding the interpretation and application of all jurisdictional codes, regulations, and ordinances at the WTC Site. The Engineer of Construction, or his/her duly authorized representative, is primarily responsible for ensuring that a WTC Site Safety Program is developed and implemented in accordance with this document and the program objectives to ensure a safe and healthy worksite. The Engineer of Construction represents the Port Authority Engineering Department and contractor on the WTC Site Safety Committee. The day-to-day enforcement and administration of the WTC Site Safety Program and all associated HASPs and JHAs is the responsibility of the Port Authority Resident Engineer.

Port Authority Resident Engineer

The Port Authority Resident Engineer is responsible for the daily monitoring and enforcement of the WTC Site Safety Program, and for issuing final approval for all HASPs, JHAs, plans, practices, submittals, and drawings. The Port Authority Resident Engineer's authority and responsibilities at the WTC/HUB worksite include, but are not limited to, the following:

- a) The stoppage of any construction activities if warranted for protection of life and/or property/or utilities, protection of the environment, or the elimination of any hazardous or potentially hazardous conditions;
- b) Ensure that the contractor and all subcontractors provide effective safety enforcement and management;
- c) Notify the contractor and his Site Safety Manager when unsafe working conditions, practices and behavior are detected (e.g., lack of good housekeeping practices, use of equipment in obviously poor condition, failure to adhere to rules, regulations, ordinances or policies regarding safety);
- d) Notify the contractor and his Site Safety Manager in writing of any noncompliance with safety requirements contained in either the contract documents or the established WTC Site Safety Program;
- e) Maintain all written communications to the contractor and his Site Safety Manager on file regarding any matters of site safety management;
- f) Review all Daily Reports, Equipment Maintenance Log, Inspection Reports, and Accident Reports as appropriate. Such reports are to be promptly submitted and audited to ensure that the contractor takes immediate and prudent action to correct all anticipated or discovered safety deficiencies;
- g) Direct the immediate removal from Port Authority property any employee, worker, person, or equipment on the WTC/HUB worksite deemed unnecessary or dangerous;
- h) Report all accidents/incidents within WTC/HUB and all serious injuries to PATH patrons/employees to the Manager, System Safety and Security Division;
- i) Conduct a biweekly safety meeting with the Engineer of Construction, Site Safety Manager and supervisory representatives from the contractor and all subcontractors to discuss all current safety and health issues associated with the work in progress and prepare a safety update for presentation at the upcoming WTC Site Safety Committee meeting.

Inspection & Safety Division-Risk Management

The Inspection & Safety Division-Risk Management (I&SD-RM) will advise and support the Port Authority Resident Engineer in all matters of occupational and public safety, health, and environmental protection. I&SD-RM is represented on the WTC Site Safety Committee, and at a minimum, shall provide the following services:

- a) Routinely inspect and monitor the safety performance of the contractor on the WTC/HUB worksite, and prepare reports documenting their findings and corrective recommendations for the protection of workers, the public, adjoining structures, utilities, and the environment. Such written reports will be provided to the Port Authority Resident Engineer immediately following any routine inspection;
- b) Review the Contract Documents, drawings, specifications, and submittals to ensure compliance with all applicable safety standards codes;
- c) Review all HASPs and JHAs provided by the Port Authority Resident Engineer to ensure uniformity and completeness in accordance with all applicable safety standards and codes and best management practices;
- d) Conduct accident investigations to identify the factors contributing to all incidents, and provide recommendations to prevent reoccurrences;
- e) Accompany outside regulatory agency representatives, i.e., Occupational Safety and Health Administration (OSHA), Fire Department of New York (FDNY) and insurance brokers throughout their routine inspections and investigations;
- f) Provide ongoing recommendations to improve the effectiveness of the WTC Site Safety Program.

Treasury-Risk Management Division

Treasury-Risk Management will advise and support the Port Authority Resident Engineer in all matters of insurance, and coordinates with the insurance company safety representatives in a cooperative approach to site safety. Under the Port Authority's Owner Controlled Insurance Program (OCIP), qualified insurance company safety professionals who have significant years of field experience in accident prevention in the construction industry, will focus their efforts on current safety and health issues, and their potential impact to the Agency. These safety professionals will work under the direction of the I&SD-RM, and in cooperation with the Port Authority Resident Engineer regarding all health and safety matters within the WTC/HUB worksite.

At a minimum, Treasury-Risk Management shall:

- a) Coordinate and maintain effective and routine communication with all parties involved in the safety and loss control efforts provided by the Port Authority and Insurers involved in the management and control of risk within the WTC Site;
- b) Analyze loss trends, prepare safety and loss control reports, including an analysis of accident frequency, severity and causes. Provide recommendations to increase the effectiveness of the WTC Site Safety Program;

- c) Routinely review and recommend changes and/or enhancements to the application and content of the HASPs submitted by the contractor and each subcontractor.

PATH System Safety and Security Division

PATH System Safety and Security Division (PATH SS&SD) will advise and support the Port Authority Resident Engineer in all matters of occupational and public safety, emergency management, fire protection and environmental protection that affect the PATH rail rapid transit system. The PATH SS&SD is represented on the WTC Site Safety Committee, and at a minimum, the PATH SS&SD or PATH designee shall provide the following services:

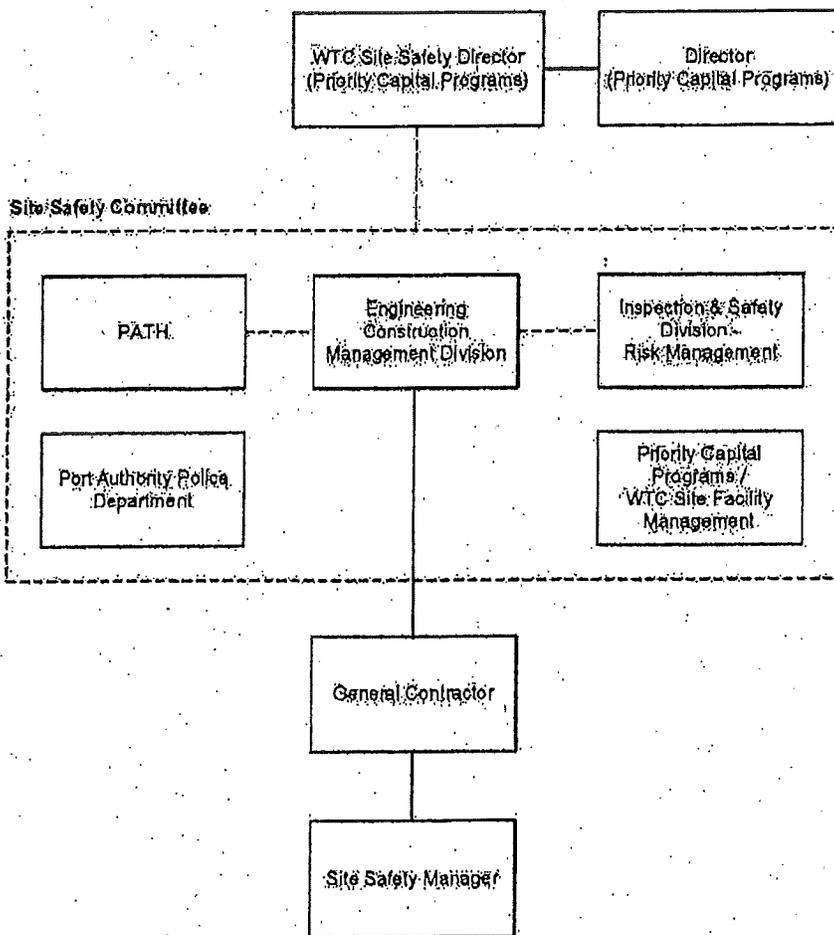
- a) Routinely inspect and monitor the safety performance of the contractor on site in the PATH Right-of-Way, Station and terminal areas, and prepare written reports documenting their findings with corrective recommendations for worker protection, the protection of the public, adjoining structures, utilities, emergency management, egress, fire protection concerns and the environment. Such written reports will be provided to the Port Authority Resident Engineer immediately following any routine inspection;
- b) Review Contract Documents, drawings, specifications, and submittals to ensure compliance with all applicable safety, environmental and transportation standards and codes;
- c) Conduct accident/incident/injury investigations within the PATH Right-of-Way, station/terminal areas to identify the factors contributing to the accident/incident/injury, and provides recommendations to prevent reoccurrences;
- d) Accompany outside regulatory agency representatives, i.e., Federal Railroad Association (FRA), FDNY in the performance of their routine inspections and investigations of the PATH Right-of-Way, Station and terminal areas;
- e) Provide ongoing recommendations to improve the effectiveness of the WTC Site Safety Program;
- f) Provide and update the PATH System Safety Program Plan, PATH Emergency Preparedness Plan for WTC Temporary Station, PATH Emergency Preparedness Plan (EPP) and PATH System Security Program Plan.

WTC Site Safety Director

The Port Authority shall designate a person to serve as the WTC Site Safety Director (SSD). The SSD will serve as the Chairperson of the WTC Site Safety Committee, and is responsible for a fully coordinated and uniformly implemented WTC Site Safety Program throughout the WTC Site including the WTC/HUB. The SSD is also responsible for the promotion, planning

and implementation of all safety awareness programs, practices, procedures, and training necessary to control, reduce, and eliminate hazards throughout the WTC Site:

The SSD will have access to all project staff, and reports directly to the Director of Priority Capital Programs. The organizational chart below shows the relationship of the SSD with the other members of the WTC Site Safety Committee.



The SSD ensures that all WTC stakeholders implement the WTC Site Safety Plan and that it is updated as required to address the changing conditions of the WTC Site that may affect

health and safety of the work environment. This includes the coordination of the various Port Authority Departments, WTC stakeholders and external agencies supporting the construction of the WTC/HUB. Such stakeholders and agencies include, but not limited to, Federal safety/health/environmental protection regulatory agencies, New York City agencies, New York State agencies, the Metropolitan Transit Authority, the Lower Manhattan Construction Command Center, utility companies, Lower Manhattan Development Corporation, and WTC Net Lessee(s).

At a minimum, the SSD has the following responsibilities:

- a) Identify, promote, plan, develop and coordinate all site safety activities, programs and initiatives to preserve and protect the health and safety of all workers and employees within the WTC Site, the public, adjoining properties and utilities, and the environment;
- b) Develops and directs a comprehensive on-site inspection program to audit all construction activities within the WTC Site to ensure compliance with all applicable federal, state, and local regulations related to the health and safety of the workers and the public;
- c) Coordinates all activities amongst WTC stakeholders to ensure that the work of one entity does not adversely impact the health and safety of another;
- d) Reviews and revises as required the WTC Site Safety Program and its associated health and safety requirements to improve overall worksite conditions; continually evaluate the effectiveness of its programs and initiatives, and initiate changes based on current industry trends;
- e) Ensures the preparation of site-specific HASPs and JHAs by all WTC stakeholders, the implementation of such plan(s), and revisions thereto, as the project develops;
- f) Coordinates WTC Site safety training; and implements associated initiatives and objectives;
- g) Participates in the investigation of all accidents on-site. Provides the necessary support for investigative entities for purposes of conducting their investigation;
- h) Tracks and verifies that identified site safety deficiencies are corrected in a timely manner;
- i) Serves as a Port Authority liaison to outside Federal, state, and city agencies as it relates to WTC Site health and safety issues;
- j) Reviews and/or audits all documentation maintained in the Port Authority Resident Engineer's Office related to safety as required.

WTC Site Facility Management

WTC Site Facility Management is responsible for the safe and orderly operation, maintenance, and security of the WTC Site on a 24 hour basis, 365 days per year. Facility Management is represented on the WTC Site Safety Committee, and at a minimum, shall provide the following services:

- a) Establish policies and procedures governing Site operations and Site security to facilitate redevelopment;
- b) Approve access for authorized individuals and vehicles;
- c) Provide physical upkeep for common facilities;
- d) Approve contractor traffic management and security plans; and
- e) Maintain designated public areas and facilities.

Contractor

The contractor is solely responsible for accident and fire prevention, overall job site safety, the protection of adjoining properties/utilities/structures, the environment, and the WTC/HUB.

Safety management and enforcement shall be administered by a full-time employee of the contractor certified by the Building Code of the City Of New York (NYCBC) as a Site Safety Manager. The Site Safety Manager shall cooperate and work with the Port Authority Resident Engineer, and shall directly report to the company's CEO and/or Corporate Safety Director, and not to the site Project Manager or Job Superintendent. This responsibility shall not be delegated nor contracted out to subcontractors, suppliers, consultants, or any other persons or agency without the expressed written approval of the Port Authority Resident Engineer.

The Port Authority Resident Engineer and the WTC Site Safety Committee will review the resume of any Site Safety Manager proposed by the contractor. A personal interview may also be required. Only an individual deemed to be fully qualified by the Port Authority Resident Engineer and WTC Site Safety Committee shall be approved as a Site Safety Manager.

The responsibilities of the contractor include, but are not limited to, the following:

- a) The planning and execution of all construction work in accordance with the objectives and safety requirements of the WTC Site Safety Program, the Contract Documents, Port Authority policies and procedures, and all applicable Federal, state and local laws, rules, regulations, statutes, and ordinances. The scheduling of all construction work must be approved in advance by the Port Authority Resident Engineer, so as not to interfere or conflict with, PATH Maintenance and Operations;

- b) Develop and submit an original and fifteen (15) copies of a written WTC Site specific HASP within fourteen (14) working days of the Port Authority's acceptance of the contractor's proposal. The HASP shall be reviewed and approved by the Port Authority Resident Engineer prior to the commencement of any work other than mobilization to ensure that construction activities do not interfere with PATH's abilities to provide a safe and secure environment for its patrons and employees, and to evacuate passengers in the event of an emergency situation. All HASPs and JHAs, at a minimum, shall be updated every six months, or as required by the Port Authority Resident Engineer, based upon any changes in the scope of work or the intended method of execution;
- c) The stopping of all construction activities as warranted for the protection of life and/or property, streets, utilities, the environment, and the PATH rail system;
- d) Ensure formal and "tool-box" safety meetings are conducted on a weekly basis. All meetings shall be documented to identify the date of the meeting, the individual running the meeting, the issues discussed, follow-up actions, and a list of attendees present;
- e) Ensure that all subcontractors, employees, workers, and visitors on the WTC Site are familiar with the provisions of the approved HASP, including all rail safety Roadway Worker Protection, conditions and procedures, including but not limited to working adjacent to an operational rail rapid transit system and energized third rail;
- f) Notify the Port Authority Resident Engineer immediately if any inspector or official from any industry, Federal, state or local safety entity (i.e., FDNY, OSHA, FRA, etc.) arrives on the job site for a formal safety inspection or media inquiry;
- g) Ensure that if any conflicts are discovered between the approved HASP and any other Federal, state, or local rules, regulations or ordinances, the more stringent requirement will be complied with. Should such a conflict be discovered, the contractor shall notify the Port Authority Resident Engineer immediately;
- h) Provide the Site Safety Manager with a two-way voice communication system (e.g., NEXTEL telephone) that provides direct and immediate contact with all emergency contacts;
- i) Develop and administer a comprehensive "Return to Work" program. Duties shall be identified which shall provide suitable work activities and/or environment to permit injured individuals to return to work in a modified, limited, or restricted status/condition.

The Site Safety Manager

The contractor shall designate a full time Site Safety Manager (SSM) unless otherwise directed by the Port Authority Resident Engineer. The SSM shall report directly to the Port Authority Resident Engineer on all matters of safety and risk.

The SSM ensures through documented worksite inspections, training, and the JHA process, that site workers are performing work in a manner that minimizes the potential for injury, property damage, and environmental contamination.

In addition to occupational safety and health management, the general contractor's SSM shall be responsible for compliance with the New York City Department of Building's (NYCDOB), Subchapter 19 - *Safety of Public and Property During Construction Operations*, for the protection of the public and property during construction operations.

The SSM shall possess a current and valid Site Safety Manager Certificate issued by the NYCDOB, consistent with Subchapter 19 - *Safety of Public and Property During Construction Operations*. A copy of a valid and current certification shall be contained in the contractor's HASP as submitted to the Port Authority Resident Engineer.

At a minimum, the SSM shall have the following responsibilities:

- a) Ensure that the site specific HASP appropriately addresses all applicable Federal, state and local regulatory standards, ordinances, etc., and the site specific requirements of the WTC Site Safety Program, as well as contractor responsibilities for PATH system safety and adherence to PATH's safety rules and programs as applicable to this project;
- b) At a minimum, perform weekly worksite safety inspections with the competent persons of each subcontractor and work crew to identify, document and correct any health and safety deficiencies; and to enforce the requirements of the HASP approved by the Port Authority Resident Engineer;
- c) Ensure that the contractor and all subcontractors prepare appropriate JHAs for each task identifying the hazards and controls required to minimize the risk of injury;
- d) Provide appropriate site safety orientation training for all workers and employees, as well as task specific training as required by the WTC Site Safety Program and all applicable OSHA regulations;
- e) Verify that all equipment has been inspected and maintained in accordance with applicable OSHA regulations and manufacturer's specifications, and maintains appropriate documentation on site of all such inspections;
- f) Maintains a current listing of all competent persons as defined by OSHA at all times during performance of work at the site. Competent person certifications shall be

submitted to the Port Authority Resident Engineer for review and approval prior to the start of any such work. Activities that require a competent person shall be immediately terminated if no such person is readily available or the applicable OSHA standard is not adhered to;

- g) Ensures that each contractor and/or subcontractor work crew has a competent person assigned during each work shift, and that the competent person remains on site for the duration of the task;
- h) Ensures that the contractor and all subcontractors working on the site adhere to all of the requirements of the WTC Site Safety Program, HASPs and JHAs approved by the Port Authority Resident Engineer;
- i) Prepares weekly safety updates for distribution to each subcontractor performing work under the Contract. Copies of which shall be provided to the Port Authority Resident Engineer;
- j) Ensures that the contractor convenes weekly safety meetings with his employees and subcontractors to inform them of all site safety issues and initiatives implemented by the WTC Site Safety Committee;
- k) Conducts initial site orientation and routine site safety training programs for all employees and workers which at a minimum shall include a review of the approved HASPs and JHAs, a description of the hazards present at the WTC Site which they may be in contact with or exposed to, identification of the procedures and equipment needed to eliminate the hazards; and the availability of all required personal protective equipment (PPE) necessary to perform the work and emergency procedures;
- l) Ensure that prior to use, all workers are trained and proficient in the use, inspection, and maintenance of all equipment, aerial lifts, machinery, electric power tools, pneumatically driven tools, hydraulic power tools, fuel powered tools, and powder actuated tools in accordance with applicable regulations and the manufacturer's specifications;
- m) Ensures the implementation of a comprehensive WTC Site safety training program as approved by the Port Authority Resident Engineer and coordinated by the WTC Site Safety Committee;
- n) Maintains on site all training documentation including the training date, name of instructor, training agenda, and training session sign-in sheets and list of all attendees including job title, trade and WTC Identification Number. Conducts and ensures that all contractor and subcontractor employees, visitors or other personnel who work, inspect, etc., construction activities on or adjacent to the PATH tracks or platforms are trained and annually certified in PATH's Roadway Worker Protection Program. Said persons must carry proof of certification at all times and the SSM must certify in writing that the personnel he/she trains have been properly trained and tested to

- demonstrate a competency and understanding of the rail safety rules and procedures. Such a written certification to the Manager, System Safety & Security Division shall be required prior to the issuance of certification cards in accordance with 49 CFR Part 214;
- o) Conducts accident investigations and prepares follow-up reports describing the incident, contributing factors, and actions to be taken to prevent a re-occurrence;
 - p) Ensures that the HASP and all associated JHAs are in compliance with all applicable Federal, state and local rules, regulations, statutes and ordinances;
 - q) Performs the required inspections as outlined in Appendix A, Paragraph I: Periodic Site Safety Inspections, of Subchapter 19 of the NYCBC;
 - r) At a minimum, prepares, maintains, revises as required subject to the review and approval of the Port Authority Resident Engineer the following plans as required by Subchapter 19 of the NYCBC:
 - 1. Lifting Operations
 - 2. Crane and Sling Inspections
 - 3. Fire Prevention and Protection
 - 4. Sidewalk / Roadway Protection
 - 5. Horizontal and Vertical Netting Installation and Inspection
 - 6. Machinery Inspection
 - 7. Demolition
 - 8. Excavations
 - s) Establish site safety performance goals and measures and provide appropriate weekly reporting.

OSHA Competent Person

A competent person is a person capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

The contractor and each subcontractor shall designate, and will have present on site during the performance of work during each shift at least one competent person as defined by the OSHA standard 29 CFR Part 1926.32, and where referenced in other 29 CFR Part 1926 standards.

At a minimum, each competent person shall have attended, and will possess identification cards verifying attendance in an OSHA 30 Hour Construction Industry Outreach Training Program. The Site Safety Manager shall obtain prior to the performance of any work a document indicating the experience and training of each competent person assigned to that task.

1.05 General Requirements

The contractor shall protect the health and safety of their employees, subcontractors, and suppliers, all employees of the Port Authority, all site visitors, the public, and other persons in or in the vicinity of the WTC Site. The contractor is also responsible to protect all property, materials, supplies, and equipment either existing, constructed or stored on the site pending the issuance of a Final Certificate of Completion unless otherwise expressly approved by the Port Authority. Listed below are some of the requirements that the contractor must satisfy to achieve these purposes:

- a) Each contractor performing work at the WTC Site shall furnish a full time SSM who reports directly to the contractor's CEO and/or Corporate Safety Director, and not to the site Project Manager or Job Superintendent. This responsibility shall not be delegated nor contracted out to subcontractors, suppliers, consultants, or any other persons or agency without the expressed written approval of the Port Authority Resident Engineer;
- b) The SSM cooperates and works with the Port Authority Resident Engineer in the implementation of the HASP, and compliance with the requirements of the NYCBC Subchapter 19: Safety of Public and Property During Construction Operations for all work performed under the Contract;
- c) Prior to the commencement of work, the contractor and each subcontractor shall prepare for the review and approval of the Port Authority Resident Engineer a site specific HASP. At a minimum, the HASP shall include the following:
 1. All submittals required by this Safety Program;
 2. Provisions to appropriately address all health and safety requirements specified by this Program;
 3. The contractor's and/or subcontractor's company name, address, onsite organizational structure including specific job titles and responsibilities and all contact telephone numbers;

4. Job Hazard Analysis (JHAs) for each specific scope of work or task;
5. A written Emergency Action and a Fire Prevention and Protection Plan identifying at a minimum locations of all fire extinguishing devices, standpipes, emergency egress routes, emergency vehicle access routes, alarm systems, chemical and compressed gas storage locations, evacuation routes, assembly locations, etc. Existing fire protection systems within PATH's station shall not be impacted unless specific contractual work is required. PATH's Fire Safety Director monitors the system 24/7 and all activities shall be coordinated with them through the Port Authority Resident Engineer;
6. A written Traffic Control Plan identifying for all proposed access routes, staging areas, crane hoisting locations, employee parking, temporary traffic signal controls, worker and pedestrian crossings, vehicular and pedestrian gates for exit and entry, barriers, barricades, lighting, and fencing;
7. A written Hazard Communications Plan;
8. A written plan addressing compliance with PATH's Operational and Safety requirements;
9. A written plan to address the general housekeeping of the worksite including, but not limited to, the appropriate storage and/or security of all new and waste materials, the continued maintenance of clear access and egress paths, walkways, and traffic areas, the maintenance of all permanent and temporary structures and buildings, maintaining work areas free from accumulations of waste materials, rubbish, debris, or other refuse and/or equipment discarded during the performance of work, and the removal, disposal and/or control of all rogue water, snow, dust, other transient materials with a potential for release from the WTC Site;
10. A written plan outlining the securing and anchorage of all materials and equipment to resist uplift attributable to high winds with particular attention to wind hazards which could adversely impact PATH operations and patrons;
11. A written plan to address the grounding of all temporary electrical services, panels, tools and equipment in accordance with all applicable OSHA regulations and the National Electrical Code (NEC), including the implementation of an "Assured Grounding Program". All electrical tools, extension cords and equipment must be appropriately grounded in accordance with the requirements of OSHA and the NEC. The contractor is advised that appropriate personnel precautions and restricted access must be established for work within specific locations of PATH adjacent to unguarded electrical equipment. Such access will be restricted to personnel deemed qualified by the Port Authority Resident Engineer;

12. A written plan to address the installation and maintenance of appropriate fencing, barricades, signage, markings and lighting to mitigate hazardous conditions;
 13. A written plan to address the design, erection, use, maintenance and inspection of all ladders and scaffolds prior to use. All ladders and scaffolds utilized shall be confirmed as appropriate for the application in accordance with current federal standards and manufacturer's requirements. All workers shall be trained in ladder and scaffold use prior to performing tasks requiring their use;
 14. A written plan to address burning, cutting, and/or welding operations including the consequences and penalties for such work without a permit as issued by the Port Authority Resident Engineer. The SSM shall monitor and verify that proper fire protection measures have been provided prior to the commencement of any "hot" work;
 15. All tools or equipment must be inspected prior to work. Any tool or piece of equipment that shows evidence of defects or excessive wear shall be tagged, and removed from service and replaced, or repaired in accordance with the manufactures specifications. The SSM shall maintain a written record of the disposal and/or removal of the equipment from the worksite;
 16. All necessary document classification markings in accordance with Port Authority information security policies.
- d) No employee shall possess, use, purchase, sell, distribute, receive, store, or be under the influence of a controlled substance or alcohol when performing work at the WTC Site. Offending personnel shall be removed and/or dismissed from the WTC Site and/or subject to criminal prosecution as warranted by their infraction. The contractor is directed to implement a reasonable suspicion program, training supervisory employees in the signs and symptoms of Drug and Alcohol abuse and initiate testing of employees who evidence such behaviors;
 - e) No employee shall possess, carry, use, receive, purchase, sell, or store a firearm at the WTC Site. The Port Authority Police shall be informed of all such offenders;
 - f) Prior to the use of an explosive or incinerating device, each contractor must submit their plan to the Port Authority Resident Engineer for review and approval;
 - g) Prior to the start of any work, other than site mobilization and surveying activities, the contractor shall conduct a meeting with all site supervisors to discuss and identify the potential risks and hazards for their scope of work;
 - h) First aid supplies as designated by OSHA 29 CFR Part 1926.50 shall be accessible for immediate use. The number of employees, and the nature of the work shall determine the size and number of first aid kits/stations. First aid kits are to be inspected weekly

and supplies replenished promptly. As required by OSHA 29 CFR Part 1926.50(c), the contractor and each subcontractor shall have a competent person at the worksite at all times during the performance of work who is familiar with first aid treatment and Cardio Pulmonary Resuscitation (CPR).

1.06 Description Of Work

The requirements contained in this Program are applicable to all projects associated with the redevelopment of the WTC Site including the WTC/Hub.

1.07 Emergency Notification Procedures

The contractor will develop procedures under the guidance of the Port Authority Resident Engineer to contact the Port Authority Police, the I&SD-RM, and other authorized Port Authority personnel or Units for the following occurrences:

1. Accidents,
2. Fatalities,
3. Fires,
4. Bomb Threats
5. Workplace Violence,
6. Site Intrusions,
7. Civil Disturbances,
8. Medical Emergencies,
9. Hazardous Materials Incidents,
10. Environmental Contamination,
11. Property/Utility Damage,
12. Pedestrian Injuries,
13. Structural Failures and Collapses,
14. Crane Failures,

15. Suspicious activities, items or deliveries.

The contractor's emergency procedures shall be continually reviewed and revised to provide maximum effectiveness. All procedures are to be included in the HASP, and coordinated with the SSM through the Port Authority Resident Engineer.

1.08. Emergency Notifications

The SSM shall ensure that all accidents are reported, verified, investigated, and analyzed as prescribed by this section. The contractor and each subcontractor performing work at the WTC Site shall instruct their employees and other personnel to report all injuries or occupational related illnesses immediately to the Port Authority Police Department (PAPD), the Port Authority Resident Engineer, and their immediate supervisor. The following steps shall be followed for any accident on the WTC Site that requires off-site medical treatment:

- a) Immediately report all worker injuries, exposures, and accidents to the PAPD, and then via telephone to all contacts contained in the WTC Site Emergency Directory;
- b) Seek and obtain prompt and competent medical assistance for anyone who is injured. The injured person's supervisor ensures that first-aid is administered and/or emergency medical personnel, i.e., PAPD are summoned if necessary;
- c) Except for rescue and emergency personnel, immediately secure the area and restrict access. The accident scene shall not be disturbed until it has been released by PAPD, Port Authority Resident Engineer, I&SD-RM, and PATH (as appropriate);
- d) Copies of the preliminary accident report shall be delivered to the Port Authority Resident Engineer within 24 hours of the occurrence;
- e) Only authorized personnel, such as the Port Authority Resident Engineer, Engineer of Construction, SSD, I&SD-RM, PATH System Safety and Security Division, authorized Port Authority representatives, or authorized regulatory agencies shall be given information pertaining to the event;
- f) Actions to be taken during emergencies should be discussed regularly with site supervision and at "tool box" safety meetings. Telephone numbers and locations of emergency facilities including, but not limited to, hospitals, physicians, fire and emergency medical services and police shall be posted in conspicuous locations at the job sites and at all telephone locations. Any emergency situation, which impacts on PATH's rail rapid transit system, must be immediately communicated via the Port Authority Resident Engineer to the PATH Trainmaster.

1.09 Regulatory References

Work performed at the WTC Site shall at a minimum comply with the most recent version of the applicable requirements of the following agencies as they pertain to worker safety and health, environmental protection, waste management, and transportation. The more stringent regulation shall be followed:

1. U.S. Occupational Safety and Health Administration Titles 29 CFR Part 1904, and 1926
2. U.S. Environmental Protection Agency Title 40 CFR
3. U.S. Department of Transportation Title 49 CFR
4. NYS Department of Environmental Conservation
5. NYS Department of Transportation
6. NYS Department of Labor
7. NYC Department of Buildings
8. NYC Fire Department
9. NYC Department of Health and Mental Hygiene
10. NYC Department of Environmental Protection
11. NYC Department of Sanitation
12. NYC Department of Transportation
13. NYC Department of Consumer Affairs
14. NFPA 130 – Standard For Fixed Guideway Transit Passenger Rail Systems.
15. Port Authority Security Policies and Procedures

1.10 WTC Site Safety Committee

A WTC Site Safety Committee shall be established for the WTC Site. The committee shall be comprised of the following site representatives:

- a) The WTC Site Safety Director, who will serve as the Chairperson of the WTC Site Safety Committee;

- b) The Engineer of Construction and other support staff including, but not limited to, the Port Authority Resident Engineer and representatives from the contractor and subcontractors;
- c) An authorized representative of the I&SD-RM;
- d) An authorized representative of PATH;
- e) An authorized representative of Priority Capital Programs/WTC Site Management;
- f) A representative of the Port Authority Police Department.

This Committee will meet biweekly, or as requested otherwise by the SSD, to discuss occupational health and safety issues, including but not limited to inspection findings, training, safety updates, monitoring results, general site conditions, and any revisions in approved HASPs and JHAs. This includes conflicts between the requirements of approved HASP and any other Federal, state, or local rules, regulations or ordinances. The SSD shall prepare the agenda, document all meeting proceedings, and distribute a meeting report to all attendees.

In conjunction and in support of the biweekly Committee meetings, the Engineer of Construction with the Port Authority Resident Engineer will conduct biweekly meetings with the SSM and supervisory representatives of the contractor and all subcontractors. All representatives of the WTC Site Safety Committee may attend. The purpose of the meeting is to review and discuss all current life safety issues associated with the work in progress and to finalize a biweekly safety update for presentation during the upcoming Committee meeting.

1.11 WTC Site Safety Communications

At a minimum weekly, or as directed otherwise by the Port Authority Resident Engineer, site safety inspections will be conducted and documented by the SSM with the designated competent persons of the contractor and each subcontractor. The SSM will prepare a report documenting the inspection and identifying all safety and health deficiencies discovered. Such noted deficiencies will be annotated with a timeframe and completion date for remedy as approved by the Port Authority Resident Engineer. Copies of all such reports will be distributed to the Port Authority Resident Engineer, the contractor, each subcontractor and the members of the WTC Site Safety Committee. Each subcontractor shall then convene a weekly meeting with their employees to inform them of all such safety and health deficiencies, and update them regarding the remediation status of each.

1.12 WTC Site Safety Reporting

On a weekly basis, the SSM will provide the Port Authority Resident Engineer with copies of the following safety update documentation:

- a) Weekly occupational and safety reports as stipulated in Subchapter 19 and the Chapter entitled "Rules and Regulations" of the NYCBC;
- b) A written summary of all outstanding and corrected safety and health deficiencies;
- c) Updated training documents and equipment inspection reports;
- d) All revised Job Hazard Analyses;
- e) Updated and new regulatory plans and programs;
- f) Accident/incident reports and investigations;
- g) Copies of Tool Box Talks, and safety classes and meetings minutes;
- h) Report on performance against established site safety goals and measures.

SECTION 2.0 TRAINING

It is the Port Authority's intention to maintain a healthy and safe environment for the performance of work within and in the vicinity of the WTC Site. All contractors and subcontractors, their supervisors and employees must therefore complete orientation training before performing work at the WTC Site. Each contractor and subcontractor shall be responsible for the development and implementation of such an orientation program to familiarize all site supervisors and employees with the objectives and goals of the Site Safety Program, including specific safety precautions and awareness required to work on or adjacent to an operating rail rapid transit system and the provisions of their submitted HASP. In addition, all site supervisors and employees should be advised of the disciplinary actions available to the Port Authority Resident Engineer for noncompliance.

It is the Port Authority's intention to also maintain a secure environment for the performance of work within and in the vicinity of the WTC Site. All contractors and subcontractors, their supervisors and employees shall complete security orientation training before obtaining a WTC ID or Vehicle Pass enabling them to perform work at the WTC Site. Each contractor and subcontractor shall be responsible for enrolling staff that will be assigned to work at the Site in the training program.

In accordance with applicable OSHA and FRA regulations, each employee of the contractor and each subcontractor shall receive site orientation, and task specific safety training prior to their starting work at the WTC Site. The development, implementation, annual certification and continuance of such training shall be the responsibility of the SSM.

The SSM shall maintain onsite, and make available to the Port Authority, all training documentation and logs that include the date, name of instructor, agenda, attendance sign-in sheets and a list of attendees with their job titles, trades and WTC Identification Numbers. WTC Site training shall consist of, but not be limited to, the following topics:

- a) The recognition, avoidance, and control of actual or potential unsafe or unhealthy worksite conditions;
- b) PATH On Track Safety Training for working on or adjacent to the PATH rail rapid transit system;
- c) Hazard communications training in the labeling, handling, storage, use, spill response, and disposal of hazardous materials, chemicals, products, and wastes (i.e., flammable, combustible, toxic, caustic, pressurized, cryogenic, explosive, etc.). Copies of each chemical products material safety data sheet shall be maintained at a location within the worksite, and made available to all workers during all shifts;
- d) The selection, use, limitations, inspection, maintenance, care, and storage of all personal protective equipment (PPE);
- e) Fire prevention and response training including the recognition, selection, and use of proper fire extinguishers to be used in the event of fire and inter / intra-agency fire response procedures;
- f) The selection, use, erection, inspection, maintenance, disassembly, and fall protection requirements for the use of ladders, scaffolds, and aerial lifts (i.e., extensible boom platforms, aerial ladders, articulating boom platforms, vertical towers, man-buckets, etc.);
- g) Flagman training for roadway closures and traffic and pedestrian diversions;
- h) The use, inspection, and maintenance of all equipment, machinery, electric power tools, pneumatically driven tools, hydraulic power tools, fuel powered tools, and powder actuated tools in accordance with applicable regulations and the manufacturer's specifications;
- i) PPE required for the worker and material fall protection;
- j) Requirements of the WTC Site Safety Program, and approved HASPs and JHAs and disciplinary actions for worker safety infractions.

SECTION 3.0 EMERGENCY ACTION/FIRE PROTECTION AND PREVENTION PLANS

The SSM shall prepare a WTC Site Emergency Action Plan (EAP) for the review and approval by the Port Authority Resident Engineer, and provide routine updates to ensure that the information contained therein is always current. This plan shall include notifications to the Port Authority Police, the Port Authority Resident Engineer, and members of the WTC Site Safety Committee, and at a minimum address the following:

1. Responses to medical emergencies and releases of blood and body fluids;
2. Summoning and coordinating emergency medical services;
3. Coordination with PATH;
4. Construction site fire protection, prevention and response;
5. Storage of chemicals, flammable and combustible liquids, and compressed gases;
6. Emergency ingress and egress locations and meeting points;
7. Site evacuation procedures;
8. Maintenance of ingress, egress and exit pathways;
9. Elimination of fire hazards;
10. Housekeeping and debris removal;
11. Procedures to account for employees following an evacuation;
12. Emergency notifications and alarm systems. A general alarm warning signal, such as horns, sirens, etc, shall be installed to initiate a general evacuation. All workers shall be informed of the signal type and tone and be directed to evacuate in a safe orderly manner upon the activation of the signal;
13. Responses to chemical and petroleum spills and releases, fires, and structural failures and collapses;
14. Responses to high wind conditions, lightning, snow, and thunder storms.

SECTION 4.0 WORKSITE HAZARD ASSESSMENTS

4.01 Performance of Job Hazard Analysis

The SSM and the competent persons for the contractor and each subcontractor performing work at the worksite shall identify those job functions that require the creation of a JHA. This document must identify the hazards associated with each work task, and the steps to control the hazards. Prior to the start of any work, the JHA must be reviewed and approved by the Port Authority Resident Engineer. At a minimum, the JHA form as referenced in OSHA Publication # 3071: Job Hazard Analysis, Revised 2000, shall be used. To ensure effectiveness, understanding and the cooperation of all parties, the JHA should be developed with input from the workers, and discussed with the work crew prior to the performance of work. The competent person and the SSM shall maintain copies of each JHA at the task site.

4.02 Preparation of Required Regulatory Plans and Programs

Based upon the nature and scope of the work, the SSM shall establish control procedures and plans as specified in 29 CFR Part 1926, and ensure that such controls and procedures are contained in the approved HASP.

The SSM and the competent person for each subcontractor performing work on site shall determine when occupational exposure assessments are required for physical and chemical hazards such as noise, silica dust, metals, fumes, carbon monoxide, solvent vapors and particulates, etc. The SSM shall arrange all such monitoring during the performance of work. Each affected employee shall be notified in writing of the results.

The SSM shall ensure that all exposure monitoring is performed using accepted analytical methodologies, i.e., OSHA and National Institute of Occupation Safety and Health (NIOSH), and that the sampling frequency and results are representative of the work exposure. All sampling instrumentation used shall be properly calibrated.

Samples collected shall be submitted to a laboratory maintaining appropriate qualifications, licensing, and current certifications, e.g., American Industrial Hygiene association (AIHA) certification.

The results of these exposure assessments shall be compared to the Threshold Limit Values of Airborne Contaminants For Construction, 29 CFR 1926.55 Appendix A, or other industry accepted and recognized exposure limits.

4.03 Equipment Inspections and Maintenance

The SSM shall ensure that all equipment and machinery is inspected, used, maintained, repaired, and stored in accordance with applicable regulations and the manufacturer's

specifications. All inspections shall be conducted regularly and documented, and a copy of the report forwarded to the Port Authority Resident Engineer.

Prior to each use, the competent person for the contractor and each subcontractor shall ensure that the employee's personal fall arrest system (full body harness, connectors, Dee rings, snap hooks, lanyards, lifelines, and anchorage points) is properly inspected, in good condition, and has the required tensile strength and load bearing capacity.

4.04 Ionizing Radiation

Contractors or subcontractors who perform activities using sources of ionizing radiation or X-rays must comply with the requirements of 29 CFR Part 1926.53 and the pertinent provisions of the Nuclear Regulatory Commission's Standards for Protection Against Radiation (10 CFR Part 20) and the New York State Department of Labor, Ionizing Radiation Protection (12 NYCRR Part 38). In particular, regulated sources must be properly licensed, securely stored, properly labeled and leak tested. Operator manuals must be available and users must be competent and specially trained in the proper and safe operation of the equipment.

4.05 Waste Management

All waste generated on site shall be properly stored, sorted, contained, labeled and disposed of on a daily basis.

SECTION 5.0 HEALTH AND SAFETY REQUIREMENTS

The contractor and each subcontractor performing work shall be required and responsible to prepare and implement the requisite programs, plans, and procedures necessary to protect worker health and safety, and to comply with all applicable Federal, state, and local codes, rules, regulations, and ordinances. In addition to regulatory compliance, the following WTC site-specific requirements shall be followed.

5.01 General Duty Clause

The contractor and all subcontractors, workers and employees performing work shall comply with the requirements of the OSHA, Section 5 (a) and (b): General Duty Clause.

Section (a): The contractor and all subcontractors:

- 1) Shall furnish to each worker and/or employee employment and a place of employment that are free from recognized hazards that are causing or are likely to cause death or serious physical harm;

- 2) Shall comply with occupational safety and health standards promulgated under the OSHA.

Section (b): The contractor and all subcontractors:

- 1) Shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to OSHA which are applicable to his own actions and conduct.

5.02 Record Keeping and Reporting Occupational Injuries and Illnesses

The contractor and each subcontractor performing work shall maintain records, reports, and posting consistent with the requirements specified in OSHA 29 CFR Part 1904.

5.03 General Safety and Health Provisions

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart C: General Safety and Health Provisions.

5.04 Occupational Health and Environmental Controls

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart D: Occupational Health and Environmental Controls, in addition to the following mandatory specific worksite requirements:

- a) For hand washing purposes, all temporary lavatories shall provide either hand soap with running hot and cold or tepid potable water, or a sanitizing hand wash. Remote hand wash stations providing running hot and cold or tepid potable water will be permitted providing they are located in close proximity of the lavatory. Paper towels must be provided;
- b) A break area furnished with tables, chairs, hand wash stations, temporary lavatories, lights, and trash containers must be provided;
- c) Trash, refuse, and construction debris shall not be allowed to accumulate for more than one day in areas of assembly, such as but not limited to locker rooms, lunch rooms, storage areas, and each jobsite location. A sufficient number of trash containers and construction dumpsters shall be provided, and shall be disposed of on a daily basis;
- d) Lighting for each work location, which at a minimum, complies with the requirements as referenced in 29 CFR Part 1926.56;

- e) Provisions for the quick flushing of the eye shall be provided and maintained.

5.05 Personal Protective Equipment

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart E: Personal Protective and Life Saving Equipment, in addition to the following mandatory specific worksite requirements:

- a) The minimal personal protective equipment requirements for work at the WTC Site are hard hats, reflective safety vests, work boots, and eye protection. A flashlight is required when working on or adjacent to PATH track areas and platforms;
- b) The SSM and the competent person for the contractor and each subcontractor performing work shall select and issue all PPE identified in approved JHAs. All analyses shall be documented, maintained at the task site, and on file with the SSM;
- c) All selected PPE shall comply with the most recent American National Standards Institute (ANSI) requirements;
- d) Full-length pants and shirts with sleeves that cover the entire shoulder must be worn at all times within the WTC Site.

5.06 Fire Protection and Prevention

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926 Subpart F: Fire Protection and Prevention, in addition to the following mandatory specific worksite requirements. The contractor and the SSM shall have overall responsibility for compliance and maintenance of fire safety. Fire safety shall not be delegated to individual subcontractors.

- a) Flammable and combustible liquids shall only be stored and transported in approved 1, 2, or 5-gallon Type I and II safety cans with spring loaded closing lids and flashback protection, or, in the alternative, United States Department of Transportation (US DOT) approved containers.
- b) All safety cans and containers shall be protected from fire, spark, impact, falls, and falling objects. Appropriate color-coding and permanent labeling "Gasoline", "Kerosene", or "Diesel" on the can to designate their contents shall adorn all safety cans and containers.
- c) Flammable and combustible liquid storage cans shall be stored in approved fire cabinets, protected from fire, spark, impact, falls to lower levels, and falling objects.

- d) At a minimum, an actively charged 20-B: C fire extinguisher shall be permanently mounted in plain view, with unobstructed access within 25 feet of every flammable and combustible liquid storage & use locations.
- e) During construction, a 2-A rated fire extinguisher shall be located on each floor adjacent to each stairway; an additional 2-A rated fire extinguisher shall be provided one for each 1500 square feet of building area, with a maximum unobstructed travel distance not to exceed 75 feet.
- f) At least half of the distributed fire extinguishers shall be A:B:C rated. All extinguishers with a classification of B: C, or multiple classifications of A: B: C extinguishers shall be rated not less than 20-B.
- g) Buckets and/or water supply are not acceptable alternatives to approved portable fire extinguishers.
- h) Pressurized water can extinguishers, if used, shall be provided with an approved anti-freeze solution in areas open to ambient temperatures during cold weather.
- i) Appropriate, material-specific extinguishers shall be provided for any hazards not specifically noted above.
- j) All self-propelled equipment (forklifts, cranes, rollers, etc.) shall be provided with appropriate portable fire extinguishers.
- k) A sufficient number of portable extinguishers shall be stored onsite to maintain the proper distribution. Used or defective extinguishers shall be removed and replaced with new units immediately after use or discovery of the defect. A contract with an approved fire extinguisher contractor is recommended for inspection, test, and maintenance.
- l) All fire extinguishers shall be mounted off the floor, clearly visible with signs noting location where necessary, and have unobstructed access to them.
- m) Fire extinguishers shall be maintained in a state of readiness. All required inspections, tests and maintenance shall be not less than that required by applicable codes and standards (NFPA 10 - Standard for Portable Fire Extinguishers, as referenced by the NYC Fire Prevention Code).
- n) The SSM and the competent person for the contractor and each subcontractor shall post "No Smoking Signs" as necessary in all areas where combustible materials, flammable/combustible liquids and compressed gas cylinders are used or stored. However, smoking is prohibited within all PATH areas.
- o) Combustible materials, including but not limited to wood, paper, cardboard, plastic, trash, refuse, etc. shall not be allowed to accumulate in storage locations, or on floors

being constructed. A designated refuse area shall be established for accumulation awaiting pickup. All combustible materials must be removed from each floor under construction and the worksite on a daily basis.

- p) Active stairways, aisles, and all egress pathways shall remain unobstructed, and free from the storage of debris, combustible materials, flammable liquids, compressed gas cylinders, and equipment.

5.07 Signage

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart G: Signs, Signals, and Barricades.

5.08 Materials Handling

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926 Subpart H: Materials Handling, Storage, Use, and Disposal, in addition to the following mandatory specific worksite requirements:

- a) The designated competent person for each work crew using alloy steel chain, wire rope, natural and synthetic fiber rope, nylon/polyester/polypropylene webs (slings), shackles, eye-bolts, and hooks for the hoisting, lifting, supporting and suspension of materials shall at a minimum, inspect, maintain, and store the above elements at a frequency consistent with 29 CFR Part 1926.251: Rigging Equipment For Material Handling;
- b) The designated competent person shall provide documentation of all sling inspections (daily, routine, and annual), maintain a copy of the inspection report at the worksite, and provide a copy of the inspection report to the SSM.

5.09 Hand and Power Tool Use

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart I: Tools – Hand and Power, in addition to the following mandatory specific worksite requirements:

- a) Prior to the performance of work, the designate competent person for each work crew shall inspect all hand and power tools to ensure that workers are protected from the tool's point of operation. Workers shall be protected from open and exposed belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, reciprocating and rotating parts, and abrasive wheel explosions;

- b) Prior to use, the designate competent person shall ensure that all workers are trained and proficient in the use, inspection, and maintenance of all equipment, electric power tools, pneumatically driven tools, hydraulic power tools, fuel powered tools, and powder actuated tools in accordance with applicable regulations and the manufacturer's specifications;
- c) As referenced in 29 CFR Part 1926.300(b)(4)(iv), each competent person needs to additionally evaluate the types of power tools noted;
- d) All power tools shall be inspected by the designated competent person to verify all switches are operational, and all power cords are firmly attached and in good repair;
- e) To prevent displacement, all pneumatic airlines and hoses shall be secured to each other and the tool through the use of whip lines, cotter pins, retainers, or a similar securing mechanism.

5.10 Welding and Cutting Operations

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart J: Welding and Cutting, in addition to the following mandatory specific worksite requirements:

- a) At no time will free standing, unsecured compressed gas cylinders exist at the WTC Site;
- b) A label indicating ownership shall be affixed to each compressed gas cylinder identifying the contractor as the cylinder user;
- c) All compressed gas cylinders shall either be secured by chains or a bracket to a welder's handcart, or stored and secured by chains within storage cages;
- d) Storage cages shall be identified and labeled according to their contents;
- e) Compressed gas cylinders shall not be secured to building components such as structural columns, scaffolds, ladders/stair towers, guardrails, hand/stair rails, and rebar;
- f) All compressed gas cylinders when not in use shall be stored with the valve protection cap in place;
- g) Flammable and oxygen gas cylinders when stored must be separated by at least 20 feet, or by the construction of a 30-minute fire resistant barrier at least 5 feet in height;
- h) During all oxygen-fuel gas and arc welding and cutting operations, a fire watch with an adequately sized and proper class fire extinguisher shall be provided in the

immediate vicinity, and all locations that could be impacted by spark or slag. All combustible materials and flammable liquids and gases shall be either removed from the vicinity, or protected in-place. The fire watch shall remain in-place until such time there is no potential for combustible material ignition. The fire watch shall not perform any other duties when acting as a fire watch;

- i) During welding and cutting operations, surrounding employees and workspaces shall be protected from spark and glare through the use of welders screens;
- j) Welding clamps shall not be connected to any electrical conduit, wiring, or component;
- k) For each individual torch operation, a Cutting/Welding Permit shall be requested, and issued from the Port Authority Resident Engineer prior to the performance of work. Prior to all torch operations, the SSM shall submit the FDNY Certificates of Fitness for the welder, and fire watch to the Port Authority Resident Engineer for review and approval;
- l) Compressed gas cylinders shall not be stored in direct sunlight, in the snow, or in locations where they cannot be seen or subject to impact.

5.11 Electrical

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart K: Electrical, in addition to the following mandatory specific worksite requirements:

- a) On a daily basis, prior to the performance of each shift, the competent person shall inspect all extension cords, power cords, plug and cord sets, outlets, and tools. Damaged or defective cords, plugs, outlets, and tools shall be removed from service;
- b) Extension cords with missing ground plugs must be removed from service and discarded;
- c) All extension cords shall be connected to in-line ground fault circuit interrupters. The competent person shall test each line to verify that it is ground faulted protected prior to use.

5.12 PATH Operational Safety Conditions and Precautions

PATH is an electrified rail rapid transit facility and care must be exercised around various unguarded AC and DC electric installations. All personnel entering PATH Right-of-Way and facilities shall comply with PATH safety rules and procedures. In particular, personnel must not place hands or feet between track switch points and stock rails or switch housings, or step

or stand on switch rods, until the switch is properly authorized to be taken out of service and is securely clamped so that it cannot be moved.

Caution must also be exercised around train stop mechanisms, and other moving mechanical apparatus, which may move at any time. During winter weather conditions, the train stop and switch heaters may be turned on, causing the heater rods, switch rods, rails, and train stops to be hot and potentially cause burns if touched. Red sleeves are attached to the train stop heads when the train stop heaters are turned on.

Entrance to any Power Signals & Communications (PS&C) facility requires proper authorization and accompaniment by PS&C personnel. Any person entering such a facility (relay room, bungalow, high tension feeder room, wayside signal case, etc.) must exercise particular care to avoid inadvertent contact with energized conductors, terminals, and apparatus that may cause electric shocks and burns resulting in personal injury and possible death.

Impedance bonds are large black metal units mounted on the ties between the running rails, generally at signal locations where there are insulated rail joints. Proper procedures and safety precautions must be exercised before disconnecting any cables between the rails and the impedance bonds, due to the presence of potentially dangerous traction return currents. Also, the internal tuning capacitors and secondary coil of the impedance bonds may have a potential of 150 volts or higher.

Where the contractor's work is on or adjacent to the PATH ROW, the contractor and each subcontractor is required to annually pass the PATH's On Track Safety Course and provide documentation and certify that the firm's employees has taken and passed the class. The course encompasses the On Track Safety Program, personnel protective equipment, communications, safety rules and procedures, emergency signals, etc. The full text of PATH's On Track Safety Program is contained within Appendix III of the PATH Book of Rules.

- a) Access onto the PATH system tracks must be coordinated in advance through the Port Authority Resident Engineer.
- b) As determined by the Port Authority Resident Engineer, those employees requiring access onto the tracks will require annual mandatory PATH On Track Safety Training in accordance with FRA regulations prior to commencing with work.
- c) Schedule and perform the Work in the sequence shown on the Contract Drawings in such a manner as not to delay, endanger, or interfere with PATH operations. To the extent feasible the scheduled sequence and the times of the contractor's operations, once approved, will be adhered to and operations of PATH and others will be scheduled so as to cause the least interference with the contractor's operations. However, should the Port Authority Resident Engineer deem that any portion of the area in which the contractor is working is required by PATH, the contractor will be required to suspend operations and remove personnel, and obstructing plant,

equipment and materials from such areas, within 1/2 hour of notice to suspend operations and stand by, if necessary, until directed by the Port Authority Resident Engineer to resume operations in such areas.

- d) Take all precautions necessary for protection of persons and property during dust or fragment generating operations, concrete mixing or placing, painting or other operations which may stain, soil or damage property, or injure persons. Provide and erect waterproof, fire-resistant, UL labeled tarpaulins with flame spread rating of 15 or less or other protective enclosures as approved by the Port Authority Resident Engineer.
- e) The contractor and each subcontractor shall conform to the following:
 - 1. Do not enter upon PATH Right-of-Way unless a Port Authority Employee -In-Charge (EIC) and the PATH flagmen assigned to the contractor are present;
 - 2. Do not permit material, equipment, or other objects to lie within or project into the PATH Right-of-Way.
 - 3. All personnel on or adjacent to the PATH ROW are required to have a PATH Roadway Worker Protection Certification card on his/her person at all times for inspection by the EIC.
- f) Provide sound suppression devices on gasoline and diesel powered construction equipment and pneumatic tools as required to maintain noise exposure below the limits specified in 29 CFR Part 1926 OSHA. Maintain such sound suppression devices in proper operating condition throughout the time of their use and make adjustments and repair as required to maintain noise within exposure levels stipulated in 29 CFR Part 1926.52, Table D-2.
- g) Do not store combustible products or flammable materials at areas of Work.
- h) At all times while performing Work, require workers to wear tear away reflective safety vests, eye protection, hard hats and boots with non-slip type soles. Reflective safety vests shall have a visible reflective surface of not less than 100 square inches on front and back.
- i) Do not burn or bury debris of any type on PATH property, or wash waste materials down sewers or into waterways.
- j) Construction Site Conditions and Performance in Tunnels and Stations:
 - 1. The use of propane heaters and gasoline or diesel powered construction equipment within tunnels or at underground stations is prohibited.

2. Use of liquids having a flashpoint below 73 degrees F and boiling point below 100 degrees F is prohibited, unless specifically approved by the Port Authority Resident Engineer.
3. Provide and operate air-moving equipment when fume-generating operations are in progress. During such operations provide air monitoring and test for toxicity (PPM), oxygen deficiency and combustible gas (% LEL).

k) PATH Rail Transportation:

Under no circumstances will the contractor or any subcontractor be permitted to use PATH passenger trains to transport personnel, materials or equipment of any kind in connection with the performance of the Work.

l) PATH Flagger Services:

Flaggers are required for the following operations in connection with performance of the Work:

1. Work within or closer than 10 feet to the PATH Right-of-Way;
2. Work that requires crossing or obstruction of tracks;
- ~~3.4.~~ Use of PATH rail transportation or contractor's rail transportation;
- ~~4.5.~~ Work that in any way interferes with or interrupts PATH train service operations;
5. Work, which, in the sole discretion of the Port Authority Resident Engineer, requires flaggers for safety purposes.

m) Traction Power and Existing Utilities:

1. The contractor's attention is called to the fact that there will be high voltage electric lines and rails for PATH traction power at or adjacent to the areas of Work and no representation is made that such lines and rails will be de-energized during performance of the Work of the Contract. The contractor shall take all necessary precautions to protect his personnel and others affected by his operations from injury from such high voltage electric lines and rails. Such lines and rails will remain energized for PATH operations except where shut-off is approved by the Port Authority Resident Engineer;
2. Maintain operation of existing utility services such as compressed air, water, sewers, electricity, ventilation or fire protection and PATH surveillance cameras, signal and communication systems during performance of Work of the Contract, except as absolutely necessary for cutoff, cutover or other change

of the affected systems, as approved by the Port Authority Resident Engineer. Coordinate with the Port Authority Resident Engineer prior to interrupting or otherwise affecting any operating system, utility or service;

3. Shut-off and turn-on of traction power or existing utility, signal or communication service will be performed by PATH;
4. Notify the Port Authority Resident Engineer of all shut-off or turn-on requirements.

n) PATH On-Track Safety Program:

PATH requires that all contractor and subcontractor personnel who may enter the track area at any time be certified by successfully completing the "PATH ON-TRACK SAFETY PROGRAM" in compliance with the Rules and Regulations set forth in FRA Regulation 49 CFR PART 214, Subpart C, entitled "RAILROAD WORKER PROTECTION". Contractor personnel not certified under this program will not be permitted to enter the PATH track area. On a monthly basis, PATH will provide a four-hour certification class, which includes a certification test for supervisory staff representing the contractor. The contractor's supervisory staff will then be required to train and certify all additional contractor personnel that may be performing Work of the Contract. A letter certifying that the listed contractor personnel have been trained on the "PATH ON-TRACK SAFETY PROGRAM" and, that they fully understand and will comply with all requirements of FRA rules, shall be filed with PATH's Manager, System Safety and Security Division at One PATH Plaza, Jersey City, NJ 07306, Tenth Floor, within 48 hours of such training. Only the persons specified in such letter will be permitted to enter the track area.

5.13 Scaffolding – Support, Suspended, Aerial

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926 Subpart L: Scaffolds and Scaffolding Systems, in addition to the following mandatory specific worksite requirements:

- a) Only a trained work crew under the supervision of a competent person shall be permitted to erect, use, modify, move, or dismantle any support, suspended, or aerial scaffold;
- b) The SSM shall maintain a list of the names and training experience of all contractor and subcontractor workers and/or employees competent to erect, use, and dismantle a scaffold and scaffolding system, and use of aerial lift;
- c) The competent person for the work crew erecting, using, or dismantling a scaffold and a scaffolding system, or using an aerial lift shall inspect the scaffold on a daily basis, or as required, prior to the performance of work by each shift, to ensure the scaffold

and scaffolding system, or aerial lift complies with all applicable regulation and is acceptable for use;

- d) The competent person for the work crew erecting, using, moving, dismantling a scaffold and a scaffolding system, or using an aerial lift shall document the inspection using a checklist, keep a copy of the completed checklist at the jobsite, and provide the SSM with a copy;
- e) At a minimum, on a weekly basis, the competent person for the work crew erecting, using, dismantling a scaffold and scaffolding system, or an aerial lift shall affix a notification sign or tag to the scaffold or system indicating the status for use.

5.14 Fall Protection

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926 Subpart M: Fall Protection, in addition to the following mandatory specific worksite requirements:

- a) All workers and/or employees on a walking/working surface having an unprotected side or edge which is equal to or greater than six feet above a lower level (including but not limited to wells, pits, excavations, holes, wall openings, roof openings, shaft ways, hoist areas, material loading/off loading areas) shall require fall protection through the use of guardrails, personal fall arrest, safety nets, or floor/ground and wall covers;
- b) Prior to each use, the competent person for the contractor and each subcontractor shall ensure that his employee's personal fall arrest system (full body harness, connectors, Dee rings, snap hooks, lanyards, lifelines, and anchorage points) are properly inspected, in good condition, and have the required tensile strength and load bearing capacity;
- c) All workers and employees walking or working at any height above a dangerous process or piece of equipment shall be protected from falling through the use of guardrails, personal fall arrest, or safety nets;
- d) All workers and employees exposed to falling objects shall be required to wear a hardhat, and be protected from falling objects through the use of screens, toe boards, safety nets, canopies, or restricted access;
- e) Personal fall arrest shall be required for all workers and employees working in vehicle mounted aerial platforms, extensible boom platforms, articulating boom platforms, vertical towers, and aerial ladders;

- f) A Qualified Person as defined by 29 CFR Part 1926.32 must design the required lifeline and anchorage systems. The competent person shall be required to install, inspect, and maintain the system as designed;
- g) The SSM for the contractor and the competent person for the contractor and each subcontractor performing work on site shall develop an emergency response plan in the event a worker who experienced a fall wearing a personal fall arrest harness needs to be rescued.

5.15 Cranes, Derricks, Hoists, Elevators and Conveyors

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart N: Cranes, Derricks, Hoists, Elevators, and Conveyors, and Subchapter 19 and the Chapter entitled "Rules and Regulations" of the NYCBC, in addition to the following mandatory specific worksite requirements:

- a) The contractor shall maintain a copy of the Certificate of Approval and Certificate of Operation issued by the Cranes and Derricks Division of the Building Department of the City of New York, and copies of all current licenses for Operators and Riggers performing work on the WTC Site;
- b) In addition, the contractor must submit an application for a Certificate of On-Site Inspection on approved Building Department forms to the Port Authority Resident Engineer for review and approval. The contractor must also perform all associated safety testing in accordance with the NYCBC in the presence of the Port Authority Resident Engineer and the SSM. All testing results will be compiled and maintained on file by the SSM for inspection by the I&SD-RM;
- c) If deemed necessary, the contractor shall prepare and submit an Erection and Dismantling Plan and Procedure to the Port Authority Resident Engineer for review and approval in accordance with the requirements of the NYCBC.

5.16 Motor Vehicle and Mechanical Equipment

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart O: Motor Vehicles, Mechanized Equipment, and Marine Operations, in addition to the following mandatory specific worksite requirements:

- a) Each operator of motor vehicles on the WTC Site shall have a valid and current driver's license with appropriate vehicle classification and each motor vehicle shall display the required annual safety inspection sticker and Port Authority identifiers;
- b) Only properly identified company vehicles with valid proof of proper insurance shall be allowed on the WTC Site. Vehicles shall have required identification properly

- displayed on each side of the vehicle. Markings can be either decal, magnetic or painted on the vehicle;
- c) All vehicles must be properly insured and documentation must be made available upon request. Signs shall be sufficient size to be readable from 100 feet. At a minimum, vehicle signs shall contain:
 - 1. Company Name
 - 2. Company Address
 - 3. Company Telephone Number
 - d) The contractor will furnish, at their own expense, qualified traffic flagmen as necessary to control the work traffic, unless otherwise directed by the Port Authority Resident Engineer. Flagmen shall be provided with appropriate PPE;
 - e) All vehicles with obstructed view to the rear, and all other vehicles as required by law, shall be equipped with a functioning back-up alarm;
 - f) Employee owned vehicles and/or equipment shall be parked only in locations designated by the Port Authority Resident Engineer. Illegally parked vehicles/equipment are subject to removal. The Port Authority shall not assume any costs respective of towing fees, vehicle damage and/or any costs associated with this action;
 - g) All construction equipment windshields and side windows shall be clean and unbroken. Safety equipment such as head, tail, brake, and clearance lights, etc., shall be in good repair, clean and tested daily, or at the beginning of each shift;
 - h) All operators of construction equipment shall be properly licensed, and approved to use that equipment by the SSM. Copies of certifications, licenses, etc. shall be maintained in file onsite by the SSM and available upon request by the Port Authority Resident Engineer;
 - i) Vehicles used to transport personnel shall have seats firmly secured and adequate for the number of individuals to be carried. All passengers shall be properly seated utilizing a manufacturer installed restraint device. Standing or kneeling on moving vehicles is prohibited.

5.17 Excavations

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926 Subpart P: Excavations, in addition to the following mandatory specific worksite requirements:

- a) No subsurface penetrations, core drilling, pilot holes, trenching or excavations operations are to be performed before either the Port Authority, or an outside agency or utility performs a mark-out. All underground utilities that are to remain must be protected for the duration of the operation;
- b) The competent person for each crew performing excavation and trenching operations shall be present at the worksite at all times when workers are within the excavation or trench;
- c) A means of access and egress once the excavation or trench reaches a depth of 4 feet shall be provided, and depending upon the soil classification and worksite conditions provide cave-in protection when the depth reaches 5 feet, and fall protection if the depth of the trench or excavation equals or exceeds 6 feet;
- d) Establish a warning system to protect workers within the excavation or trench from vehicles;
- e) All overhead hoisting operations that could produce material fall hazards to workers within the excavation or trench shall be evaluated and the appropriate corrective measures be taken;
- f) At a minimum, on a daily basis prior to the performance of work by each shift, or following an incident that possibly could affect the integrity of the protective system, the competent person for each crew performing excavation and trenching operations shall inspect the excavation, protective system, egress ways, and adjacent areas. All inspections shall be documented, with a copy maintained at the jobsite and a copy provided to the SSM;
- g) Prior to the commencement of any trench work, a plan showing the location, route, width and depth of the trenching is to be submitted to the Port Authority Resident Engineer for review and approval. If trench shoring or shielding is required, a design prepared and stamped by a licensed NYS Professional Engineer is to accompany the plan;
- h) Open trenches, excavations, and stockpiled material at the construction site shall be appropriately barricaded, posted, and lighted;
- i) All coverings for open trenches or excavations shall be appropriately anchored or pinned to prevent displacement, and be of sufficient strength to support at least twice the maximum axle load of the largest vehicle expected to cross over the cover.

Working within a covered trench or excavation without prohibiting vehicle traffic over it is prohibited.

5.18 Concrete and Masonry Work

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926 Subpart Q: Concrete and Masonry Construction.

5.19 Steel Erection

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart R, in addition to the following mandatory specific worksite requirements:

- a) Multiple erection loads (Christmas treeing) is prohibited;
- b) The raising or lowering of loads above workers, pedestrians, or active roadways is strictly prohibited;
- c) Personal platforms must have a positive-lock latch with a locking bolt and nut assembly, or provide a cable between the master links and hook block or headache ball;
- d) When working at a height equal to or greater than fifteen feet above a lower level, one hundred percent tie-off is required.

5.20 Underground Construction, Caissons, Cofferdams and Compressed Air

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart S.

5.21 Demolition

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926 Subpart T: Demolition, in addition to the following mandatory specific worksite requirements:

- a) Prior to the demolition of any structure, the subcontractor performing the work shall submit a Demolition Plan to the SSM, and Port Authority Resident Engineer for review and approval. At a minimum, this plan will include a detailed description as to the means and methods, controls, and safety measures to be used for the demolition;
- b) Prior to the demolition, a licensed NYS Professional Engineer and the competent person of the demolition crew shall perform and document a pre-demolition

inspection. A copy of the inspection report shall be provided to the SSM and the Port Authority Resident Engineer for review and approval. At a minimum, this report shall address the following:

1. Verify the location and condition of any remaining utilities in the structure. Prior to demolition, all active utilities and services need to be removed, de-energized, isolated, re-located, or guarded;
2. Verify the stability of the existing, and adjacent structures. If required, such structures must be properly braced, shored, and supported to prevent unexpected collapse;
3. Identify personal and debris fall hazards, and establish the appropriate controls suitable for each phase of the demolition;
4. Identify if waste chutes will be used, and if used their location, construction, installation, and maintenance;
5. Identify the protective measures to be provided for the protection of pedestrians and adjacent roadways, buildings and other structures in accordance with the provisions of Subchapter 19 of the NYCBC.

5.22 Power Distribution

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926 Subpart V: Power Transmission and Distribution.

5.23 Rollover Protective Structures; Overhead Protection

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart W: Rollover Protective Structures; Overhead Protection.

5.24 Stairways and Ladders

The contractor and each subcontractor shall comply with the requirements of 29 CFR Part 1926, Subpart X: Stairways and Ladders, in addition to the following mandatory specific worksite requirements:

- a) When there is a vertical walking/working surface-to-surface break equal to or greater than nineteen (19) inches, a ladder or stairway is required;
- b) Stairs that have at least four (4) risers, or that are at least thirty (30) inches in vertical height shall either have a hand or stair rail installed;

- c) Access and egress ways and landings to and from each ladder and stairways or stair tower shall remain unobstructed and in good repair;
- d) Self-supporting and non self-supporting stairways and ladders can only be used in their manufactures designed and specified positions;
- e) The use of extension ladder portions shall be prohibited.

5.25 Hazard Communications

The Site Safety Manager shall establish a Hazard Communications Plan consistent with OSHA standard 29 CFR Part 1910.1200 for multi-employer sites, in addition to the following mandatory specific worksite requirements:

- a) All chemical containers shall be properly labeled to identify their contents;
- b) All chemical containers shall be properly stored and transported;
- c) Material Safety Data Sheets (MSDS) for each chemical product used at the WTC Site shall be maintained onsite by the SSM, and shall be available to all workers during all shifts, the Port Authority Resident Engineer, WTC Site Facility Management and PAPD.

SECTION 6.0 ENVIRONMENTAL CONTROLS

6.01 Abrasive Blasting

Prior to any abrasive blasting or surface cleaning operations, excluding steam water blasting, the competent person for the work crew performing the operation shall submit to the SSM a plan to address the following:

- a) Respiratory and personal protective equipment required;
- b) Work area isolation and ventilation required;
- c) Type of equipment to be used and the blasting agent;
- d) Dust control and debris containment/collection methods to be used;
- e) Personal and environmental monitoring requirements for airborne contaminants.

6.02 Diesel Emission Mitigation

The contractor and each subcontractor shall minimize all air-borne pollutants generated by diesel-powered equipment and vehicles at all times during the performance of Work. All Non-Road (e.g., backhoes, bull dozers, cranes, excavation machines, loaders, etc.) diesel-powered equipment, including stationary (e.g., generators, compressors, etc.), with a rated horsepower greater than 50 HP shall incorporate diesel emission reduction strategies that include the use of ultra-low sulfur diesel fuel and best available technology for emission controls. In addition, all such equipment and engines shall comply with all Federal, state, and local regulations applicable to exhaust emission controls and safety. The mitigation measures to be employed are to consist of the following:

a) Ultra-Low Sulfur Diesel (ULSD) Fuel:

All diesel-powered Non-Road equipment to be used in the performance of Work with a rated horsepower greater than or equal to 50 HP shall use ULSD fuel that can be used without engine modification or fuel compartment flushing, and is certified to contain an average sulfur content of no more than 15 ppm, as determined over a six month period. In the event that the contractor can clearly demonstrate that ULSD fuel with an average sulfur content of not more than 15 ppm is not available, a written waiver may be granted by the Port Authority Resident Engineer until such time that the fuel has become available, or an approved equivalent is determined by the Port Authority Resident Engineer to satisfy the intent of this Section. The Port Authority shall collect monthly samples of the ULSD fuel used during the period directly from the fuel tanks of equipment used on the construction site. The Testing Standards shall include, but are not limited to: ASTM D6920 – 03 “Total Sulfur in Naphthas, Distillates, Reformulated Gasolines, Diesels, Biodiesels, and Motor Fuels by Oxidative Combustion and Electrochemical Detection” or ASTM D6428-99 “Test Method for Total Sulfur in Liquid Aromatic Hydrocarbons and Their Derivatives by Oxidative Combustion and Electrochemical Detection.”

The ULSD shall be obtained from any distributor capable of meeting the requirements of this Section. All ULSD fuel shall be dispensed directly on the construction site from either a dedicated on-site fuel storage facility or segregated truck delivery. In the case of onsite storage, all such facilities shall comply with all applicable jurisdictional Codes pertaining to the storage, containment and dispensing of fuel and all details must be submitted and approved by the Port Authority Resident Engineer prior to implementation.

A listing of ULSD fuel suppliers is included on the following Web page.

ULSD Suppliers:

http://www.epa.gov/otaq/retrofit/cont_fuels.htm

b) Diesel Emissions Control Technologies:

All Non-Road diesel-powered equipment with a rated horsepower greater than 50 HP that Control Devices (devices) utilizing the best available technology. The retrofit devices may consist of Diesel Oxidation Catalysts (DOCs), Diesel Particulate Filters (DPFs), is on site for a period of greater than 20 calendar days shall be retrofitted with Emissions combinations thereof, or any other available technology verified to be capable of maximally reducing the emission of pollutants from diesel powered engines. Such reductions are to be targeted primarily toward the reduction of particulate matter (PM) and secondarily on the reduction of nitrogen oxides (NOX); and shall in no event result in an increase in the emissions of either pollutant. The devices shall be contained in the U.S. Environmental Protection Agency (EPA) Verified Retrofit Technology List, the list of California Air Resources Board (CARB) Verifications, or as accepted by the Port Authority Resident Engineer to provide the maximal level of pollutant reductions intended under this Section. For more information, refer to the following websites:

EPA's Verified Technology List:

<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>

California Air Resources Board Verified Technology List:
<http://www.arb.ca.gov/diesel/verdev/level1.htm>

Vendors of such technologies include: Cleaire, Engelhard, Johnson-Matthey, Fleetguard Emission Solutions, Donaldson, Engine Control Systems, or other approved equal.

c) Diesel Construction Equipment Age Requirements:

In order to facilitate the application of verified emission control devices, all diesel-powered Non-Road equipment with a rated horsepower greater than or equal to 50 HP and used on site for a minimum of 20 calendar days for the performance of Work must be of a manufacture model year greater than or equal to 1994.

d) Diesel Emissions Mitigation Plan For Non-Road and On-Road Engines and Equipment:

Diesel Emission Mitigation Plan (the "DEM Plan") shall be prepared by the contractor and submitted to the Port Authority Resident Engineer for review and approval prior to the use of any diesel-powered engines, including Non-Road and On-Road Vehicles. The DEM Plan shall identify all engines and vehicles to be utilized in the performance of Work, whether owned by, operated by or on the behalf of the contractor, including that rented by the Port Authority as the rental agency of the contractor. No Work shall proceed until a DEM Plan is submitted and approved by the Port Authority Resident Engineer. Once approved, no changes in or deviations from the DEM Plan will be permitted unless approved by the Port Authority Resident Engineer. The DEM Plan shall address the control of emissions from all engines and vehicles including On-Road vehicles (i.e., diesel powered trucks) and Non-Road equipment not retrofitted

with devices. The contents of this plan shall specifically address the requirements of the Subsections presented below:

1. *Work Zone Creation*: The contractor shall establish On-Road vehicle (i.e., diesel trucks) staging zones for the off-loading and loading of materials to and from the construction site. Such zones shall be located to minimize the impact of pollutants from diesel engines and vehicles on sensitive receptors and the general public. In addition, the contractor shall ensure that diesel powered engines and vehicles are located away from the fresh air intakes of sensitive receptors as determined by the Port Authority Resident Engineer;
2. *Diesel Engine Idling Policy*: The idling time of Non-Road and On-Road Vehicles shall be limited to three (3) consecutive minutes, as determined by the Engineer except as follows:
 - a) When an On-Road Vehicle is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control;
 - b) When it is necessary to operate heating, cooling or auxiliary equipment to accomplish the intended use of the vehicle; installed on the vehicle when such equipment is necessary;
 - c) To bring the vehicle to the manufacturer's recommended operating temperature. In this event, the temperature requirements must be indicated in the Diesel Emission Mitigation Plan as an exception;
 - d) When the outdoor ambient temperature is below twenty (20) degrees Fahrenheit;
 - e) When the vehicle is being actively worked on for repairs or maintenance.

6.03 Dust Mitigation

The contractor and each subcontractor shall control fugitive dust at all times - 24 hours a day, 7 days per week, including non-working hours, weekends, and holidays. The requirements for mitigating fugitive dust particulate dispersions from the construction site and during the performance of Work, such as earth moving and demolition activities, shall include the following:

- a) The spraying of a (non-hazardous, biodegradable) dust suppressing agent;
- b) The physical containment of fugitive dust;
- c) The adjustment for meteorological conditions, as appropriate;
- d) Wheel washing of all construction Non-Road and Motor Vehicles leaving the WTC Site.

The contractor and each subcontractor shall comply with all Federal, state, and local regulations applicable to the control and mitigation of fugitive dust dispersion. The contractor shall submit a Dust Control Plan ("DC Plan") to the Port Authority Resident Engineer for review and approval to address the specific measures contained in this Section. A copy of this DC Plan shall also be provided to each subcontractor who shall be obliged to comply in the provisions of his subcontract with the contractor. The DC Plan shall include contact information for responsible individual(s) from the contractor with 24 hour, 7 days per week availability, and who have been vested with the authority to implement all controls and mitigation measures identified in the DC Plan. The DC Plan must detail all dust control procedures for all such controls and measures as approved by the Port Authority Resident Engineer, and be job specific to address all anticipated Work activities that may generate fugitive dust dispersions (e.g., demolition, saw-cutting, pavement milling, haul roads, etc.).

6.04 Noise And Vibration Abatement

Where practicable, the contractor and each subcontractor shall schedule all construction activities to avoid and/or minimize any adverse acoustic noise or vibrations that could impact sensitive receptors as determined by the Port Authority Resident Engineer. Acoustical sensitive receptors presently include the Millennium Hotel on Church Street, Embassy Suites on Vesey Street, Multi Family Residential Structure on the corner of Park Place and West Broadway and residential buildings along the south side of Liberty Street. The conditions and requirements are as follows:

- a) In the event that the Port Authority Resident Engineer determines that the contractor may or has exceeded the noise thresholds specified in Table 1 below, the Port Authority Resident Engineer may direct the contractor to implement, at his own cost, abatement measures deemed appropriate by the Port Authority Resident Engineer and/or as specified and approved in the contractor's Noise Control And Abatement Plan (the "NCA Plan"):

Table 1: Noise Limitation Thresholds For Sensitive Receptor Sites – Resultant noise at sensitive receptor sites shall be restricted to the following levels:

TIME	dB(A) Limit
Weekdays, 7AM to 4 PM	79
All Other Times	63

Note: Measurements to ensure Noise Limitation Threshold compliance will be based on instantaneous maximum readings using "slow" integration speed setting on the sound level meter.

- b) The contractor shall comply with all appropriate Federal, state and local regulations applicable to noise control and mitigation. The contractor shall submit a NCA Plan to describe his intended mitigation procedures and methods to control and mitigate noise generated during the performance of Work. One (1) original and four (4) copies of the NCA Plan and revisions are to be submitted to the Port Authority Resident Engineer. A copy of the NCA Plan and all revisions shall be provided to each subcontractor prior to the commencement of his work. The subcontractor shall be specifically obliged to comply with the requirements of the approved NCA Plan in the provisions of his subcontract with the contractor. The NCA Plan shall specifically address the following:
1. Means and methods for the implementation of all controls and mitigation measures;
 2. Design drawings of noise abatement enclosures and barriers, signed and sealed by a Licensed Professional Engineer in the State of New York;
 3. Description of physical noise mitigation materials, including the name of manufacturer and its specifications. All such materials shall be fire resistant;
 4. Catalogue cuts and technical data sheets of construction equipment to be used during Work;
 5. The qualified acoustical firm procured by the contractor to provide professional services for the creation and implementation of the NCA Plan.
- c) To ensure compliance with this Section, the contractor shall procure the services of a qualified acoustical firm to provide assistance in the creation and implementation of the NCA Plan, and to provide noise monitoring on site. Each employee of the firm who will actually perform measurements or monitoring in the field shall be appropriate training, and have demonstrated experience in the measurement and implementation of mitigation techniques for similar types of construction projects. Such employees shall have within the preceding five years performed acoustical consulting on at least three projects of similar size and complexity that included specific noise control and abatement initiatives, preferably in the City of New York; Submit to the Port Authority Resident Engineer for review and approval the name and qualifications of the firm and employees as stipulated above.
- d) The contractor shall continuously monitor the actual noise levels generated during construction activities to ensure compliance with the noise requirements stipulated herein. The Port Authority will monitor noise levels at known sensitive receptors or other locations deemed appropriate by the Port Authority Resident Engineer to verify compliance. When noise level measurements exceed the allowable thresholds, the contractor shall cease all construction activities, and immediately implement the mitigation procedures indicated in the approved NCA Plan. If applicable procedures are not included in the NCA Plan, revised procedures are to be developed and implemented only with the approval of the Port Authority Resident Engineer. Such revised work procedures are to be incorporated in the current NCA Plan, and resubmitted for formal review by the Port Authority Resident Engineer. In the event

that a conflict between the contractor's sound level measurements and those of the Port Authority, the Port Authority's noise level measurements shall prevail.

SECTION 7.0 DISCIPLINARY ACTIONS

The following policy shall be implemented regarding disciplinary actions for workers or employees who violate or disregard the requirements of the WTC Site Safety Program and approved contractor and subcontractor Health and Safety Plans. The severity of the worker's infraction and its impact on the safety and health of other workers, the public and the environment shall be evaluated, and disciplinary action shall be taken against the worker, supervisor and Contractor as deemed appropriate by the Port Authority Resident Engineer, who may request the advise from the SSD and the SSM.

- a) Site workers whose conduct creates, created, or contributed to an imminent danger situation as referenced in 29 CFR 1903.13: Inspections, Citations, and Proposed Penalties - Imminent Danger, or who knowingly allowed an imminent danger to exist, will be removed from the site, barred from returning to the site, and have their WTC Identification credentials revoked;
- b) Site workers who fail to comply with the safety and health requirements of the WTC Site Safety Program and approved contractor and subcontractor Health and Safety Plans shall be notified verbally by the SSM. The SSM will document the conversation, and forward a written copy describing the infraction to the contractor and/or subcontractor employing the worker, and the Port Authority Resident Engineer. If the worker is again determined to be non-compliant for the same infraction, the employee will be removed from the site, barred from returning to the site, and have their WTC Identification credentials revoked.

**Downtown Restoration Program
World Trade Center Transportation Hub**

**Permanent WTC PATH Terminal
and
Pedestrian Connections**

Project Quality Assurance Plan

Revision: 0

**Priority Capital Programs Department
The Port Authority of NY & NJ**

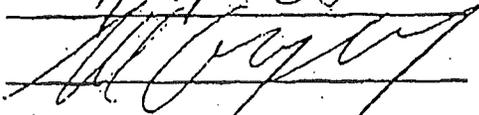
APPROVALS PAGE

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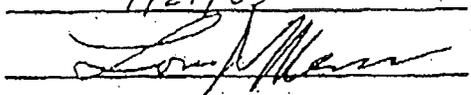


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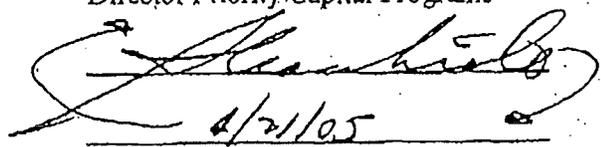


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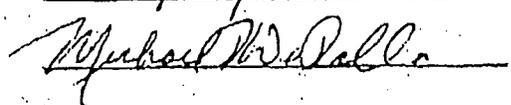


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04/21/05

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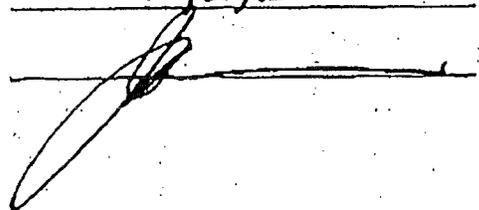


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ACRONYMS PAGE

<u>List of Acronyms</u>	<u>Description</u>
AFR	Audit Findings report
ASQ	American Society for Quality
BCR	Building Code Reviewer
BDR	Basis of Design Report
C	Design Checker
CAR	Corrective Action Requests
CM	Construction Manager
CMD	Construction Management Division
CQAM	Construction Quality Assurance Manager
CQMS	Construction Quality Management System
CWP	Construction Work Plans
DDP	Downtown Design Partnership
DQAP	Design Quality Assurance Plan
DQMS	Design Quality Management System
EADD	Engineering Architectural Design Division
EDMS	Electronic Document Management System
EOP	Engineer of Projects
EOR	Engineer of Record
EPM	Engineering Program Manager
EQAM	Engineering Quality Assurance Manager
FTA	Federal Transportation Administration
IM&T	Inspection, Measuring and Testing
IP	Implementation Procedures
ITP	Inspection and Test Plans
ISO	International Organization for Standardization
MED	Materials Engineering Division
NIST	National Institute of Standards and Technology
PA	Port Authority of New York and New Jersey
PATH	Port Authority Trans Hudson
PE/A	Principal Engineer/Architect
PCM	Project Controls Manual
PCP	Priority Capital Programs
PM	Project Manager
PMP	Project Management Plan
POP	Project Operations Plan
QA	Quality Assurance
QMS	Quality Management System
QR	Quality Records
PQAM	Project Quality Assurance Manager
PQME	Project Quality Manual Elements
PQMS	Project Quality Management System
QAD	Quality Assurance Division
QAM	Quality Assurance Manager
QAP	Quality Assurance Plan

World Trade Center Transportation Hub – Project Quality Assurance Plan

QCM	Quality Control Manager
QMS	Quality Management System
QC	Quality Control
RE	Resident Engineer
REO	Resident Engineer Office
RFI	Request for Information
WBS	Work Breakdown Structure

REVISION INDEX PAGE

<u>Revision</u>	<u>Description of Revision</u>	<u>Issue Date</u>
0	Initial issue	04-22-05

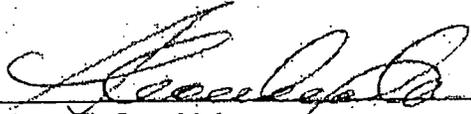
QUALITY POLICY

Project Quality

It is the Policy of Priority Capital Programs (PCP) that the "World Trade Center Transportation Hub" (Project) be planned, developed and delivered with the highest regard for quality and under the purview of an effective Quality Assurance Program. Project design and construction programs will define quality goals and objectives, specify quality related activities and indicators, and assign responsibilities to ensure that Project activities are executed to meet the Client's (PATH) requirements.

Each Project Group that is providing management, design, construction, consulting or other services to the Project is required to provide the PCP's Project Quality Assurance Manager (PQAM), a Quality Management Plan that outlines their Quality Management Systems (QMS) approach to managing the quality of the deliverables for the Project. Their respective plans will outline the management, administrative and control measures appropriate to their respective scopes of services. The contract documents for the Project, including all specifications and drawings for architectural and engineering, construction management, construction, procurement, and/or other services will be reviewed to determine the specific QMS to be implemented, determine the adequacy of the plans as submitted and recommend amendments, where necessary. The objective of the QMS is to ensure the attainment of the Project requirements and delivery of the expected and acceptable level of quality for the work. This objective is based on the principle that each Project Group has absolute responsibility for the quality of their development and delivery packages.

This policy will be implemented and maintained at all levels of the Project organization and the PQAM is vested with the authority to oversee the entire QA Program in accordance with the established QMS and assure the delivery of a quality product that meets the satisfaction of the Client. Adherence to this policy will result in the provision of the highest quality of Project service to the Downtown residents, visitors to the New York City/New Jersey Region and PATH riders.



Anthony G. Cracchiolo
Director, Priority Capital Programs

Date: 4/22/05

DEFINITIONS PAGE

PURPOSE

To define Quality terms as they pertain to this project.

DEFINITIONS

Quality: An inherent or distinguishing characteristic of a product or service. A trait or characteristic used to measure the degree of excellence that a product or service achieves. Conformance to prescribed requirements - the project produces what it was supposed to, as defined in the performance criteria established by the owner. The product satisfies user needs, aesthetically and functionally.

Quality Assurance: All those planned and systematic actions necessary to provide adequate confidence to the management that a product or service will satisfy given requirements for quality. QA emphasizes "upstream" actions that directly improve the chances that QC actions will result in a product or service that meets requirements. QA includes ensuring the project requirements are developed to meet the needs of all relevant internal and external agencies; planning the processes needed to assure quality of the project, ensuring that equipment and staffing is capable of performing tasks related to project quality, ensuring that contractors are capable of meeting and do carry out quality requirements, and documenting the quality efforts.

Quality Audit: A formal review/investigation to determine whether the quality characteristics of a product or service meet the defined quality criteria. Determine if the quality system is performing as documented and whether the quality system is implemented.

Quality Control: The operational techniques and activities that are used to fulfill requirements for quality. These techniques are used to assure that a product or service meets requirements. Generally, QC refers to the act of taking measurements, testing, and inspecting a process or product to assure that it meets specification. It also includes actions by those performing the work to control the quality of the work. Products may be design drawings or specifications, manufactured equipment, or constructed items. QC also refers to the process of witnessing or attesting to, and documenting such actions.

Quality Management: The management processes put into place to ensure that the end product of a project (process or product) meets the Client's needs.

Quality Planning: This involves defining the ranking of quality pertaining to schedule, scope, and cost; defining the required quality standard for the end product; and defining the requisite deliverables, tasks, resources and milestones to ensure that the end product achieves the Client's needs.

INTRODUCTION

The safety, reliability, maintainability requirements and human factor considerations within this transit-related project, which is situated in the midst of the Lower Manhattan development, demand that systematic, consistent, and authoritative controls be implemented in its design, development and delivery. Early identification of conditions that may affect a project's ability to perform satisfactorily, and timely corrective action that precludes repetition of problems, requires the establishment of Quality Criteria. Attainment of these criteria is achieved through sound engineering design, effective procurement and contract procedures, proper contractor/supplier selection, and effective implementation and control of manufacturing, construction, installation, testing, and operational activities.

The controls necessary for preserving the integrity of the quality activities and the documentation of quality results are categorized into the following general areas:

- Review of design, contract, and procurement documents, as well as test, operating, and maintenance procedures to verify that quality aspects have been considered in the development and delivery phases of the project;
- Surveillance and/or witness of manufacturing, construction, installation, and integrated testing activities for adherence to design, contract, and operation requirements;
- Audits of Quality Programs for adequacy and compliance with performance requirements;
- Process control to ensure that suppliers and contractors identify, plan and execute the production and installation processes that directly affect quality and ensure that these processes are performed under controlled conditions;
- Corrective action to eliminate potential problems that could arise from nonconforming work and prevent recurrences;
- Management review to ensure that the documented quality policy is understood, implemented and maintained throughout the Project organization;
- Training of all personnel performing activities affecting quality, in order to qualify each individual on the basis of the appropriate education, training, and/or experience, as required;
- Document Control of Quality Records.

PURPOSE/OBJECTIVE

The objectives of this Project Quality Manual are to:

- Establish a document, which provides overall critical direction and support for implementation of the Quality Management Systems for each functional element of the Project organization. This Project Quality Manual outlines the elements of the Quality Management System and defines PCP's policy regarding those elements.
- Establish a systematic approach to ensure that contracted products and services are produced and delivered as specified in a timely and cost-effective manner.
- Ensure the attainment of the required level of quality on the "World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections".

World Trade Center Transportation Hub – Project Quality Assurance Plan

It is the intent of PCP to minimize its detailed involvement in project quality activities by using communication means, periodic walkthroughs, audits and other update mechanisms to assure itself that Engineering, its consultants, the Construction Manager/General Contractor (CM/GC), other contractors, and their respective subcontractors, suppliers and vendors are maintaining an effective Quality Management System (QMS). Each consultant, the CM/GC, other contractors their respective suppliers and vendors will be required to develop Quality Control Programs and submit applicable Quality Control Plans for approval by the EQAM and/or CQAM, as applicable, for the respective approvals, prior to the performance of any work on the Project. A copy of such approved programs and associated plans will be forwarded to the Project Quality Assurance Manager for his/her review and files.

SCOPE PAGE

A. General

The Office of Priority Capital Programs (PCP) has prepared the Quality Assurance Plan (QAP) for the World Trade Center Transportation Hub Project. This plan has been written to; (1) enable PCP to assure the achievement of the Client's (PATH) Project objectives by enabling the delivery of a quality product within budget and schedule, (2) meet the expressed requirements of the grantor, (3) maintain and preserve the highest professional standards during the design and construction phases of the project (4) be efficient among the several work elements in maintaining the highest quality of standards, (5) be prevention oriented with respect to management, design and construction deficiencies, (6) comply with regulatory requirements, (7) be attentive and sensitive to stake holder concerns and issues, (8) enable the maintenance of quality throughout the design and construction phases of the Project by utilizing a system of audits inspections and walkthroughs, (9) maintain a fully documented quality management system that will guarantee the established project quality objectives and (10) strive (within this living document) to achieve continual improvement of its performance in pursuit of the Project objectives.

This Project Quality Manual describes the planned and systematic actions necessary to provide confidence that the Engineering Design Quality Plan and Construction Quality Plan will function as detailed in their respective plans. The Engineering Department, its consultants, sub-consultants, the CM/GC, other contractors and their respective subcontractors, suppliers and vendors will conform to the applicable requirements outlined in the FTA Quality Assurance and Quality Control Guidelines FTA-IT-90-5001-02.1 and the ISO 9000: 2000 series' guidelines, principles and requirements.

B. Quality Management

Priority Capital Programs as an agent of the Client (PATH) is committed to providing the highest level of quality to the project and this document is intended to communicate, implement and maintain a quality policy that would result in a high-performance product.

PCP has appointed a Quality Assurance Manager (QAM) who is vested with the authority and responsibility to oversee the quality policy for the project and ensure that the policy is understood, implemented and maintained throughout the project organization and through all the design and construction processes.

C. Responsibility

The PQAM is responsible for the administration of this Quality Assurance Plan and is delegated the authority and organizational freedom to identify and evaluate quality problems and recommend to the Engineering Department any actions deemed necessary in his/her opinion to address and/or control the further processing, delivery, or installation of nonconforming or deficient items or services, including a request to stop the work. The PQAM will ensure that no work will resume until proper disposition of the issue(s) is obtained. The PQAM will ensure that schedule and cost considerations do not compromise quality, and will have complete and ready access to the Director of Priority Capital Programs.

World Trade Center Transportation Hub – Project Quality Assurance Plan

D. Implementation

The Quality Management System described in this Project Quality Manual is to be implemented for the Project in accordance with the Contract Documents and will follow the policies identified in this document and the applicable Implementation Procedures and Construction Work Plans. The PQAM has the responsibility to review all Project bid and proposal documents in order to identify, which sections of this Project Quality Manual are to be implemented. The development and submittal of a written Quality Control Program with associated plans will be a requirement for all RFP and competitive bid respondents (consultants, the CM/GC, other contractors, subcontractors, suppliers and vendors) for this Project.

E. Revisions

Revision and maintenance of this living PCP Quality Assurance Manual is the responsibility of the PQAM. Authorized Document Signatories will authorize any revisions to this manual. Each element of the project organization will respectively revise their Quality Manuals, as deemed necessary, and the copies made available to the PQAM and Document Control for filing.

World Trade Center Transportation Hub – Project Quality Assurance Plan

1. PROJECT QUALITY MANUAL ELEMENTS

This document is prefaced by a “Statement of Quality Policy,” which sets forth PCP’s overall policy, concerning Quality. The following summary of Project Quality Manual Elements (PQMEs) establishes the Quality Assurance criteria for the Project’s Quality Management System. These criteria are predicated upon the 15 elements of the latest Federal Transit Administration’s (FTA’s) Quality Assurance & Quality Control Guidelines and ISO 9000 Series Requirements.

1.1 PQME #1 – Management Responsibility

Authority, accountability, and responsibility are identified in the Quality Assurance Plan, thereby defining the organization, structure, function of each member of the quality organization, and the reporting chain of command within the organization. Exhibit 1-1 shows the World Trade Center Transportation Hub Project Organization Chart including the reporting relationship to the PQAM and his/her relationship to the Director of Priority Capital Programs and the Director, PATH.

1.2 PQME #2 – Documented Quality Management System

The policy of PCP is to have a documented Quality Management System (QMS) that will ensure that the Project’s goals and objectives are fully met and will include the appropriate organizational structure, outlined responsibilities, procedures, guidelines, processes, resources, defined Project requirements, and provide methods for positive management, administration and control. The QMS is expected to contribute to the development and delivery of a high performing, safe, reliable, economical, convenient and quality Project for the benefit of all New York City/New Jersey residents, PATH riders and visitors. The PQAM will be responsible for the administration of the QMS.

Each Contract for the Project will be reviewed to determine the portions of the QMS that are to be implemented. Consultants, the CM/GC, other contractors and their respective subcontractors, vendors and suppliers will be required to develop, implement, and maintain a Quality Control Program that is consistent with the Quality requirements stated in the Contract Documents, and applicable to their scope of work.

All Quality Control Programs and associated plans are to be reviewed and approved by the EQAM or CQAM, and forwarded to the PQAM for his/her review, comments/acceptance and file.

1.3 PQME #3 – Design Control

Engineering Department’s Design will conform to the tenets included in their Quality Assurance Plan, and also conform to agreements made by PCP with regulatory agencies, state and city agencies, community groups, stakeholders and the requirements of the Client (PATH).

The Engineering Department and its Design Consultants will be required to submit their Project Design Quality Assurance Plans to PCP for review and acceptance by the PQAM and Senior Staff.

In the submission of design packages for review to PCP, the Engineering EQAM will issue to the PQAM a certificate of assurance that the component design was done in accordance with performance and quality criteria of the DQAP.

Design changes that impact the scope, cost and schedule will be subject to the same control measures applied to the original design and such changes must receive PCP Program Manager’s approval before implementation.

World Trade Center Transportation Hub – Project Quality Assurance Plan

1.4 PQME #4 – Document Control

The Project will have a safe and easily retrievable repository for all documents generated from and received by the Project at its various levels. Project documents such as drawings, specifications, inspection procedures, test procedures, special work instructions, operational procedures, the Quality Assurance Program and its procedures and forms are to be controlled as defined in PCP's Project Management Plan and Engineering Program Management's Project Controls Manual. The supervisor and staff are to ensure that all relevant documents in Document Control are current and are promptly available to staff when required. Obsolete documents are to be eliminated from the Document Control Centers at each level and station of the document control system for the Project. Document control is to ensure that all superseded documents that are held for traceability and record are labeled SUPERSEDED, on each page, with the effective date so that only the current material is used when referenced.

The Engineering Electronic Document Management System (EDMS) referenced in Section 4 of the DQAP will govern the procedures to be followed by EPM during the design process.

1.5 PQME #5 – Purchasing

The policy of PCP is to satisfy the requirements of the FTA Quality Assurance and Quality Control Guidelines and control procured material, equipment, parts, components, consultants, contractors and vendor services, with sufficient specification detail to support their procurement. Engineering Program management will pursue purchasing in accordance with Section 5 of the DQAP, and the procedures included in the referenced Grants Management Procedures Manual.

1.6 PQME #6 – Product Identification And Traceability

Product identification and traceability should conform to the requirements of the DQAP and the CQAP.

1.7 PQME #7 – Process Control

The EQAM will maintain day-to-day oversight over the design development and delivery process and provide the assurance to the PQAM that all planning, design, checking and documentation processes performed by the Engineering and its consultants are in accordance with the PQAP and DQAP. The EQAM will also maintain day-to-day oversight over CM/GC, other contractors and their subcontractors, suppliers and vendors, and provide the assurance to the PQAM that all planning, construction, checking and documentation processes are performed in accordance with the Contract Documents and within the established PQAP, DQAP, CQAP, FTA and PA process control guidelines and criteria.

The CQAM will maintain day-to-day quality oversight over the construction process and provide the assurance to the PQAM that all construction work being performed by contractors and their suppliers and vendors are performed in accordance with the contract documents and within the established CQAP, FTA and PA process control guidelines and criteria.

The respective Program Managers, in their day-to-day responsibilities will assure the PQAM that the design and construction processes are being performed under controlled conditions and in compliance with the Contract Documents and that the quality inherent in the design and performance criteria PQAP requirements.

World Trade Center Transportation Hub – Project Quality Assurance Plan

1.8 PQME #8 – Inspection And Testing

Design and construction activities are to be reviewed, checked, inspected and documented by those charged with ensuring the delivery of a quality product. The EQAM and the CQAM will, respectively, ascertain through inspection and testing that the design and construction activities are being carried out by Staff, consultants, the CM/GC, other contractors and their respective subcontractors, suppliers and vendors in accordance with the referenced manuals of the DQAP and CQAP and provide such certification to the PQAM.

Inspections and tests will be performed in accordance with approved implementation procedures to ensure that items in development, production and delivery meet the design, performance, quality assurance and testing requirements of the Contract Documents (Drawings and Specifications). "Hold" points where specified in the Contract Documents or brought to the attention of the RE by the CQAM, EQAM or PQAM from a field observation, will be identified, as appropriate, and incorporated in the implementation procedures. No Work will be permitted to proceed beyond those identified "Hold" points until an inspection is completed to the satisfaction of the Engineer of Record for design conformance and/or accepted or waived by the originating authority for quality conformance.

Controlled routine inspections will be utilized in addition to the final inspection of completed items, or portions thereof. Established Authority procedures will be followed for the final acceptance of the Work following the performance of a final inspection to be conducted by the Authority Resident Engineer, Program Manager, Engineering Project Manger, PQAM, EQAM and CQAM.

Testing is to be performed and documented in accordance with established PA procedures and the RE, with the CQAM in attendance, is to verify that all materials, products, facilities, systems, and subsystems incorporated in the permanent construction conform to the design, performance, quality assurance and testing requirements of the Contract Documents. The results of all inspections and tests will be forwarded to the EQAM and Document Control as objective evidence of acceptability of the product. A copy of the documentation is to be sent to the PQAM for his/her review and records.

1.9 PQME #9 – Inspection, Measuring, And Test Equipment

Engineering procedures outlined in Section 9 of the DQAP will be followed and certification provided to the PQAM, EQAM, and CQAM that the requirements of this section are being met and that the articles within the PA Construction Standards Manual are being followed. The selection of all testing equipment proposed by the CM/GC, other contractors, and subcontractors will be specified in each applicable implementation procedure as reviewed and approved by the Authority Resident Engineer. Specific submissions including certificates of calibration will be submitted for review and approval by the Engineer of Record prior to the performance of any testing. Copies of the aforementioned items will be forwarded to the CQAM, EQAM and Document Control with a certificate of conformance forwarded to the PQAM for his/her information and records.

1.10 PQME #10 – Inspection And Test Status

Pertinent sections of the DQAP and the CQAP will be implemented for the determination of the Inspection and Test Status of components of the Project. A detailed material and equipment list will be established in accordance with the Division 1 requirements of the Contract Specifications and routinely updated to indicate the acceptance status of all materials, equipment, and components. No materials, equipment, or components will be incorporated into the permanent construction or delivered to the site until the Authority Resident Engineer, CQAM and/or the Engineer of Record have determined that the applicable design, performance, quality assurance and testing requirements of the

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Contract Documents have been satisfied. The CQAM will forward to the DQAM a confirmation certificate that all quality requirements were met. The EQAM, in turn, will transmit this certification to the PQAM for his/her review, concurrence and records.

An Implementation Procedure will be established and fully documented to indicate quality status as a result of discoveries from required inspection and testing performed on furnished and/or installed equipment, material, components and completed work. Once implemented, work is not to progress further, until the authority that declared a non-acceptable condition has removed the non-acceptable status indication.

Status tagging nomenclature and color-coding shall be established by the Quality Management Team and used uniformly throughout the Project. All Testing and Inspection shall be sufficiently documented in testing and inspection reports, including the outcome of the test or inspection.

A status tagging nomenclature and color-coding system will be established for all materials and equipment manufactured or fabricated and inspected offsite. The delivery and offloading of materials or equipment at the site will not be permitted unless the deliverables bear the markings of offsite acceptance.

1.11 PQME #11 – Nonconformance and Corrective Action

A Nonconformance Reporting Procedure shall be implemented and fully documented as included in the DQAP and CQAP to ensure that items that do not follow the design, performance, quality assurance or testing requirements of the Contract Documents are identified and evaluated to determine appropriate disposition. In addition, these items must be segregated and removed from the construction site immediately, to prevent inadvertent use or installation until the determination of an appropriate disposition. Any conditions considered adverse to the quality objectives of this program shall be promptly identified, documented, investigated (to determine the root cause), and corrected. In addition, steps necessary to prevent a recurrence will be established, implemented, and committed to in writing by the CM/GC, other contractors, the subcontractor, supplier or vendor prior to closure of the specific issue.

As part of the continuous improvement process, a Corrective Action Request Procedure shall be implemented and fully documented to ensure that quality system failures, deficiencies within the existing quality system, inadequate administration of the existing quality system, or series of related or repeating nonconformances are identified and rigorous steps are instituted to preclude recurrence. Per the DQAP and CQAP, the appropriate EQAM or CQAM will administer this action and provide the PQAM with a summary report of the corrective actions taken, and measures taken to prevent recurrences.

Preventive Action is action to eliminate the cause of potential nonconformity or other undesirable situations. Preventive actions include planning, documentation, training, and process control. Preventive Action could also be an outcome of the Corrective Action process.

1.12 PQME #12 – Quality Records

Records, which provide objective evidence of conformance to requirements, shall be identified collected and stored in a readily retrievable manner and preserved to preclude damage, loss, or deterioration. Quality Record must be readily available for viewing by Quality Assurance Management Staff.

Procedures as included in the Electronic Information Management and Document Control Procedure will be applied. These procedures will identify which records should be kept, who is responsible for production and collection of these records, and who is responsible for indexing, filing, storage, maintenance, and disposition of these quality records.

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Quality records will be maintained to show achievement of Project quality objectives and appropriate functioning of the QMS. Quality records generated by the CM/GC, other contractors and their respective subcontractors, suppliers and vendors in accordance with their approved Quality Control Programs will be included when and where pertinent.

Where specified by Contract Documents, quality records should be made available to the purchaser/vendor or purchaser/vendor's representative.

The following quality records will be kept and are to be made available to the PQAM when required:

- Inspection reports
- Test data and test reports
- Qualification records
- Calibration records
- Nonconformances
- Corrective actions
- Preventive actions
- Audit reports
- Requests for information
- Change Orders
- Submissions and approvals
- Construction Plans
- Receiving Documentation
- Personnel Qualifications
- Daily reports
- Meeting Minutes

This list will be amended, as required, as the project progresses and the need arises for additional items to be added to this list of Quality records.

A back-up copy of these records is to be kept off Program site at a safe location that meets the above criteria for safety, and the prevention of loss of information and data. The frequency of these backups will be as dictated in the PMP.

1.13 PQME #13 – Quality Audits

A comprehensive program of planned and periodic audits is to be established and fully documented to verify by examination and evaluation of objective evidence that applicable elements of the Quality Assurance Program are suitable and have been developed, documented, and effectively implemented in accordance with the Contract Documents. Audits will be conducted by the EQAM (in accordance with Section 14 of the DQAP), the PQAM, jointly or individually, as required. Before an audit is conducted, the EQAM, the CQAM and staff will be notified in writing at least fourteen (14) calendar days in advance of the date. Attached to such notification will be the audit plan and the checklist for their information and action. As referenced in Section 14.8 of the DQAP, Audits will be carried out in accordance with the ASQ Guidelines.

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Audit results will be documented and reviewed by management personnel having responsibility in the area being audited. When and where necessary, follow-up audits, including re-audit of deficient areas, will be conducted to provide the assurance that the effective corrective action has been taken.

1.14 PQME #14 – Training

Personnel working on the Project are to be trained and/or instructed in PCP's Quality Management System and the Engineering Department's DQMS and CQMS, as they apply to their duties and responsibilities, and such training or instructions shall be documented. All personnel who manage or perform activities affecting quality are to be qualified on the basis of appropriate education, training, and/or experience and are subject to approval by the PQAM.

Training documentation will be maintained for review, together with the verification of training completed, and the qualifications of persons manning the Quality Management Team.

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2. MANAGEMENT RESPONSIBILITY

2.1 Purpose

To describe the Management Responsibility for Quality Assurance activities on the World Trade Center Transportation Hub Project.

2.2 Scope

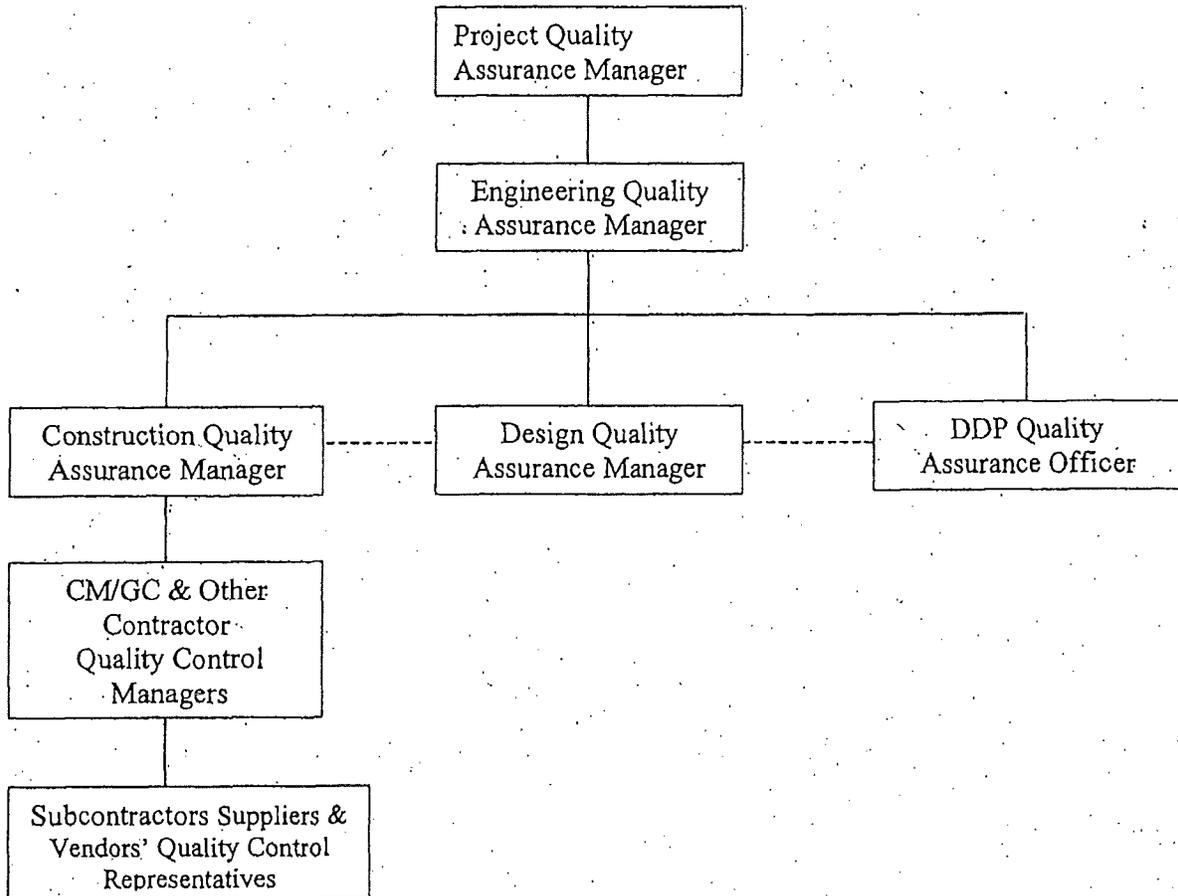
These requirements apply to all organizations and all of their respective levels that are performing work on the Project.

2.3 Policy

Authority, accountability, and responsibility will be identified, defining the organization, the function of each element of the organization and the reporting chain of command within each organization involved in the Project.

The Quality Management System for the project is two-tiered and consists in the first tier of the Quality Management Structure and in the second tier the quality documentation structure that will be implemented and maintained within each element of the first tier.

Tier 1 is simply structured as shown below.



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The second Tier addresses:

- The Quality Policy within each management element,
- Quality Procedures for the implementation of the Quality Management System,
- Work instructions with respect to testing, inspections and follow-up,
- Records to verify that the Quality Management System has been implemented and the recorded success in verifying Compliance and accomplishment of the Project Quality Objectives.

2.4 Requirements

The Project Quality Assurance Organization shall be structured in such a manner where:

- Quality is achieved and maintained by those who have been assigned responsibility for performing the work; and
- Persons or organizations not directly responsible for performing the work evaluate quality effectiveness.

The structure of any organization performing work on the Project is subject to approval by Senior Management of PCP or those given their delegation.

The organizations responsible for Quality have sufficient authority, access to work areas, and organizational freedom to identify quality problems; verify implementation of solutions; and ensure that further processing, delivery, or installation is controlled until proper disposition of a discrepant condition has occurred.

Quality verification functions will report to a level of management, which provides sufficient authority and organizational freedom to ensure that appropriate action is taken to resolve conditions adverse to Quality.

Quality Assurance/Quality Control personnel will not be assigned duties other than those related directly to Quality, as determined by the EQAM, CQAM and ultimately the PQAM

The adequacy and measures of effectiveness of this Quality Program shall be at a minimum, annually assessed to determine the needs of the QMS and what effective measures are required to remedy the observed deficiencies in the Quality Management Plan and the Quality Management System.

The Project Management Team will review this system once yearly, and/or more often if necessary, for continuous improvement opportunities. This criterion for review will be based on the results of internal quality audits, design package review comments, internal client feedback, and changes to the Project scope of work.

2.5 Responsibilities

The mission of the Project Quality Assurance Team is to provide a design for and construction of the WTC transportation Hub that is consistent with the established goals and objectives of PCP and the Client (PATH), meets the design and performance requirements of the Contract Documents, with an emphasis on safety, quality, and customer satisfaction, as well as meeting our commitments to cost and schedule, regulatory requirements, State and local Agency requirements, community board issues and stakeholder concerns.

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The commitment to the Project Quality Policy begins with the project's senior management. One of the principal goals of the senior management team is to ensure that both the Quality Policy and this manual are understood and implemented throughout the project. A synopsis of the senior management organization and their roles follows.

2.5.1 Client (PATH) Liaison Manager

The designated Client Liaison Manager is the representative of the Director, PATH on the project. His responsibilities include, ensuring that PATH's objectives are met with respect to the design criteria, budget, schedule and the quality of the work being developed for delivery to the Department. The PATH Liaison Manager will, throughout the construction portion of the project, ensure that at no time, railroad operations are affected.

The Liaison Manager will attend design meetings to ensure that (1) all desired criteria are included in the developmental process (2) attend all meetings for WTC Site structures that interface with and impact the PATH Station Project, (3) ensure the integrity of the PATH Project is preserved and (4) that quality is in no way compromised in agreements and concessions made for the accommodation of adjacent structures.

During the design phase, the Liaison Manager will ensure that the completed designs and drawings produced satisfy the intended scope of work, all design criteria have been met and the quality of the product meets the Department's expectations.

During the construction phase, the Liaison Manager will ensure that the work being constructed satisfies the agreed-on designs and specifications and that the quality of the finished work meets PATH's expectations. The PATH Liaison Manager will attend all final inspections and tests. The Liaison Manager is responsible for accepting the work on the successful completion of all punch list items.

2.5.2 Program Executive

The Director of Priority Capital Programs ultimately, has the responsibility for the successful delivery of the Project to the Client in accordance with the agreed on plans and specifications and ensuring that the Program Director and his staff carry out his/her wishes, and those of the Client.

The Program Director, WTC Transportation Hub reports to the Director Priority Capital Programs, who in turn reports directly to the Port Authority's Chief Operating Officer. The Program Director has the responsibility for implementing, managing, directing and controlling the project to ensure the successful delivery of the Project to the Client, in accordance with the agreed on plans and specifications. The Program Director will manage the Project through his/her Deputy Program Director and Program management Staff, and ensure their diligence with respect to the budget and schedule and the delivery of a quality product.

2.5.3 Program Manager

The Program Manager manages all related activities for the design and construction of the Project. The Program Manager is also the single point of contact for all official information on the project, including all project planning, programming, project implementation and control activities, as well as serving as liaison with the FTA. The Program Manager, in the execution of his/her duties is responsible for managing the work under his/her purview within budget, schedule and delivering a quality product that meets or exceeds the performance criteria

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established by the Client (PATH). The Program Manager is responsible for certifying to the PQAM that the work being managed by him/her meets or exceeds the minimum quality requirements.

The Program Manager will attend all final inspections and tests. The Program Manager is responsible for accepting the work on the successful completion of all punch list items:

2.5.4 Project Quality Assurance Manager

The Director of PCP has delegated the oversight of the Project QMS to the Project Quality Assurance Manager. The PQAM reports directly to the Program Director WTC Transportation Hub and has direct access to the Director, PCP and ultimately to the Director, PATH. The PQAM is responsible for developing the Quality Assurance Plan, implementing and managing the PQMS. The Project Quality Assurance Manager will review all Requests for Proposals prior to their issuance for bids. This is to assure the adequacy of the respective Quality Assurance Plans to be implemented by the consultants and their subconsultants, the CM/GC, other contractors and their respective subcontractors, vendors and suppliers. This will assure that the Quality language on the project is consistent, and assure that adequacy of the control measures to be implemented for the Project.

The responsibilities of the PQAM are categorized into the following general areas:

- Providing Quality consultation and direction to the Engineering Program Manager responsible for the design and construction management of the Project,
- Following the submittal of a project specific Quality Plan, the Project Quality Assurance Manager will perform the necessary reviews for comment and acceptance of the respective programs offered by the responders,
- Ensure that the Engineering Department's Quality Assurance Plans are adequate and will participate in the developmental processes of these plans to ensure that the Agency's CQAP, DQAM and PQAP are seamless,
- Review of design, contract, and procurement documents, as well as test, operating, and maintenance procedures to verify that quality aspects have been considered in the development and delivery phases of the project;
- Through the EQAM and CQAM, provide oversight of consultants and contractors in accordance with this QMS. The Project Quality Assurance Manager, through the EQAM and CQAM coordinates with Consultant and Contractor Quality Assurance Managers to assure that their quality systems are maintained, up-to-date and effective
- Surveillance and/or the witnessing of manufacturing, construction, installation, and integrated testing activities for adherence to design, contract, and operation requirements,
- Monitoring and evaluating the implementation, adequacy and effectiveness of the respective QMS among functional groups
- Audits of Quality Programs for adequacy and compliance with performance requirements,
- Process control to ensure that suppliers and contractors identify, plan and execute the production and installation processes that directly affect quality and ensure that these processes are performed under controlled conditions
- Corrective action to eliminate problems that arise from nonconforming work and prevent recurrences
- Responsible for Preventive action of potential problems.
- Management review to ensure that the documented quality policy is understood, implemented and maintained throughout the Project organization

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- Overseeing the staffing of the Project Quality Assurance Organization, with rights to challenge the qualifications and experience of members of functional groups, who are performing QA/QC functions
- Training of all personnel performing activities affecting quality, in order to qualify each individual on the basis of the appropriate education, training, and/or experience, as required
- Document Control of Quality Records

Decisions made by the Project Quality Assurance Manager regarding the applicability, interpretation or modifications to any or all sections of the Project Quality Manual is subject to review and approval by all signatories to the PQAP.

The Project Quality Assurance Manager will attend all final inspections and tests. The PQAM is responsible for accepting the work on the successful completion of all punch list items.

2.5.5 Engineering Quality Assurance Manager

The Engineering Program Manager has delegated the oversight of the EQMS to the Engineering Quality Assurance Manager. The EQAM is responsible for developing the Design Quality Assurance Plan, implementing and managing the DQMS and ensuring that the CQMS developed by CMD fits as a component part of the EQMS. The Engineering Quality Assurance Manager will review all Requests for Proposals prior to their issuance for bids. This is assuring the adequacy of the respective Quality Assurance Plans to be implemented by the consultants and their subconsultants, CM/GC, other contractors and their respective subcontractors, vendors and suppliers. This is to assure that the Quality language on the project is consistent and assure that adequacy of the control measures to be implemented for the Project. The EQAM will assure the PQAM that the respective plans satisfy the Program plans.

The responsibilities of the EQAM are categorized into the following general areas:

- Review of design, contract, and procurement documents, as well as test, operating, and maintenance procedures to verify that quality aspects have been considered in the development and delivery phases of the project
- Surveillance and/or witness of manufacturing, construction, installation, and integrated testing activities for adherence to design, contract, and quality requirements
- Audits of Design and Construction Quality Programs for adequacy and compliance with performance requirements
- Implement process control to ensure that contractors and their suppliers identify, plan and execute the production and installation processes in a quality manner under controlled conditions
- Corrective action to eliminate problems that arise from nonconforming work and prevent recurrences
- Responsible for preventive action of potential problems
- Management review to ensure that the documented quality policy is understood, implemented and maintained throughout the engineering and service providing organization
- Training of all personnel performing activities affecting quality, in order to qualify each individual on the basis of the appropriate education, training, and/or experience, as required

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- Document Control of Quality Records

Decisions made by the Design Quality Assurance Manager regarding the applicability, interpretation or modifications to any or all sections of the Project Quality Manual is subject to review by all signatories to the DQAP.

The Engineering Quality Assurance Manager will attend all final inspections and tests. The EQAM is responsible for accepting the work on the successful completion of all punch list items.

2.5.6 Construction Quality Assurance Manager

The Construction Quality Assurance Manager will report to the Engineering Quality Assurance Manager, and will be responsible for overseeing the project. He/she will ensure that all service providers; to include the CM/GC, other contractors and their respective subcontractors, suppliers and vendors, provide products in accordance with the design, performance, quality assurance and testing requirements of the Contract Documents. All entities providing construction services to the Project will submit Quality Management Programs and Plans for their respective Work to the CQAM. Such programs and plans must outline their respective Quality Management Systems (QMS) approach to managing their Contract specified quality of the deliverables for the Project. Their respective plans will outline the management, administration and control and testing measures considered appropriate to their respective scopes of work. The CQAM will review with the EQAM and PQAM all drawings and specifications included in the Project's Contract Documents for construction prior to issuance. During construction, quality reviews will include all proposed means and methods, procurement, and/or other services to ensure appropriate content and the inclusion of quality control and assurance programs and plans consistent with this document and the CQAP. Copies of all written correspondence to the CM/GC or other contractors regarding these reviews and quality will be forwarded to the EQAM for comment and document control. The EQAM will in turn, forward these documents to the PQAM for his/her review and files.

The responsibilities of the CQAM are categorized into the following general areas:

- Review of all Contract Documents to verify that quality aspects have been considered in the development and delivery phases of the project;
- Conduct routine and controlled inspections of all construction, installations, and integrated testing activities for adherence to the design, performance, quality assurance and testing requirements of the Contract Documents;
- Review and approve all Quality Control Programs and associated plans submitted by the CM/GC, other contractors and their respective subcontractors, suppliers and vendors prior to the commencement of Work to ensure compliance with the CQAP, and the design, performance, quality assurance and testing requirements of the Contract Documents;
- Develop and/or review and approve all implementation procedures and associated process controls to ensure that the CM/GC, other contractors and their respective subcontractors, suppliers and vendors plan and execute all production and installation processes under appropriately controlled conditions to ensure the highest achievable level of quality;

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- Stop the Work or alter the progress of Work to eliminate, correct or avoid nonconforming construction and prevent recurrences,
- Responsible for preventive action of potential problems,
- Review and explain the CQAP to the CM/GC, other contractors and their respective subcontractors, suppliers and vendors to ensure a clear understanding of the Authority's goals and objectives regarding quality control and assurance on the Project. Also, their responsibilities to implement and maintain their quality control programs and plans as approved by the CQAM, EQAM and PQAM throughout the construction process;
- Ensure that all staff and personnel performing activities affecting quality are appropriately trained and qualified based on appropriate education, training, and/or experience, as required;
- Document Control of Quality Records.

Decisions made by the Construction Quality Assurance Manager regarding the applicability, interpretation or modifications to any or all sections of the Project Quality Manual is subject to review by all signatories to the CQAP.

The Construction Quality Assurance Manager will attend all final inspections and tests. The CQAM is responsible for accepting the work on the successful completion of all punch list items.

2.5.7 Consultants, Contractors, Subcontractors, Suppliers & Vendors' QA Plans

Consultants, Contractors, Subcontractors, Suppliers and Vendors' Quality Assurance Programs and Plans will be drafted to conform to the tenets embodied in the PQAP, EQAP and CQAP. Their plans will be reviewed and approved by the respective DQAM and CQAM and forwarded to the PQAM for review and comment.

2.6 Attachments

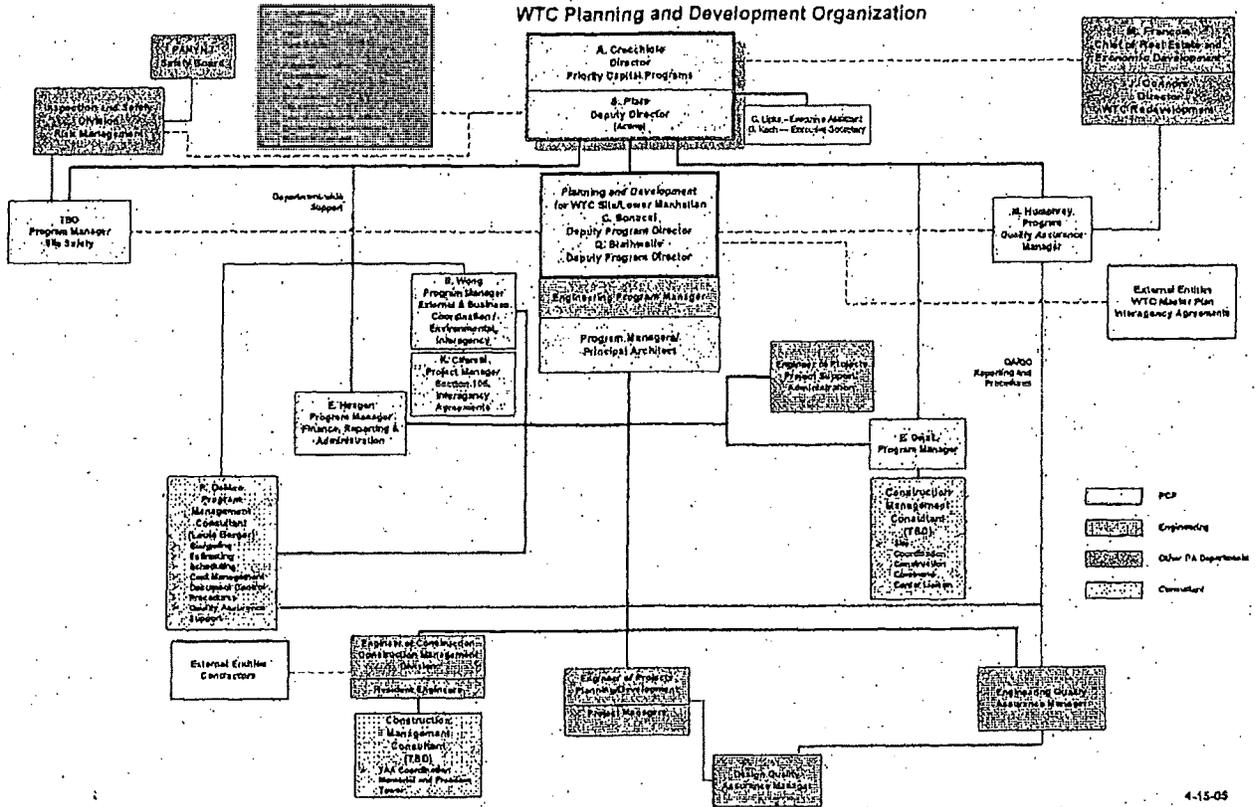
Exhibit 1.1 shows the World Trade Center Planning and Development Organization

Exhibit 1.2 shows the World Trade Center PATH Terminal Project Organization

Exhibit 1.3 shows the World Trade Center Site Public Infrastructure and Bus Parking Facility Project Organization.

Exhibit 1.1

WTC Planning and Development Organization



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Exhibit 1.2:

WTC PATH Terminal Project Organization

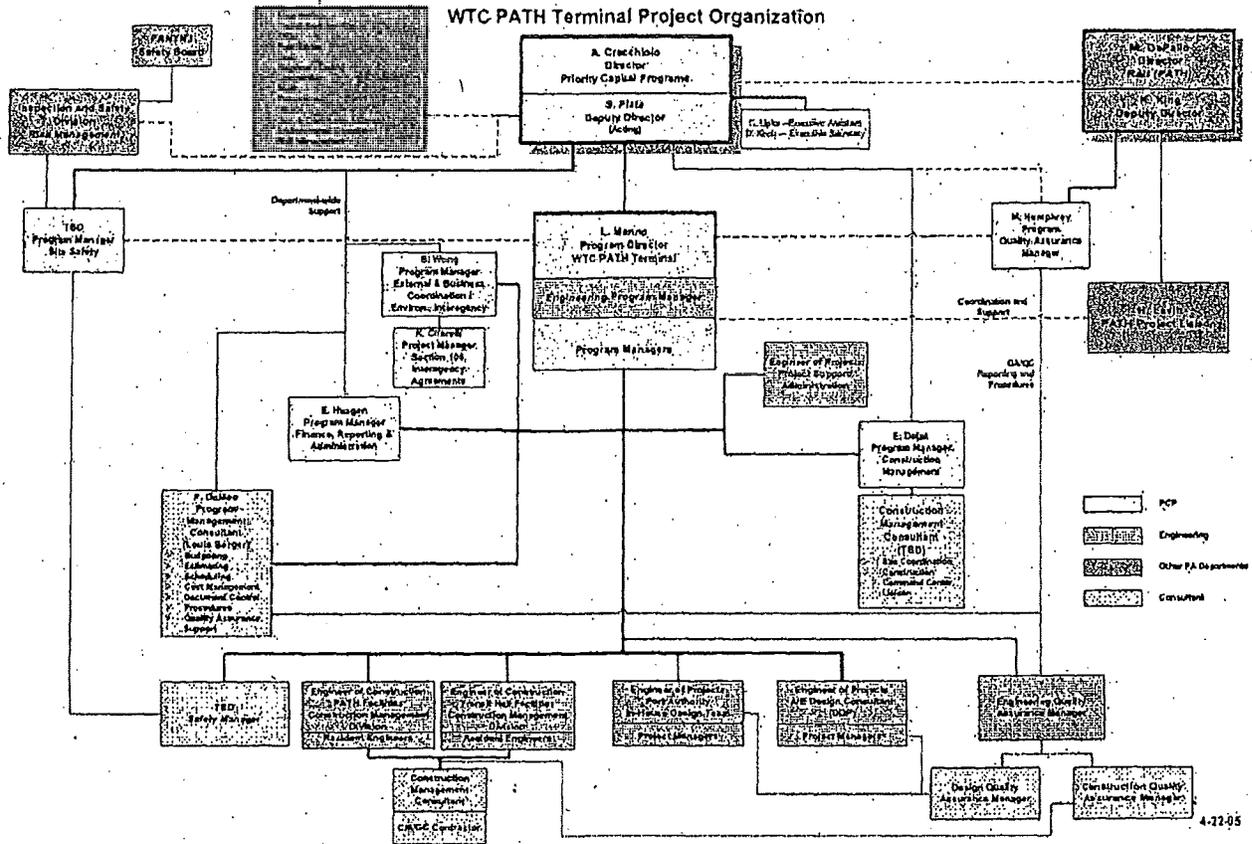
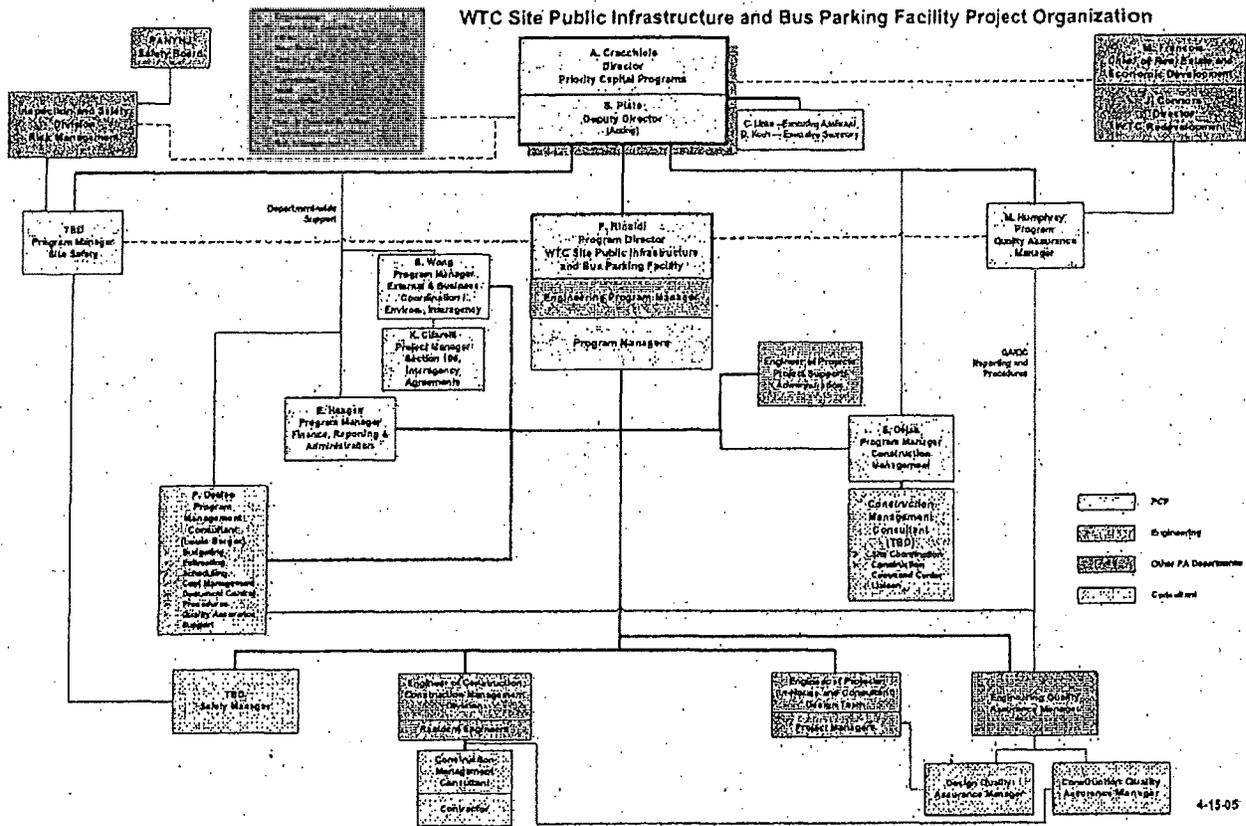


Exhibit 1.3:

WTC Site Public Infrastructure and Bus Parking Facility Project Organization



4-15-05

2. DOCUMENTED QUALITY SYSTEM

2.1 Purpose

To describe and assign responsibility for developing, approving and implementing a documented Quality Management System (QMS) for the World Trade Center Transportation Hub Project. The system will ensure that the Project's goals and objectives are fully met and assign responsibility for verifying the effectiveness of the program and for controlling quality. Each element of Tier 1 of the QMS, depicted in Section 1.3, is bounded under this section to maintain a documented QMS.

2.2 Scope

The documented QMS described herein applies to all project participants in Tier 1 depicted in Section 1.3 through the design and construction phases, as applicable.

2.3 Policy

The policy of PCP is to have a documented Quality Management System (QMS) that will ensure and certify by its contents that the Project's goals and objectives are fully met. PCP also intends that the documented QMS will include the appropriate organizational structures, outlined responsibilities, procedures, guidelines, processes, resources, defined Project requirements, and provide methods for positive management, administration and control.

PCP intends to implement a documented QMS that defines requirements that will contribute to the attainment of a quality, reliable, economically and convenient WTC Transportation Hub that meet the Client's performance requirements.

2.4 Responsibilities and Authority

The PQAM is responsible for developing the documented PCP Quality Assurance Plan. He/she is also responsible for managing and overseeing the QA/QC process for the Project by reviews, walkthroughs, inspections and audits of the quality records maintained by the EQAM and CQAM, and insisting on the proper documentation to ensure the delivery of a quality project. The PQAM is responsible for interfacing, on a regular basis, with the EQAM to ensure that the documented QMSs embodied in the QAPs among the Tier 1 participants (see Section 1.3) are active and functional. The PQAM will take briefings from the CQAM when required and take defaulting matters up with the EQAM, when identified, for action by the CQAM.

The EQAM is responsible for managing and overseeing the QMSs for the design and construction processes to ensure the delivery of a quality product. The EQAM is responsible for interfacing, on a regular basis, with the CQAM. The EQAM by reviews and audits ensures that the CQAM maintains the intent embodied in the CQAP and that the construction QMS is active and maintains its intended documented structure to ensure the delivery of a quality product. The EQAM is also responsible for keeping the PQAM up-to-date on the functioning of the system. He/she will appraise the PQAM of Conformances, as well as Nonconformances, and the subsequent actions taken to correct such Nonconformances and prevent Recurrence.

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The CQAM is responsible for managing and overseeing the construction QMS process and ensuring that the CM/GC, and all other contractors, subcontractors, suppliers and vendors deliver quality work in the construction phase of the Project. The CQAM is responsible for interfacing, on a routine basis, with their designated Quality Control Managers (QCMs) to discuss all quality issues. The CQAM ensures that the QCMs maintain the intent embodied in their individual Quality Control Programs and Plans as approved by the Authority Resident Engineer, and being implemented, maintained and properly documented to ensure the delivery of a quality product. The CQAM is also responsible for keeping the EQAM apprised on the status and success of the quality management system. He/she will appraise the EQAM of Conformances as well as Nonconformances and the subsequent actions taken to correct all such Nonconformances including any preventive measures taken to eliminate or avoid a Recurrence. The CQAM will also be responsible for briefing the PQAM on the state of the Construction QMS, when required/requested.

Consultants, the CM/GC, other contractors, and their respective subcontractors, suppliers and vendors are responsible for developing, implementing and maintaining a documented QMS that meet the requirements of the QMS embodied in the PQAM, EQAM and CQAM, as well as the design, performance, quality assurance and testing requirements contained in the Contract Documents.

It is the CM/GC's and other contractor's responsibility to review, approve and provide written certification that the Quality Control Programs and Plans of their respective subcontractors, suppliers and vendors, are complete and appropriate for the portion of Work each is contracted for to ensure the delivery of a quality product.

As with the CM/GC and other contractors, it is the responsibility of each subcontractor, supplier and vendor to review, approve and provide written certification that the Quality Control Programs and Plans of their next tier subcontractors, suppliers and vendors are complete and appropriate for the portion of Work or materials each is providing, to ensure the delivery of a quality product.

In the event the CM/GC or another primary contractor subcontracts all or any portion of the contracted work, the accountability for the implementation and maintenance of the approved Quality Control Programs and Plans remains with the primary contractor.

2.5 Procedure

Each level of the project organization will prepare a Quality Plan and establish a QMS to ensure the quality delivery of their respective products, namely; suppliers, vendors, subcontractors, CM/GC, CMD, EPM, and PCP.

The PQAM will oversee the Project's QMS throughout its Tier 1 levels and ensure that the respective QAPs are consistent with the intent of the PQAP, for the successful delivery of a quality Project. Through the EQAM, the PQAM will interface with the functional elements in Tier 1, (shown in Section 1.3), conduct walkthroughs, inspections and audits to ensure that the documented system is in place and effectively enabling the provision of a quality product. The PQAM will prepare the necessary reports citing Conformances and any Nonconformances, and file these reports in document control with copies to the EQAM.

The EQAM will ensure that the QMS of the design elements are in accordance with the DQAP by conducting regular inspections, walkthroughs and audits to ensure the delivery of a quality product. The EQAM will prepare the necessary reports citing Conformances and

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Nonconformances, and file these reports in document control with copies to the PQAM for his/her review and files.

The CQAM is required to review and approve, if acceptable, the quality plans and certificates provided by the CM/GC, other contractors and their respective subcontractors, suppliers and vendors. The CQAM will ensure that the programs and plans are being implemented and maintained in accordance with the CQAP. He/she will conduct daily inspections, walkthroughs and audits to ensure that the quality of the construction is in conformance with the requirements of the contract documents. The CQAM will prepare the necessary reports citing Conformances and Nonconformances and file these reports in document control with a copy to the EQAM.

The RE will provide copies of all submittals from the contractor the CQAM. In addition, the RE will provide the CQAM with copies of Plans and contractors certificates with his certificate of assurance of the quality of the plans. The CQAM will conduct reviews, walkthroughs and inspections (as necessary) before signoff of the work and file the relevant report in Document Control. The CQAM must also prepare a Quality Assurance Plan and a documented Quality Management System for the EQAM and PQAM's review and approval.

The CQAM will review the several packages, request any additional information, if necessary, and issue a certificate of assurance for the several plans to the EQAM. The CQAM must document these submissions in his/her files for further reference.

The requirement for developing and implementing an effective Quality Control Program is to be incorporated into all Requests for Proposals or bid solicitations. Proposers and/or Bidders are required to acknowledge their understanding of and ability to adhere to this requirement as a pre-requisite to acceptance of their bids.

The EQAM will review the several packages, request any additional information, if necessary, and issue a certificate of assurance for the several plans to the PQAM. This is the final review and approval of the quality plans in the process, and the PQAMs approval will indicate Project approval of the QAPs' from the descending levels of the Project organization. The PQAM will then forward to the Director, PCP a certificate indicating the assurance that the plans to be implemented for the Project could deliver a quality product, which would meet the performance criteria, defined for the project. On approval, the Directors of PCP and PATH will sign on the concurrence lines of the certificate indicating PCP and PATH's approval of the respective plans.

The CM/GC and other contractors are required to prepare Quality Control Programs and Plans to establish a documented Quality Management System for submission, review and approval by the Authority Resident Engineer. The CM/GC and other contractors will also provide to the Authority Resident Engineer the approved Quality Control Programs and applicable Plans from their respective subcontractors, suppliers and vendors for review and approval. The contractor will provide to the RE, his/her respective supplier/vendor's Quality Assurance Plan and documented Quality Management System for approval for review and approval by the CQAM, with such approval being transmitted to the EQAM and PQAM

Each subcontractor, supplier and vendor is required to prepare a Quality Control Program with applicable Plans, and establish a documented Quality Management System for submission, review and approval by the CM/GC or other contractor. Such second tier programs and plans shall be certified in writing by the CM/GC or other contractor, and be incorporated in the CM/GC or other contractor's Quality Control Program. All Quality Control Programs and

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Plans and the requirements thereof will be specifically outlined and discussed with the CM/GC and other contractors at each pre-bid conferences, pre-construction meetings and progress meetings conducted by either the EPM or Authority Resident Engineer. The Project Quality Assurance Manager will always be invited to attend and participate in these meetings.

Quality Programs for all phases of the Project shall consist of three elements, as follows:

1. The basic policies and general requirements specified in the Quality Policy Statements and this Project Quality Manual (PQM).
2. A project Quality Control Program prepared by the consultant or contractor specific to each contract, as required by the Contract Documents.
3. Written Implementation Procedures (IPs) prepared by the consultant or contractor that describe specific quality control related activities, and how and when each is to be performed, verified, and documented.

The authority to stop work, control further processing, or prevent shipment of items that do not meet the design, performance, quality assurance or testing requirements of the Contract Documents is vested solely in the Authority Resident Engineer as the duly authorized representative of the Chief Engineer at the construction site. Such orders, if necessary, will be issued in writing to the CM/GC or other contractor.

The PQAM is vested with the Authority to issue a Stop Work request to the RE to control further processing, or prevent shipment of items that do not meet quality requirements. (This does not preclude the request for Stop Work by the Program Manager, through the Engineering Project Manager, for work within their area of responsibility, in accordance with breaches of the contract documents). Stop Work can be implemented in accordance with the following documented procedures:

- Stop Work authority will be exercised when there is evidence that an existing condition is adverse to the quality objectives outlined in the CQAP, and that the continuance of the activity would result in an incorrigible or unsafe condition
- Stop Work Order will be issued in writing, stating the full particulars of the condition, and satisfactory corrective action must be taken before work will be permitted to resume.
- On request from the inspecting QAM, the Authority Resident Engineer will issue written Stop Work Orders to the CM/GC or other prime contractor responsible for the condition of nonconformance, copied to the Engineer of Construction, the EQAM and Engineering Program Manager, CQAM, EQAM, PQAM, and others, as appropriate.
- A Stop Work Order issued by the Authority Resident Engineer, due to a request from a QAM, can only be lifted by the Authority Resident Engineer if the initiating QAM is satisfied with the quality of the work.

All approved Project Quality Programs must be submitted to the PQAM for his/her review and files.

3. DESIGN CONTROL

3.1 Purpose

To define the requirements for the control, verification, and documentation of the quality of design activities associated with the Project. Further, to describe the design control measures to be implemented to assure that all design criteria and directives are properly conveyed between external design disciplines and internal PA design groups. This will include design input, design output, design reviews, sign off and change procedures

3.2 Scope

The design control requirements are included in the Design Quality Assurance Plan produced by Engineering Department outlined below, and which apply to the design of facilities, systems and equipment for the Project.

This procedure applies to all PA design disciplines and / or design groups where design work is being performed. This procedure is applicable to all design criteria and directives of a magnitude that documentation is necessary for clear project communications and verification.

This procedure addresses the conveyance of design directives and revisions that occur following compilation of data on existing conditions and the adoption of a preliminary plan establishing the "Basis of Design". The Basis of Design Report (BDR) shall contain design input addressing contract requirements, applicable codes and standards, as well as defined performance standards / requirements. This procedure shall be used as the project standard reference when issuing design directives.

Design directives may contain drawings, instructions, data submittals, special provisions, detail specifications, cost estimates, schedules, materials selections and relevant design elements as identified by the PA design engineers. Design directives and instructions shall not be issued verbally. In situations where design directives have been issued verbally, such directives shall be documented by the respective design engineer via formal memorandum and shall be distributed to the design team via the document control process.

3.3 Policy

Each design consultant is required to develop and maintain a Design Quality Management System (DQMS) that describes their design processes and design quality assurance/control processes. The Design Quality Assurance Manual is to be submitted to the Project Quality Assurance Manager for review and acceptance, prior to the start of work. The design consultant's Design Quality Manual will define a comprehensive Quality Assurance Program that will be implemented by the design consultant and their subconsultants. Implementation of all aspects of the each design consultant's DQMS will be subject to Audit/Surveillance by the EQAM, PQAM and the FTA Representative, either jointly or severally.

Design activities will be controlled in accordance with applicable requirements of the Contract Documents; as described in the DQMS. Quality standards and appropriate quality criteria will be specified in the design documents including, but not limited to:

- Design Basis

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- Scope of work/services
- Technical requirements/specifications
- Drawings
- Codes and Standards
- Design and Performance Criteria

Quality standards will be established that are consistent with the criticality of the facility, system and subsystems.

Design documents, specifications, test/analysis reports, or other documents used to specify the design, will be identified, using an approved Project Numbering System. This system will be prepared in accordance with the applicable standards and practices established for the Project's Document Control System. Design documents will be subjected to a review/check process and coordinated with interfacing design disciplines, groups or entities, as described in the Engineering and the design consultants DQMS'. The respective Project Managers for the work to be conducted for the development of the 16-acre World Trade Center Site will appraise Engineering Department of interface requirements that need to be considered in the development of the design.

Change to design documents shall receive the same review and approval process as the original document.

Design documents are to be controlled in accordance with the design consultant's Configuration Management and Document Control IPs to assure the use of approved and current documents. Design documents are to be maintained and distributed in accordance with the Engineering Department, design consultant, and contractor's IPs.

Design documents shall provide for identification of items important to quality and safety by providing traceability of the item through part numbers, log numbers, serial numbers, or other means in accordance with applicable codes and standards.

Design documents shall provide identification of design criteria.

Design reviews shall be performed to determine that the design bases have been accurately expressed and to verify the constructability of the design.

- Design reviews are to determine if appropriate quality standards have been specified for the intended use, and those components, materials, equipment and processes specified are appropriate to their intended application.
- Design reviews shall include appropriate means of verifying design such as modeling, independent design analysis, qualification testing, evaluation of sustainable design, Section 106 and environmental data and the appropriate simulation to confirm compliance with stakeholder requirements.
- Design reviews, checking, calculations, alternate calculations, performance tests, peer reviews, or other means used to verify the design prior to issue will be performed by personnel other than those who originated the design but with qualifications at least equal to those of the originator. Review personnel may be supervisors who were not actually involved in the design.

Design changes (revisions) that impact budget, schedule, Client's requirements or specifications will be subject to checking, coordination, and design review to the same level as

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the original design. Design change documents must be approved by the Program Manager and processed in accordance with the Project's change management procedures. Superseded design documents will be so marked, dated and retained for information only. Design changes shall be controlled using an alphanumeric system or other approved method as determined by the PCP Document Control Supervisor and current Engineering procedures.

- Design changes shall be issued according to a standard distribution list; changes, including field changes, shall be promptly incorporated into design documents.
- A Design Change Notice procedure shall be a part of the Engineering Department's Design Quality Manual. To expedite design changes, parties affected by changes shall be promptly notified. Design changes should be incorporated into a drawing revision in accordance with Engineering Department Procedures.

3.4 Design Reviews

The PCP Program Manager and the PATH Representative will attend design meetings to assure themselves that the design is progressing in accordance with the objectives of the Program.

PCP and PATH will receive completed document packages. They will conduct reviews of these packages and forward comments to the Engineering Program Manager for incorporation.

Construction cost estimates that accompany milestone design submissions must be subjected to the same review, checking and verification procedures outlined in the DQAP for A/E designs and drawings. Construction cost estimates from the estimator are subject to a review by the EQAM, before they are forwarded to PCP, through the PQAM. Any modification made to the estimate, due to Program Management review, must be sent to the PQAM with a statement on the nature of the change. He/she will review the package, initial the change and statement of change, and forward the package to the EQAM. The EQAM will review the package, initial the change and statement of change and return the estimate, through the Engineering Program Manager to the estimating team for reconciliation and concurrence. This action must be completed before the estimate is returned to PCP, with EPM approval, via the EQAM and PQAM for PCP transmittal to the FTA.

Construction schedules that accompany milestone design submissions must be subjected to the same review, checking and verification procedures outlined in the DQAP for A/E designs, drawings and estimates. Construction Schedules are to be reviewed by the EQAM prior to their submission to PCP, through the PQAM, who will in process, review all schedules before forwarding to Program Management Staff. Any modification made to the schedule, due to Program Management review, must be sent to the PQAM with a statement on the nature of the change. The PQAM will review and initial the schedule and statement of change, and then return the amended schedule and statement of change to the Engineering Quality Assurance Manager. The EQAM will review the schedule change package, initial the change and transmit the amended schedule and statement of change to the Engineering Scheduler, through the appropriate Engineering Program Manager, for reconciliation/adjustment. This procedure must be executed before the schedule is returned through the Engineering Program Manager, EQAM and to the PQAM for PCP transmittal of the schedule to the FTA.

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4. DOCUMENT CONTROL

4.1 Purpose

To define requirements for the systematic control of documents for the Project.

4.2 Scope

These requirements for document control apply to preparation, review, approval, release, reproduction, distribution, revision, maintenance, retention and disposition of all quality documents from the Port Authority and its consultants, CM/GC, other prime contractors, subcontractors, suppliers, vendors, stakeholders and concerned parties'. The requirements of this section apply equally whether all or some of the above processes are performed in hard copy or electronic media.

Refer to Section 3, **Design Control** above, for additional requirements specific to design documents.

4.3 Policy

IP's will be developed and implemented by PCP and the Engineering Department, including its consultants, CM/GC, and contractors, consistent with their scopes of work and subject to approval by Engineering, PCP and PATH.

Project documents such as correspondence, specifications, instructions, submittals, procedures, forms, and drawings will be controlled in accordance with established Configuration Management/Document IPs.

4.4 Procedures

The PCP Program Manager, Engineering Project Manager, and the Authority Resident Engineer are responsible for establishing and maintaining the system for the control of the Project documents, and for the conveyance of the document control requirements included in the Contract Documents:

At the completion of the project, copies of document control files in the required WBS format will be turned over to PQAM, by all consultants and contractors.

Project consultant and contractor document control and configuration IPs, including subsequent revisions, shall be reviewed and approved by the EQAM and subsequently the PQAM prior to implementation.

On the Project, each consultant, and each contractor responsible for control of project documents, shall at a minimum:

- Establish configuration and document control IPs.
- Establish a filing system, which assures that documents are safely secured, maintained, and readily retrievable.
- Prepare appropriate indices for documents received and sent for systematic filing.
- Establish necessary logs, registers, transmittals, and acknowledgements to determine and record status of documents in accordance with the Contract Documents and IPs.

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- Implement controls for reproduction of "Controlled Documents" to minimize potential use of obsolete documents.
- Maintain a log or matrix to document and record historical procedures in a chronological order. Approved original procedures shall be retained for reference.

The Authority Resident Engineer will control all construction documents in accordance with the established CMD filing procedure. However, for QA/QC verification purposes, the EQAM, CQAM and PQAM will receive copies of such documents or must have access to these documents.

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5. PURCHASING

5.1 Purpose

To define the requirements for Quality Assurance/Quality Control measures that satisfies FTA guidelines and policies for purchasing. These are to be incorporated into the Contract Documents for all consultants and contractors performing services or work for the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project.

5.2 Scope

The requirements of this section apply to all procurement for the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project.

5.3 Policy

The policy of PCP is to ensure that all materials, equipment or services procured for the Project are specified with sufficient detail to meet design, performance, quality assurance and testing requirements of the Contract Documents. PCP will enforce the FTA's requirements with respect to an open and fair competitive procurement process. Only those professional services or materials, which meet the specification requirements of the Contract Documents, will be purchased. The CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors will be required, when necessary, to submit written procedures to the Authority Resident Engineer for review and approval to ensure that each procurement of materials, equipment and services satisfies the CQAP, EQAP, PQAP, Contract Documents and FTA requirements, prior to the release of the associated purchase documents or agreements to subcontractors, suppliers and vendors.

The CM/GC and all other prime contractors along with their respective subcontractors, suppliers and vendors will be required to develop and implement, within their documented Quality Control Programs and Plans, provisions to verify and document the quality of procured services or items. Their programs and plans will also define the means by which quality requirements are transferred to subcontractors, suppliers and vendors. Contractors/Suppliers will submit procedures for such control to the CQAM for approval. Copies of the approved document must be sent to the EQAM and PQAM for their review and files.

5.4 Procedures

5.4.1 Procurement Documents

All applicable design, performance, quality assurance and testing requirements of the Contract Documents and applicable provisions from the Quality Control Programs and Plans approved by the Authority Resident Engineer and Quality Assurance Management Staff will be included and specifically referenced in documents used for procurement of all materials, equipment and services. The specific requirements will address the following:

- The requirements of the approved Quality Control Program and associated plan applicable to the consultants, sub-contractors, suppliers and/or vendors are to be specified;

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- The procurement documents for the materials, equipment and/or services will include a statement of the Scope of Work to be performed by the subcontractor, supplier or vendor contractors;
- The procurement documents for the materials, equipment and/or services to be provided must be reviewed and approved by the Authority Resident Engineer to verify completeness and ensure that the information references is adequate to ensure that the requirements of the approved Quality Control Program and associated plans are appropriately addressed;
- Any revisions, amendments or changes of any kind to the approved procurement documents to the same review and approval requirements as the original.

Engineering Department, during the design and construction phases of the project will ensure that proper procedures are followed with respect to procurement and purchasing of services and materiel. These include: Procurement Document Control, Supplier/Sub-Supplier Selection/Qualification, Supplier Quality Survey, Pre-Award Quality Surveys, Supplier Quality Approval, Source/Vendor Surveillance, Source/Vendor Inspection, Release for Shipment, and Receiving Inspection.

5.4.2 Source Selection

The CM/GC, as well as, all other prime contractors, subcontractors, suppliers and vendors will be evaluated prior to bid award to determine their capability to meet the design, performance, quality assurance and testing requirements of the Contract documents, the CQAP and any applicable and approved Quality Control Programs or Plans.

5.4.3 Quality Assurance Audits And Source Surveillance/Inspection

Audits, source surveillance, or inspection will be performed either jointly or severally by the CQAM, EQAM, PQAM and the FTA representative as required and will be fully documented on the appropriate forms.

Initial surveillance/inspection will include a review of fabrication drawings, codes, specifications and purchase order requirements. Material certifications, fabrication, welding and test procedures and personnel qualifications will be reviewed and verified as required. Documented evidence of all surveillances or inspections are to be maintained.

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6. PRODUCT IDENTIFICATION AND TRACEABILITY

6.1 Purpose

In design, assure design delivery documents are project identifiable and the sources (for example: design input, calculations, check prints, etc) of these documents are traceable.

In construction, define identification requirements for control of materials, equipment, parts and components to assure their traceability.

6.2 Scope

In design, this process will apply to all design deliverables.

In construction, this process will apply to the procurement of materials and products.

6.3 Policy

In design development, the procedures for identification and traceability will be followed in conformance with the DQAP.

In construction, materials and equipment, including partially fabricated or assembled components, will be identified and traceable subject to the procedures included in the CQAP.

Controls will be established by the Authority Resident Engineer to assure conformance with requirements established in the approved procurement documents.

Measures should be established and maintained for identifying and controlling items of production (batch, materials, parts, and components) to prevent the use of incorrect or defective items and to ensure that only correct and acceptable items are used or installed.

Physical identification and control should be used to the extent possible. Where physical identification is impractical, physical separation, procedural control, or other appropriate means may be employed. Items that fail to possess identification, or items for which record traceability has been lost, or items that do not conform to requirements should be segregated to prevent use or installation. An item should be able to be identified by how it is marked or where it is located.

For vendors supplying products, product identification and traceability should take place during all the various production phases from receipt of raw materials, components, or subassemblies through the manufacturing process, to delivery of final products or systems.

Traceability may mean traceable to a particular component of the project, specific warranty, test report, supplier and purchase order.

Raw materials should be traceable back to a particular batch number, shipment number, packing slip, or invoice and should be accompanied by applicable test data sheets and material certifications as required by the CQAP.

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Tracking procedures should allow for items to be traceable back to a particular order number, batch number, date received, test lot, or other pertinent source as required by the CQAP.

Final assemblies should be clearly marked with project numbers, model numbers, serial numbers, bar codes, etc., so that all pertinent information regarding that assembly may be retrieved.

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7. PROCESS CONTROL

7.1 Purpose

To define requirements for the control of design and construction processes, including special processes that directly affect the quality of the Project and to assure that these processes are performed under controlled conditions in compliance with the quality and performance criteria embodied in the Contract Documents.

7.2 Scope

These requirements apply to all consultants, contractors and subcontractors performing work, including special processes for the Project. This procedure is applicable to all special design and construction processes that will impact the project and its interfaces with adjacent projects, to include; sustainable design, Section 106 concerns, environmental requirements, State, City and public concerns.

7.3 Policy

Project development and delivery activities that affect quality are to be performed in accordance with written Implementation Plans (IPs). Design Work Plans (DWP) will be reviewed by the Program Manager through the Engineering Project Manager to confirm compliance with the scope of work. He/she will confirm that Project Quality requirements are included in the IPs and DWPs, and that the scope of work includes consideration for impacted parties, and that the PA's attention to Regulatory, State, City and stake holders are being addressed. Construction Work Plans (CWP), drawings, or other means and methods appropriate to the circumstances will be reviewed by the Authority Resident Engineer.

IPs and CWPs shall be prepared, implemented and formally controlled by the CM/GC or other prime contractor performing the Work. IPs, CWPs and associated documentation, in so far as practical, shall be standardized for the Project. CWPs are to be reviewed and approved by the Authority Resident Engineer, prior to the start of Work. In the case of an IP or CWP prepared by a subcontractor, the CM/GC or other prime contractor is to review and certify in writing that the documents are complete and appropriate prior to submission to the Authority Resident Engineer. IPs and their associated forms will be copied to the CQAM, EQAM and PQAM for their review and records.

7.4 Procedures

Activities affecting quality are to be prescribed by written IPs and/or CWPs that are appropriate to the criticality and complexity of the activity.

The organization performing an activity affecting quality is responsible for the development of appropriate IPs and CWPs for review and approval by the Authority Resident Engineer. Copies of approved IPs and CWPs will be forwarded to the CQAM for concurrence. He/she will then forward copies of the IP's and his or her certification to the EQAM for information and document control. The EQAM will send a copy of the approved/assured IP package to the PQAM for his/her review and records. All IPs and CWPs at a minimum shall include the following

- A sufficient level of detail to describe the procedure necessary to facilitate performance and ensure the effective control of all activities affecting quality;

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- Reference the performance and/or acceptance standards to be used to determine whether or not prescribed activities have been satisfactorily accomplished in accordance with the design, performance, quality assurance and testing requirements of the Contract Documents.

Special processes will be controlled and accomplished by qualified and/or certified personnel using approved IPs and CWPs in accordance with the Contract Documents. Such qualifications will be stated on the applicable IPs for field verification of credentials at the time of performance. Records of qualification and certification credentials will be forwarded to the EQAM for his information and Document Control. He/she will then forward these records to the PQAM for his/her review and records.

All qualifications of personnel performing special processes will be verified by the Authority Resident Engineer. All such testing will be witnessed and documented by the Authority Resident Engineer with the CQAM in attendance. Copies of which will be forwarded to the EQAM for his information and Document Control. A copy will be sent from the EQAM office to the PQAM for his/her information and records.

The Quality Control Manager of each consultant or contractor is responsible for the review and certification of completeness of each IP, prior to submission to the Authority Resident Engineer and CQAM for their review and approval. No Work that affects quality shall proceed until the Authority Resident Engineer and CQAM have approved the applicable IP. These approvals should be copied to the EQAM and who in turn will issue an assurance certificate to the PQAM for his/her information and records.

All IPs and CWPs shall be prepared, implemented, and formally controlled by the CM/GC, other prime contractor, subcontractor, supplier or vendor actually performing the activity, and shall, as far as possible, be standardized for the Project.

The Engineering Quality Assurance Manager will maintain day-to-day control over the design development and delivery process with oversight from the respective PCP Program Managers, who will assure the PQAM that the processes (including special processes e.g. the design of security elements, sustainable design, conformance with regulatory requirements etc.) that directly affect the quality of the Project are being performed under controlled conditions in compliance with the Contract Documents.

During the construction phase, the Authority Resident Engineer will control the process. He/she will use progress meetings, task specific meetings, look-ahead schedules, testing and inspection to aid the process. Representatives from PCP and PATH will be invited to attend all such meetings.

The CM/GC and all other prime contractors will have full time and dedicated Quality Control Managers (QCM) assigned to the project. The CM/GC and all other prime contractors will ensure via their procurement processes that each subcontractor has an appropriate quality control representative at the construction site.

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8. INSPECTION AND TESTING

8.1 Purpose

To define procedures for planning, implementing and controlling inspection and test activities required to verify conformance to the design, performance and quality requirements of the Contract Documents.

8.2 Scope

This section is applicable to procurement, engineering, construction, testing and start-up activities required to verify conformance to Contract Documents.

These requirements apply to the CM/GC, other prime contractors, subcontractors, suppliers and vendors performing work or providing materials, equipment or other services for the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project.

8.3 Policy

Activities affecting quality are to be inspected, tested and documented by qualified personnel who are independent of those performing the work. Inspections and tests will be performed in accordance with approved IPs to ensure that each item of Work meets or exceeds the design, performance and quality requirements of the Contract Documents.

IPs shall be established to include procedures for the inspection and testing of all operations including, but not limited to, the following: receiving, in-process manufacturing, installation, final acceptance and systems start-up and integration.

IPs shall include appropriate checklists and/or forms utilized for inspection and/or testing along with the required acceptance and rejection criteria and specific acceptance values, etc., as practical.

Inspection and test activities by the Authority Resident Engineer will attempt to ensure that the design, performance and quality requirements of the Contract Documents have been satisfied. Testing shall include, as applicable: Qualification testing, Offsite Factory testing, Installation Verification testing, Offsite and Onsite Material testing, Demonstration testing, System Start-Up and Integration tests and Final Acceptance testing. For Quality Assurance purposes the CQAM will accompany the Authority Resident Engineer on these inspections and tests and his/her certificate of satisfaction sent to the EQAM for his information and records. The EQAM and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

8.4 Procedure

Inspections and tests will be planned, performed and documented by qualified persons other than those responsible for accomplishing the work being inspected. IPs shall be developed and implemented covering performance of inspection and test activities including personnel qualification, measuring equipment control, and calibration and status control.

Inspection and Test Plans (ITPs) and the associated IPs must be reviewed and approved by the Engineer Of Record, the Authority Resident Engineer and the CQAM. In addition, all such ITPs must be reviewed for completeness by the Quality Control Manager of the CM/GC, other

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prime contractors, subcontractors, suppliers and vendors prior to submission to the Engineer Of record, the Authority Resident Engineer and the CQAM, and prior to the commencement of any work or delivery of any materials or equipment. With the CQAM's approval, he/she will transmit a copy of his/her final approval with copies to the EQAM, and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

In-process inspections of equipment, facilities, or systems will be performed as deemed necessary to verify conformance to Contract Documents. "Hold Points" either defined in the Contract Documents or recommended by a QAM, CM/GC, other prime contractor, subcontractor, supplier or vendor and approved by both the Engineer Of Record and the Authority Resident Engineer will be specifically identified in both the IP and ITP. No work, manufacturing or production shall proceed beyond a designated "Hold Point" until required inspection and testing is completed to the satisfaction of the Authority Resident Engineer or waived by the Engineer Of Record or approved/waived by the Party that established the Hold Point.

Final acceptance of any Work shall include the review of all pertinent records and documents impacting quality, and will be performed only after all required inspections and testing have been completed with acceptable results.

All records and documentation of inspections and testing will be forwarded by the CQAM to the EQAM and he/she in turn will forward these to the PQAM for information and filing in Document Control.

8.5 Final Inspection, Test and Acceptance

The Authority Resident Engineer will arrange and conduct all final inspections and quality assurance inspections and testing. The PQAM, EQAM, Engineering Project Manager and representation from PATH and PCP will be invited to participate. At the completion of all such inspections and testing, a punch list will be generated by the Authority Resident Engineer. A written copy of which will be forwarded to the Inspection Party, CM/GC or other prime contractor for immediate action. On notification that these punch list items have been addressed to the satisfaction of the Authority Resident Engineer and that QA issues raised by QAM staff have been addressed, a reinspection may be conducted for final acceptance. This process will be repeated until the Work is acceptable. The Authority Resident Engineer is responsible for the administration of this process.

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9. INSPECTION, MEASURING, AND TESTING EQUIPMENT

9.1 Purpose

To define the requirements for the control of measuring and test equipment

9.2 Scope

These requirements apply to all equipment used to perform quality control or assurance inspection and/or testing for the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project.

9.3 Policy

Measuring and test equipment used on the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project shall be controlled and consistent with National Institute of Standards and Technology (NIST) standards. The standards used to perform calibration are to be traceable to the National Institute for Standards and Technology or other recognized source.

9.4 Procedures

- Inspection and measuring equipments will be uniquely identified by permanent marking or tagging on the equipment.
- Intervals of calibration are to be periodically reviewed and adjusted depending on usage, accuracy, required precision, and adjustment and maintenance history.
- Records of calibration dates and results of calibrations, which are directly traceable to the equipment, will be maintained and made available upon request.
- Measuring and test equipment are to be identified, controlled, and at specified periods, calibrated and adjusted to maintain accuracy within required limits, in accordance with written, approved procedures.
- All test equipment must be visibly and legibly marked with due date of next calibration.
- The name, model and serial number of equipment used for inspection and/or testing shall be identified on all applicable inspection/testing documentation.

Inspection and testing will not be performed with any device unless the Authority Resident Engineer can reasonable verify that the device has been properly calibrated in accordance with the manufacturer's recommendations. Inspection and tests performed with devices suspected to be out of calibration will be documented as such, per the requirements of the responsible organization's nonconformance reporting procedure and such item in question shall be re-inspected and/or retested with properly calibrated equipment.

The Authority Resident Engineer and CQAM shall verify the calibration status of all measuring and test equipment, through physical inspection and by review of supporting documentation.

Requirements for the control of measuring and test equipment are to be included in IPs and ITPs submitted by the CM/GC, all other prime contractors, subcontractors, suppliers and vendors, and approved by the Authority Resident Engineer and CQAM. A copy of this

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approval will be sent to the EQAM and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

The Authority Resident Engineer will forward records and documentation of verification to the EQAM and he/she will transmit it to the PQAM for information and filing in Document Control.

Simple measuring devices will be treated as addressed in Section 9 of the DQAP.

Equipment calibration shall be documented in a report. The report shall indicate the status of the equipment as received and after calibration, and indicate traceability to NIST.

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10. INSPECTION AND TEST STATUS

10.1 Purpose

The identification of inspection and test status shall be clearly tracked and documented to ensure that only items passing inspection and testing, when applicable, are released for use in the World Trade Center Transportation Hub Project.

10.2 Scope

These requirements apply to all furnished/installed material, equipment and systems for the World Trade Center Transportation Hub.

10.3 Policy

An Implementation Procedure (IP) shall be established to track and document the quality status of all materials and equipment beginning at the point and time of delivery, and the receiving of a receipt of inspection. Materials and equipment that conform to quality requirements of the Contract Documents and approved submissions should be so noted and tracked. A record of the respective tests and reports should be so noted and a record placed in Document Control with copies to the EQAM and PQAM. No materials or equipment with a nonconformance status is to be accepted for delivery or incorporated in the permanent construction until the Authority Resident Engineer, CQAM and Engineer Of Record are satisfied that the materials or equipment meets or exceeds the design, performance and quality requirements defined in the Contract Documents.

Implementation Procedures will also be established to indicate quality status, as a result of required inspection and testing performed on furnished and/or installed materials, equipment and construction. The Authority Resident Engineer, accompanied by the CQAM, and in accordance with established Authority procedures and standards shall document all work that conforms to quality requirements. All such documentation will be forwarded to the EQAM for his information and filing in Document Control and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

Work that is determined by the Authority Resident Engineer (or brought to his/her attention by one of the QAMs), to be unacceptable will be either stopped or corrected, and appropriate documentation maintained to record the nonconformance. Copies of the nonconformance will be forwarded to the EQAM for information and Document Control. Continuance of this work will only take place on the satisfaction of the Authority Resident Engineer or the authority other than the Authority Resident Engineer, requesting the stop.

The status tagging nomenclature and color-coding of offsite manufactured materials and equipment will be performed in accordance with the procedures established by the Authority's Materials Engineering Division.

10.4 Procedures

The Authority Resident Engineer, and finally the responsible organization's Project Quality Manager shall be responsible for the determination of the status of quality for all furnished and/or installed materials, equipment and construction for the Project. Also and for the issuance, control, application and removal of tags used as status indicators.

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10.4.1 Use of Tags

Tags and stamps shall be utilized, when practical, to indicate the status of quality control and assurance of offsite manufactured or fabricated materials and equipment.

The Materials Engineering Division (MED) has established procedures for the tagging and stamping of offsite procured, manufactured or fabricated materials and equipment. The Authority Resident Engineer is responsible to ensure that all materials and equipment delivered to the construction site bears the tag or stamp of acceptance from MED. The delivery to the construction site and acceptance to offload will not be permitted by the Authority Resident Engineer unless the materials or equipment bear an appropriate tag or stamp of MED acceptance or is accompanied by other documentation attesting to its acceptance. The CQAM will witness and issue concurrence with the acceptance of materials and equipment delivered to the site and transmit a certificate of such concurrence to the EQAM for his/her information and records and who in turn will issue an assurance certificate to the PQAM for his/her information and records.

10.4.2 Reports and Logs

A list of all materials and equipment submitted for the Project will be developed and updated weekly. Each line item will include a detailed description of the item including the name of the manufacturer, the model, dimensions, color and any other identifiable characteristics considered necessary by the Authority Resident Engineer and CQAM for use by the Construction Field Inspector to verify the item at the time of delivery. Also included will be the approval status of the item, which will be updated during weekly job progress meetings. The Authority Resident Engineer will conduct weekly job progress meetings for the purpose of updating and maintaining the list with the Engineer Of Record, CQAM and EQAM in attendance. The attendance of the PQAM and representatives from PATH and PCP are also encouraged. Copies of the list will be forwarded to the EQAM weekly for information and Document Control and to the PQAM for his/her records.

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11. NONCONFORMANCE AND CORRECTIVE ACTION

11.1 Purpose

To define the requirements for documentation and control of nonconforming-items from the point of identification, determination and acknowledgement of root cause, corrective action, prevention of recurrence, and verification of resolution of the issues.

11.2 Scope

These requirements apply to the CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors performing work, or provided materials, equipment or other services for the WTC Transportation Hub Project.

11.3 Policy

A Nonconforming Reporting (NCR) Procedure will be developed and implemented by the CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors. Such a procedure will be included in their individual Quality Control Programs and Plans and referenced in all Implementations Plans and Inspection & Testing Plans submitted to the Authority Resident Engineer and CQAM for review and approval. The NCR Procedure will be applicable to all activities that possess quality control and quality assurance requirements. The intent is to ensure that any materials, equipment or construction that does not conform to the requirements of the Contract Documents are identified, segregated, removed from or denied access to the construction site to prevent their inadvertent use.

Auditing, test and inspection groups will develop systems to uniquely identify and track each Nonconformance Report (NCR).

Completed NCRs, with all back-up documentation, will be maintained by the originating organization's Project Quality Assurance Manager as project quality records. The RE, Program Manager and CQAM, will in turn issue certificates of conformance to the EQAM and PQAM. The PQAM, may at his/her discretion inspect the work before signing his/her concurrence with the resolution of the nonconformance.

11.3.1 Nonconformance Report

A Nonconformance Report (NCR) shall be prepared when a deficiency or discrepancy from the requirements of the Contract Documents is identified, or if compliance cannot be reasonably determined. In either case, the materials, equipment or construction cannot be accepted for incorporation into the permanent construction until an appropriate and documented determination is made as to its suitability. This may apply where the condition potentially requires a REJECT, REWORK, REPAIR, or USE-AS-IS disposition.

An organization may implement its existing system and forms, provided that the system meets or exceeds the requirements of this Section of the PQAP and is approved by the Project Quality Assurance Manager.

11.4 Definitions

- **Accept-As-Is** – (See Use-As-Is)
- **Conformance** – An affirmative indication or judgment that the condition of an item meets the requirements of relevant specifications, contracts or regulations; also the state of meeting the requirements.
- **Corrective Action** – Documented commitment of specific action planned or being implemented to resolve a known condition or conditions, which adversely effect quality. Corrective Action must address both remedial action to correct the known discrepancy and action to prevent reoccurrence based on the identified root cause.
- **Disposition** – A statement describing the manner in which a nonconformance is to be resolved.
- **Nonconformance** – Is a non-fulfillment of a need or expectation that is stated, generally implied or obligatory. A discrepancy in characteristic, documentation or procedure which affects form, fit or function and renders the quality of an item or service unacceptable or indeterminate in regard to meeting all relevant Contract Document requirements. Examples of nonconformance include: physical defects, test failures, incorrect or inadequate documentation or deviation from prescribed processing, inspection or test procedures.
- **Nonconformance and Corrective Action Report** – A form used to identify a nonconformance and its root cause, notify the responsible organization, and to document a proposed disposition, approval of the disposition, verification of any required corrective action, and planned action to prevent recurrence. Nonconformance Reports are used for resolution of problems in the quality system, REJECT, REWORK, REPAIR and USE-AS-IS dispositions.
- **Quality** – An inherent or distinguishing characteristic of a product or service. A trait or characteristic used to measure the degree of excellence that a product or service achieves. Conformance to prescribed requirements - the project produces what it was supposed to, as defined in the performance criteria established by the owner. The product satisfies user needs, aesthetically and functionally.
- **REJECT** – A disposition, which indicates that the item is unsuitable for its intended purpose and economically or physically incapable of being reworked or repaired.
- **REPAIR** – A disposition which will result in making an item acceptable for its intended use even though it is not restored to a condition which meets all specification requirements.
- **REWORK** – A disposition, which indicates that the deficiency can be brought into conformance with the original requirements through re-machining, reassembling, reprocessing, reinstallation, or completion of the required operations.
- **USE-AS-IS** – A disposition which recognizes that an item will satisfy its intended use, even though it does not meet all design/functional requirements.

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11.5 Responsibilities

NCRs are tracked to closure by the Authority Resident Engineer, CQAM, and the Quality Control managers of the CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors. Specific responsibilities, methods, documentation, and interface requirements shall be carried out in accordance with the CQAP and each approved Quality Control Program and Plan.

An NCR noting dispositions to USE-AS-IS or REPAIR must be approved by the Engineer of Record (EOR), and/or the Chief Engineer. In such cases a copy of the final documentation for the disposition or decision will be forwarded to the CQAM for information and Document Control. The package is then transmitted to the EQAM and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

11.6 Procedure

11.6.1 Nonconformance Report

This procedure is broadly defined, using terms generally applied to equipment disposition. The specific NCR procedures developed and implemented by the Quality Control Manager of the CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors should take this into account when preparing their procedures, but the principles apply regardless, for the WTC Transportation Hub Project.

- The Quality Control Manager of the CM/GC, other prime contractor, subcontractor, supplier or vendor shall prepare an NCR in accordance with the Quality Control Program and Plan and applicable IP or ITP approved by the Authority Resident Engineer and CQAM. The NCR shall be uniquely identified, shall describe the nonconforming condition in detail, the determination of root cause, the recommended disposition and actions to be taken to preclude a recurrence. Also to be included is a schedule with specific dates for the disposition of the nonconformance, and the anticipated impact to the overall Project Schedule, if any,
- The NCR shall be forwarded to the Authority Resident Engineer for a decision and/or the coordination of a decision regarding the disposition by all involved parties including, but not limited to, the Engineer Of Record, CQAM, EQAM, PQAM, the Engineering Program Manager, the Project Manager, the Materials Engineering Division, the Engineering Quality Assurance Division and Risk Management.
- If the recommended disposition is REJECT or REWORK, the CM/GC, other prime contractor, subcontractor, supplier or vendor shall take immediate action to replace or take other action to bring the materials or equipment into conformance. Upon verification by the Authority Resident Engineer and CQAM that appropriate action has been taken, and the nonconformance has been satisfactorily addressed, the NCR shall be closed. A copy to be forwarded to the EQAM for information and Document Control and who in turn will issue an assurance certificate to the PQAM for his /her information and records.
- If the recommended disposition is USE-AS-IS or REPAIR, The CM/GC, other prime contractor, subcontractor, supplier or vendor shall submit to the Authority Resident Engineer and CQAM all appropriate and detailed documentation necessary for the Authority to make a decision. The Authority Resident Engineer will coordinate the process to secure a decision among CQAM, Engineer Of Record, PCP and PATH and

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forward such recommendation to the Chief Engineer for Approval. A copy of the decision taken is to be filed in document control for later reference, if required.

- The Authority Resident Engineer will advise the CQAM in writing of all decisions regarding the disposition recommendations. A copy to be forwarded to the EQAM for information and Document Control and who in turn will issue an assurance certificate to the PQAM for his /her information and records.
- Upon receipt, the CM/GC, other prime contractor, subcontractor, supplier or vendor will immediately implement the approved disposition.
- An NCR is closed upon written verification by the Authority Resident Engineer with concurrence by the CQAM that the required disposition has been satisfactorily completed. Copies of all closed NCRs will be forwarded to the EQAM for information and Document Control, and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

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12. QUALITY RECORDS

12.1 Purpose

To define the requirements for the collection and maintenance of records which provide objective evidence that the design, performance and quality assurance requirements of the Contract Documents have been met.

12.2 Scope

This procedure includes requirements for the collection and maintenance of Quality Records (QR) for design, procurement, construction, installation, inspection, testing, and start-up activities for the WTC Transportation Hub Project.

12.3 Policy

QRs are to be collected, retained and stored in a controlled and readily retrievable manner during all phases of the WTC Transportation Hub Project.

12.4 Requirements

QRs shall be collected, stored and preserved in Document Control in a manner that precludes damage, loss or deterioration.

QRs shall be identified by title, contract number, revision, and activity description, with dated signatures of responsible personnel as appropriate.

QRs are to be available to authorized persons as required by Document Control Staff.

12.5 Procedure

QRs are defined as documents that provide objective evidence of compliance of materials, equipment, products and services to specified acceptance criteria, including compliance with approved procedures. QRs are generated in the areas of Design, Procurement, Construction, Inspection, Testing, Start-Up and Operations.

QRs are considered valid only if stamped, initialed or signed as required by IPs, and dated by authorized personnel. These records may be either the original or a reproduced copy.

Corrections/revisions to QRs, as a minimum, are to receive the same review and approval as the original document.

QRs are subject to Quality Assurance audits.

12.6 Transmission and Retention of Quality Records

QRs shall be prepared, filed in Document Control and maintained in accordance with approved IPs in such a manner that they will make them readily retrievable when requested by authorized personnel.

Contractor/Suppliers or others generating QRs are responsible for their retention copies during the period of construction, inspection, assembly and/or installation, and testing.

Storage facilities for QRs in Document Control will include fire resistant steel file cabinets that preclude damage from fire, condensation, and extreme temperature variation. In lieu of

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fire resistant files a second (backup) copy of each Quality Record will be maintained at another location.

Specific retention requirements for QRs are to be approved by PQAM or designee.

Unless otherwise stated in the contract, QRs will be turned over to the PQAM at the completion of the Contract and all file indexing requirements of the PCP Document Control Procedures will be met.

12.7 Quality Records

Types of documents that are considered QRs:

- Design Records
 - Design Calculations and Checks
 - Drawings (Standards, Reference, Directive, Contract, Record/As-Built, Shop, Working)
 - Design Review Reports
 - Design Deviations and Changes
 - Contract Specifications
 - Quality Assurance System Audit Reports
 - Nonconformance Reports and Tracking Logs (Non-construction organizations)
 - Corrective Action Requests
 - Training Records
 - Meeting minutes
- Procurement Records
 - Surveillance Inspection Reports
 - Pre-Award Surveys
 - Contract Specifications and Modifications
 - Certificates of Compliance
 - Quality Assurance System Audit Reports
 - Test Results
 - Applicable Contract Data Items
 - Meeting Minutes
- Construction, Manufacturing, Installation Records
 - Shop Drawings, Catalog Cuts and Samples
 - Contractor Data Submittals
 - Process and Personnel Certifications and Credentials
 - Daily Narratives and Inspection Reports
 - Material Certifications and Mill Test reports
 - Test Procedures (IPs)
 - Test Results
 - Nonconformance Reports and Tracking Logs
 - Surveillance Reports
 - Release for Shipment Notices
 - Inspection and Test Plans

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- Training Records
- Meeting Minutes
- Inspection Records
- Request for Information (RFI)
- Quality Assurance Process Audits
- Test Witness Reports
- Calibration Records
- Corrective Action Requests

- Operational Records
 - Maintenance Actions (corrective and preventive)
 - Inspection Records
 - Quality Assurance Operational Audits
 - Personnel Certifications
 - Retrofit Records
 - Meeting Minutes

The preceding list is a guide to documents considered Quality Records and should not be construed as a complete listing and will be added to as the Project develops.

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13. QUALITY AUDITS

13.1 Purpose

To define requirements for performing Quality Assurance audits of WTC Transportation Hub Project activities to ensure that the elements of the QMS are functioning as intended.

13.2 Scope

Includes Quality Assurance audits performed jointly or severally by CQAM, EQAM, PQAM and FTA Representative for the Project. As applicable, this procedure may also be used for System Safety Performance and Safety Certification audits, or other audits, as determined by the PQAM.

13.3 Policy

A comprehensive program of planned and periodic audits will be established to verify that applicable elements of the QMS are acceptable, and have been developed, documented, and effectively implemented in accordance with the PQAP, DQAP and CQAP.

Quality audits will be performed by any member(s) of the Project's Quality Management Team and documented in accordance with IPs, with notification to the Project Quality Assurance Manager.

13.4 Procedure

The activities of Engineering Design Teams and the Resident Engineer's Office, , consultants, contractors, and critical suppliers will be audited for compliance and implementation of quality activities required by the PQAP, DQAP and CQAP, including evaluation of program effectiveness.

The lead auditor assigned is responsible for all elements of the audit. Auditors are to have no direct responsibility in the activities to be audited. Auditors will have experience or training commensurate with the scope, complexity, or special nature of the activities to be audited.

Audit records include audit schedules, audit plans, audit reports, audit checklists, audit performance records, and Audit Finding Reports (AFRs) as applicable.

Audits will be scheduled and performed on a selected basis with a frequency commensurate with the activities in progress on the project, or as indicated as a follow-up by previous audits. Follow up audits to verify completion and the effectiveness of corrective action are to be scheduled as required.

Fourteen days prior to the scheduled audit the lead auditor will send to the group being audited a copy of the audit plan and checklist for their information and action in preparing for the audit.

Audit Schedules shall be maintained by the CQAM, EQAM, and PQAM.

13.5 Performance of the Audit

A pre-audit conference will be held to establish the ground rules for the conduct of the audit.

Auditors shall conduct the audit in accordance with the Quality Audit Plan and checklist. If deficiencies outside the stated scope of the audit checklist are observed during the audit,

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appropriate action will be initiated as determined by the lead auditor and/or the Project Quality Assurance Manager.

Each audit shall include, but is not limited to the following:

- Review for compliance of the documentation required by the IPs.
- Interviews conducted with individuals who perform specific activities relating to quality to ascertain that they have a proper understanding of the required procedures.
- Review of operations associated with the audit item, including the witnessing of operations to determine adherence to IPs or CWP.

Upon completion, the lead auditor will conduct a post audit conference with management and supervision in the areas audited to review the audit findings. The purpose of this review is to confirm the conditions found, resolve any misunderstandings with respect to observed deficiencies, and to establish corrective action commitments.

After completion, the lead auditor and auditors are to document the results in an Audit Report and include reference to:

- The documents reviewed, the location of the documents and the acceptability of items, or deficiencies observed in the documentation review.
- The operation reviewed, and the acceptable or non-acceptable areas observed.
- The individuals contacted during the audit and notations of any audit deficiencies found through interviews with persons involved in the performance of tasks.

13.6 Audit deficiencies

The Audit Report will be prepared by the lead auditor or auditor, addressed to the management of the audited organization, and distributed to the CQAM, EQAM and PM, PQAM and others as appropriate.

Audit deficiencies shall be documented on an AFR. Audit Findings Reports will be issued with the audit reports on which they are based. The management of the activity audited will normally be required to respond to the AFRs within ten to fifteen working days. Circumstances may arise where responses require more or less time or further clarification. Such instances will be resolved directly with the lead auditor and appropriately documented.

AFR corrective action responses are to be specific with respect to cause of deficiency, as well as actions taken to correct the deficiency and preclude recurrence.

The auditor is responsible for accepting or rejecting corrective action responses to audits, and for verifying that appropriate technical or contractual approvals for corrective action have been obtained, when required. The reason for rejection of the response to an AFR shall be stated in writing.

The lead auditor is responsible for scheduling follow-up audits when required, to verify completion and effectiveness of corrective action. Deficiencies noted will be handled in the same manner as original findings.

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13.7 Audit Records

Audit Records are to be maintained and included as project Quality Records in Document Control and made available for review and audit.

As a minimum, Audit records will be shared with all members of the Quality Team.

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14. TRAINING

14.1 Purpose

To describe the requirements for identifying the training needs, performance of training, and that only trained and qualified personnel perform quality assurance and control activities affecting quality on the WTC Transportation Hub Project.

14.2 Scope

These requirements apply to all personnel working on the WTC Transportation Hub Project.

14.3 Policy

Only personnel versed in their organization's QMS, and who have been appropriately trained, and/or possess certification/qualifications as required by the PQAP, DQAP, CQAP and the Quality Assurance and Control Guidelines of the FTA would perform quality assurance and control activities that affect this Project.

14.4 Requirements

All personnel working on the Project must be trained in the quality guidelines and procedural requirements as are applicable to their responsibilities. Such training or instructions shall be documented. All personnel are to be qualified on the basis of appropriate education, training, and/or experience.

14.5 Records of Personnel Qualification

Records of personnel qualification are Quality Records and shall be maintained in Document Control as required by IPs.

14.6 Responsibilities

It is the responsibility of all Quality Management staff to ensure that all personnel working on the Project are trained in the proper execution of the procedures and guidelines for the project.

APPENDIX H

WTC-284.458CM

Miscellaneous Provisions

1. Museum Complex (If Required)

Although the Museum Complex is in the planning stage, the Authority considers this work to be within the scope of work of this Agreement and reserves the right to request pricing from the Contractor to perform this work and amend this Agreement, and the agreement "General Contracting Services, Contract WTC-284.458GC, as necessary.

The Museum Complex will be located in the northeast corner of the memorial quadrant and adjacent to the WTC Memorial Pools. The building will be constructed above (over) the WTC PATH Station and Mezzanine. The proposed size and volume of the facility will contain approximately 250,000 to 275,000 gross square feet with a maximum footprint of approximately 40,000 gross square feet. The Museum Complex will be a world class education and engagement facility that will house three distinct programs: a museum with associated administrative and event space, a fine arts institution with administrative space, and a visitor's center for the WTC site. The Museum Complex shall also contain space for mechanical equipment for the WTC/ Hub. The Museum Complex will incorporate sustainable architectural design, conform to Americans with Disabilities Act (ADA) requirements and ensure the safety and security as required by code and engineering analysis.

If required, the work will include the construction of the Museum Complex below grade structure, above grade structure and exterior shell, and the building's PATH mechanical space. The fit-out of the building finishes and systems would not form part of the additional scope of work, but would be performed under a separate contract.

a. Museum Complex Below Grade including underpinning of 1 & 9 Subway Line

This component is defined by all the work below the Memorial Plaza, presently elevation 312. If required, the work will include excavation, foundations, structural transfer systems, and additional underpinning of the NYCT 1 & 9 Subway Line.

b. Museum Complex Above Grade Core and Shell

This component is defined by the construction of the Museum Complex building. If required, the work will include the structural floor and roof structures, exterior cladding, roofing, waterproofing, skylights, load bearing interior partitions, exterior doors and glazing, stairs without finishes and site paving.

c. Museum Complex PATH Mechanical

The Museum Complex has been designated to house the ventilation systems and ancillary PATH Mechanical equipment for the WTC/ Hub tracks, platforms and mezzanine. If

required, the work will include the installation of the mechanical equipment associated with the PATH ventilation system, air handling units, smoke exhaust fans, supply and return duct work associated with these systems through the building to the PATH platforms and mezzanine. The Authority is also considering adding to the scope of work the electrical, HVAC, fire protection, and plumbing system work required to operate the PATH Mechanical equipment located in the Museum Complex building.

2. Memorial & Memorial Center & Performing Arts Center (If Required)

Although the Memorial & Memorial Center & Performing Arts Center is in the planning stage, the Authority considers this work to be within the scope of work of this Contract and reserves the right to request pricing from the Contractor to perform this work and amend this agreement and the agreement entitled "General Contracting Services, Contract WTC-284.458GC, as necessary.

This work is defined by the work below the Memorial Plaza, presently elevation 312 for the Memorial and Memorial Center and the Performing Arts Center Building, which are situated over or adjacent to the PATH tracks, platform and mezzanine. If required, the work will include excavation, foundations, and structural systems.

APPENDIX I

**JOINT VENTURE
AGREEMENT**

of

PHOENIX CONSTRUCTORS

Dated as of July 15, 2005

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JOINT VENTURE AGREEMENT

OF

PHOENIX CONSTRUCTORS

Joint Venture Agreement of Phoenix Constructors (the "Joint Venture"), dated as of July 15, 2005, (the "Effective Date"), by and between Fluor Enterprises, Inc., a California corporation, ("Fluor") and Slattery Skanska Inc., a New York corporation, ("Skanska"), Granite Halmar Construction Company, Inc., a New York corporation, ("Granite"), and Bovis Lend Lease LMB, Inc., a New York corporation, ("Bovis") (collectively the "Partners").

Fluor, Skanska, Granite and Bovis desire to form a joint venture to pursue the business of construction management and general contracting for the World Trade Center Transportation Hub Project (the "Business," as more particularly defined below).

NOW, THEREFORE, Fluor, Skanska, Granite and Bovis agree as follows:

SECTION 1 DEFINITIONS

For purposes of this Joint Venture Agreement (as defined below), unless the context clearly indicates otherwise, the following terms shall have the following meanings:

1.1 Not Used.

1.2 "Affiliate" or "Affiliated" shall mean with respect to any specified Person, (i) one or more shareholders if a corporation; (ii) its partners if a partnership; (iii) its trustee or beneficiary if a trust; or (iv) any entity controlled by or controlling such Person (or any of its shareholders, partners, trustees or beneficiaries), either directly or indirectly, or entities under common ownership or control with a Partner.

1.3 Not Used.

1.4 "Asset Value" with respect to any Joint Venture asset means:

- (i) The fair market value (as agreed by all Partners) when contributed of any asset contributed to the Joint Venture by any Partner;
- (ii) The fair market value on the date of distribution of any asset distributed by the Joint Venture to any Partner as consideration for an interest in the Joint Venture;
- (iii) The fair market value of all Property of the Joint Venture at the time of the happening of any of the following events: (A) the admission of a Partner to, or the increase of an interest of an existing Partner in, the Joint Venture

- in exchange for a Capital Contribution; or (B) the liquidation of the Joint Venture under Regulation §1.704-1(b)(2)(ii)(g).
- (iv) The Basis of the asset in all other circumstances.

1.5 Not Used.

1.6 "Basis" with respect to an asset means the adjusted basis from time to time of such asset for federal income tax purposes.

1.7 "Business" shall mean the business of competing for, and if successful, executing and performing under a contract for the construction management and general contracting services of the World Trade Center Transportation Hub Project.

1.8 "Business Day" shall mean any day other than Saturday, Sunday or any legal holiday observed in the State of New York.

1.9 "Capital Account" shall mean the account maintained for a Partner determined in accordance with Section 8 hereof.

1.10 "Capital Call" shall mean the giving of written notice pursuant to Section 8.1, or the payment by a Partner of a liability that is deemed to be a Capital Call to the extent provided in paragraph 8.6(b), of this Joint Venture Agreement.

1.11 "Capital Call Period" shall mean the period of time within which each Partner is required to make a Capital Contribution in response to a Capital Call as specified in the notice given pursuant to Section 8.1, or if no such period is specified, a period of ten days after the giving of the notice of the Capital Call. In the case of a payment of a liability that is deemed to be a Capital Call, the "Capital Call Period" shall be the ten-day period prescribed in Paragraph 8.6(b) of this Joint Venture Agreement.

1.12 "Capital Contribution" shall, subject to adjustments as provided in Section 15.3 of the Agreement, mean (i) the amount of cash or the carrying value of other property actually contributed by a Partner to the Joint Venture pursuant to Section 8.2 of this Joint Venture Agreement; (ii) payment by a Partner of a portion of any liability that is deemed to be a Capital Call to the extent provided in paragraph 8.6(b) of this Joint Venture Agreement; and (iii) payment by a Partner of a Capital Call Advance or a disproportionate share of a liability deemed to be a Capital Call Advance as provided in this Joint Venture Agreement.

1.13 "Cash Available for Distribution" shall mean all cash received by the Joint Venture from the operations of the Joint Venture (including, without limitation, net proceeds of sale or refinancing), and, as determined by the Partners, all cash of the Joint Venture no longer needed for reserves and retentions previously established, reduced by

- (i) all cash expenditures of the Joint Venture, including, but not limited to, payments of principal and interest on indebtedness (whether or not such payments are made to a Partner or a Partner's Affiliate), expenses for repairs, maintenance, reserves,

capital improvements and replacements, and all other cash expenditures related to the operations of the Joint Venture, including, but not limited to, all fees, if any, payable to any Partner, or any Affiliate of any Partner, under the terms of this Joint Venture Agreement; and

(ii) such working capital reserves and retentions as the Partners determine to be necessary or desirable in connection with Joint Venture operations, its then existing assets and any anticipated expenses of the Joint Venture or loan payments by the Joint Venture.

1.14 Not Used.

1.15 "Code" shall mean the Internal Revenue Code of 1986 as amended from time to time, or any corresponding provisions of any succeeding law.

1.16 "Joint Venture" shall mean Phoenix Constructors.

1.17 "Joint Venture Agreement" shall mean this Joint Venture Agreement including all amendments adopted in accordance with the Joint Venture Agreement.

1.18 "Joint Venture Liability" shall mean any enforceable debt or obligation for which the Joint Venture is liable or which is secured by any Joint Venture Property.

1.19 "Joint Venture Budget" shall mean the budget for the operations of the Joint Venture in a Fiscal Year, exclusive of budget items related to Joint Venture Projects.

1.20 "Joint Venture Project" shall mean a project in the Business for which the Joint Venture has secured a contract to perform work or services.

1.21 "Joint Venture Property" shall mean any Property owned by the Joint Venture.

1.22 "Confidential Information" shall have the meaning set forth in Section 5.7.

1.23 "CPA" shall mean the certified public accounting firm as may be designated by the Partners from time to time. The CPA shall be a nationally recognized accounting firm:

1.24 "Default Interest" shall mean the Prime Rate plus ten percent, not to exceed the maximum amount allowed by applicable law.

1.25 "Disposition" shall mean any sale, assignment, transfer, exchange, mortgage, pledge, grant, hypothecation, or other transfer, absolute or as security or encumbrance (including dispositions by operation of law).

1.26 "Dissociation" or "Dissociate" shall mean any action which causes a Person to cease to be a Partner as a described in Section 12 hereof.

1.27 "Dissolution Event" shall mean an event, the occurrence of which will result in the dissolution of the Joint Venture unless the Partners agree to the contrary, as provided in Section 16.1.

1.28 "Distribution" shall mean a transfer of cash or property to a Partner as described in Section 9.2.

1.29 "Effective Date" shall mean July 15, 2005.

1.30 "Fiscal Year" shall mean the Joint Venture's fiscal and tax year, which shall be the calendar year unless determined otherwise pursuant to §§ 706(b) and 444 of the Code.

1.31 "Intellectual Property" shall mean all patents, trade secrets, processes, copyrights, trademarks, software and know-how, and all improvements and enhancements thereto.

1.32 "JV Liability" shall mean any liability, expense (including reasonable attorneys' fees), claim, suit, action, damage, judgment, or decree arising from or relating to the Business and incurred by the Joint Venture or by a Partner acting within its authority as provided by this Joint Venture Agreement or the Steering Committee.

1.33 Not Used.

1.34 "Organization" shall mean a Person other than a natural person. An Organization includes, without limitation, corporations (both non-profit and other corporations), partnerships (both limited and general), joint ventures, limited liability companies, and unincorporated associations, but the term does not include joint tenancies and tenancies by the entirety.

1.35 "Person" shall mean and include a natural person, a limited liability company, a trust, estate, or any incorporated or unincorporated Organization.

1.36 "Plan" shall mean the plan of the Joint Venture for operations in a Fiscal Year, as provided in Section 7.2.

1.37 "Prime Rate" shall mean the interest rate announced from time to time by Citibank, N.A. as its "Prime" or "prime rate".

1.38 "Profits" and "Losses" for any fiscal year or other period means an amount equal to the Joint Venture's taxable income or loss for federal income tax purposes for such year or period determined in accordance with Code § 703(a) and the Regulations thereunder with the following adjustments:

- (i) all items of income, gain, loss, and deduction of the Joint Venture required to be stated separately shall be included in taxable income or loss;

(ii) income of the Joint Venture exempt from federal income tax shall be treated as taxable income;

(iii) expenditures of the Joint Venture described in Code § 705(a)(2)(B) or treated as such expenditures under Regulation § 1.704-1(b)(2)(iv)(i) and not otherwise taken into account in computing Profits or Losses, shall be subtracted from such taxable income or tax loss;

(iv) gain or loss resulting from the disposition of Property from which gain or loss is recognized for federal income tax purposes shall be determined with reference to the Asset Value of such property;

(v) depreciation shall be determined based upon Asset Value instead of as determined for federal income tax purposes.

(vi) the difference between Basis and Asset Value shall be treated as gain or loss upon the happening of any event described in Section 1.4(i), (ii), or (iii).

1.39 "Property" shall mean any property, real or personal, tangible or intangible, including money and any legal or equitable interest in such property, but excluding services and promises to perform services in the future.

1.40 "Regulations" shall mean, except where the context indicates otherwise, the permanent, temporary, proposed, or proposed and temporary regulations of the Department of the Treasury under the Code as such regulations may be lawfully changed from time to time.

1.41 "Sharing Ratio." The Partners' original Sharing Ratios, prior to any adjustments pursuant to this Joint Venture Agreement, shall be as set forth in Section 4.2. The Partners' original Sharing Ratios represent the respective interests of the Partners in the profits accruing from the Business, in all property and equipment accruing from or acquired in connection with the performance of the Business, and the respective obligations of the Partners for disbursements and liabilities in connection with the performance of the Business. The Partners agree that (a) all net proceeds representing the cash, interest from investments, equipment, receivables, claims or every kind or nature, or other property derived from the performance of the Joint Venture Agreement, (b) any and all profits and any and all losses and liabilities or other obligations of the Joint Venture which may result from the performance of the Joint Venture Agreement, and (c) all financial obligations assumed by the Joint Venture shall be shared or borne by the Partners in accordance with the applicable Sharing Ratios. In the event of default, a Partner's Sharing Ratio may be different for Joint Venture losses than it is for Joint Venture Profits, pursuant to Sections 8 and 15 of this Joint Venture Agreement. Absent any such default, a Partner's Sharing Ratio will be a fraction (expressed as a percentage), the numerator of which is the total of that Partner's Capital Account and the denominator of which is the total of all Capital Accounts of all Partners.

1.42 "State" shall mean the State of New York.

1.43 Not Used.

1.44 "Tax Matters Partner" shall have the meaning set forth in Section 10.1.

1.45 "Taxable Year" shall mean the taxable year of the Joint Venture as determined pursuant to § 706 of the Code.

SECTION 2 THE JOINT VENTURE

2.1 Organization and Purpose. The Partners hereby organize the Joint Venture for the purpose of engaging in the Business, and to market the joint expertise and capabilities of the Partners in the Business.

2.2 Agreement. It is the express intention of the Partners that this Joint Venture Agreement (and the other written agreements referred to herein) shall be the sole source of agreement of the parties with respect to the subject matter hereof. Upon execution of a contract with the Joint Venture's client, the Steering Committee will immediately develop and implement a Project Procedures Manual which will describe in greater detail the day-to-day operating rules and procedures of the Joint Venture. Except to the extent a provision of the Joint Venture Agreement expressly incorporates federal income tax rules by reference to sections of the Code or Regulations, the Joint Venture Agreement shall govern, even when inconsistent with, or different than, the provisions of any other law or rule. To the extent any provision of this Agreement is prohibited or ineffective under Applicable law, the Joint Venture Agreement shall be considered amended to the smallest degree possible in order to make the Joint Venture Agreement effective under Applicable law.

2.3 Name. The name of the Joint Venture is Phoenix Constructors, and all business of the Joint Venture shall be conducted under that name or under any other name selected by the Partners.

2.4 Not Used.

2.5 Term. Unless otherwise specifically provided in this Joint Venture Agreement, or unless the term shall be extended by amendment to this Joint Venture Agreement, or unless the Joint Venture shall be sooner dissolved and its affairs wound up in accordance with the Joint Venture Agreement, the Joint Venture Agreement shall remain in full force and effect until terminated by written agreement of the Partners hereto or until all purposes for which the Joint Venture has been undertaken have been accomplished and completed. In no event shall the Joint Venture be terminated until all rights and liabilities of this Joint Venture Agreement have been determined and satisfied. However, this Joint Venture Agreement shall automatically expire and the Joint Venture will wind up its affairs when either the Joint Venture's client officially notifies any Partner that it will not award the prime contract to the Joint Venture or said client announces that it will award the prime contract to a team other than the Joint Venture, whichever occurs first.

2.6 Not Used.

2.7 *Principal Office.* The principal office of the Joint Venture shall be located at 505 Eighth Avenue, Suite 601, New York, New York 10019, or such other location as the Partners shall determine from time to time.

SECTION 3 RECORDS AND REPORTS

3.1 *Records to be Maintained.* The Joint Venture shall maintain the following records and information, at the principal office:

3.1.1 True and full information regarding the status of the business and financial condition of the Joint Venture, including the Plan and Joint Venture Budget for all Fiscal Years of the Joint Venture.

3.1.2 A current and past list, setting forth the full name and last known mailing address of each Partner;

3.1.3 A copy of the executed copies of any powers of attorney pursuant to which any documents have been executed;

3.1.4 Copies of the Joint Venture's federal, foreign, state and local income tax returns and reports, sales and use and property tax reports, if any, and supporting tax documentation for each year;

3.1.5 Copies of the Joint Venture Agreement including all amendments thereto and copies of any written agreements referred to herein, both when operative and when no longer in effect;

3.1.6 Any financial statements of the Joint Venture for the time periods subject to IRS and state audit;

3.1.7 A writing or other data compilation from which information can be obtained through retrieval devices into reasonably usable form setting forth the amount of cash and a description and statement of the agreed value of the other property or services contributed by each Partner and which each Partner has agreed to contribute to the Joint Venture;

3.1.8 A record of the Capital Account for each Partner in accordance with Section 8.

3.1.9 Copies of all agreements to which the Joint Venture is a party or by which the Joint Venture may be bound, whether operative or no longer in effect.

3.2 *Not Used.*

3.3 Right to Inspect Records. All Partners shall have the right, during the Joint Venture's normal business hours, to inspect any or all Joint Venture documents, books or records which are specified in Section 3.1. The Partner shall provide notice to the Joint Venture under the terms of Section 19.4 at least three Business Days prior to the desired date of inspection of such documents, books or records by the Partner. The notice shall specify with reasonable particularity the documents, books or records to be inspected by the Partner. Any inspection shall take place at the Joint Venture's principal office as specified in Section 2.7 of this Joint Venture Agreement. Any copies or reproduction of any of the Joint Venture's documents, books or records which may be desired by the Partner shall be at the sole cost and expense of the Partner.

3.4 Books and Records. At all times during the term of the Joint Venture as provided in Section 2.5 hereof, the Joint Venture shall cause accurate books and records of accounts to be maintained in which shall be entered all matters relating to the Joint Venture, including all income, expenditures, assets and liabilities thereof. Such books and records of account shall be maintained on a percentage of completion basis, in accordance with generally accepted accounting principles, consistently applied, and shall be adequate to provide each Partner on a timely basis with such financial information as may be needed by the Partner, its Parent and their Affiliates for purposes of satisfying their financial reporting obligations. Each Partner shall be entitled to any additional information necessary for the Partner to adjust its financial basis statement to a tax basis as the Partners' individual needs may dictate. In addition, the Joint Venture shall maintain all books, records, accounts and reports required under any contract with respect to any Joint Venture Project for the period of time required by such contract and provide access thereto pursuant to such contract.

3.5 Financial Statements. The Joint Venture shall prepare financial statements of the Joint Venture as of the last day of each fiscal year and for each quarter of each fiscal year. Such annual statements shall be completed within 120 days of the end of the fiscal year and shall be audited and certified by the CPA. The statements shall be prepared on the basis of generally accepted accounting principles, consistently applied. Each Partner and its certified public accountant shall have the right to discuss the results of the audit and the procedures used with the Joint Venture's certified public accountant and to examine all work papers generated in connection with the audit. The Joint Venture shall provide each Partner monthly cost reports in such form and detail as may be agreed upon by the Partners.

3.6 Bank Accounts. Funds of the Joint Venture shall be deposited in the name of the Joint Venture in such accounts as may be authorized by the Partners. Further details regarding banking relationships and procedures will be set forth in the Project Procedures Manual.

3.7 Preparation of Tax Returns and Listing. Federal, State and local income tax returns of the Joint Venture shall be prepared by the Tax Matters Partner in consultation with such agents as he deems appropriate. Copies of all tax returns of the Joint Venture shall be furnished to the Partners for their approval at least 30 days prior to the statutory date for their filing. The Partners' K-1 forms will be distributed no later than June 15 of each year.

3.8 **754 Election.** The Joint Venture shall, if approved by the Partners, make the election under Section 754 of the Code.

**SECTION 4
NAMES, ADDRESSES AND SHARING RATIOS OF PARTNERS**

4.1 **Initial Partners.** The names and addresses of the initial Partners are as follows:

Fluor: Fluor Enterprises, Inc.
100 Fluor Drive
Greenville, South Carolina 29607

Skanska: Slattery Skanska Inc.
16-16 Whitestone Expressway
Whitestone, NY 11357

Granite: Granite Halmar Construction Company, Inc.
160 West Lincoln Avenue
Mount Vernon, NY 10550

Bovis: Bovis Lend Lease LMB, Inc.
200 Park Avenue
New York, NY 10166

4.2 **Sharing Ratios.** Prior to any adjustments as provided herein, the initial Sharing Ratios of the Partners shall be as follows:

Fluor	32.5%
Skanska	32.5%
Granite	20%
Bovis	15%

4.2.1 Notwithstanding any other provisions of this Joint Venture Agreement to the contrary, each Partner hereby agrees, to the maximum extent allowed by law, and limited only by the indemnifying Partner's Sharing Ratio, to defend, indemnify, and hold harmless each other Partner against that portion of any JV Liability incurred by any such other Partner in excess of such Partner's proportionate share of the JV Liability as calculated pursuant to the Partners' Sharing Ratios, provided that the JV Liability was not caused by the gross negligence, willful misconduct or abandonment of the Joint Venture's prime contract of or by the indemnified Partner. Nothing herein shall limit in any way the liability of any insurer of the Joint Venture or of any Partner under any applicable insurance policy naming either the Joint Venture or any Partner or both the Joint Venture and any Partner.

**SECTION 5
RIGHTS AND DUTIES OF PARTNERS**

5.1 *Management Rights.* Management of the Joint Venture shall be vested in the Partners. A Partner who has not dissociated, and whose management rights have not been terminated pursuant to Section 15, shall be entitled to vote on any matter submitted to a vote of the Partners. Unless otherwise provided herein, any matter or action shall be approved by a majority of the Partners.

5.2 *Unanimous Consent for Certain Matters.* The following actions shall require the consent of all of the Partners:

5.2.1 The execution, approval, or taking of any action regarding any contract or transaction or payment between the Joint Venture and a Partner or an Affiliate of a Partner, or entity in which a Partner or an Affiliate of a Partner has a direct economic interest;

5.2.2 Any activity outside of the Joint Venture's ordinary course of business, or any expenditure which is not reimbursable under the terms of the prime contract with the Joint Venture's client;

5.2.3 The contracting and incurring of any liability for or on behalf of the Joint Venture in the ordinary course of business of the Joint Venture in excess of \$5,000,000.

5.2.4 The borrowing for or on behalf of the Joint Venture of money or the mortgaging, deeding in trust, pledging or otherwise encumbering of Joint Venture assets to secure repayment of the money;

5.2.5 The commitment of the Joint Venture to any improvement involving capital expenditures in excess of \$25,000;

5.2.6 Not Used.

5.2.7 Cash or property distribution from the Joint Venture to any Partner;

5.2.8 The establishment of banking arrangements (including bank accounts, location and signing authorities);

5.2.9 The establishment of the Joint Venture's insurance program, including amounts and changes thereto;

5.2.10 Approval of the auditors of the Joint Venture;

5.2.11 Approval of a Plan or Joint Venture Budget, or material changes thereto;

5.2.12 Settlement of claims by and against the Joint Venture, or commencement and conduct of defense or settlement of claims or litigation involving the Joint Venture;

5.2.13 Hiring of lawyers on behalf of the Joint Venture;

5.2.14 Approval of consent decrees, injunctions, or orders binding upon the Joint Venture;

5.2.15 Final approval of tax returns prior to filing and approval of any tax elections required or permitted to be made by the Joint Venture under the Code or Regulations;

5.2.16 Any amendment to this Joint Venture Agreement;

5.2.17 Not Used.

5.2.18 The continuation of the Joint Venture after a Dissolution Event;

5.2.19 The authorization of a Partner to do any act on behalf of the Joint Venture that contravenes the Joint Venture Agreement;

5.2.20 Any change order to the prime contract with the Joint Venture's client in excess of \$5,000,000, or any amendment to the terms and conditions of such contract;

5.2.21 Establishment of, or changes to, the Guaranteed Maximum Price for the contract with the Joint Venture's client (consent to the foregoing shall be in the sole and absolute discretion of each Partner);

5.2.22 Any material change to the progress schedule applicable to the Joint Venture's work;

5.2.23 Change in the Joint Venture's financial and cost accounting treatments and policies;

5.2.24 Any significant change in a Partner's billing rates or indirect cost structure which results in higher billings from that Partner than those billing rates contemplated in the GMP, or which may result in a Partner's total indirect cost billings exceeding those indirect cost billings contemplated in the GMP;

5.2.25 Making any loans from the Joint Venture to any Partner or an Affiliate thereof; and

5.2.26 Approval of the safety program for the Joint Venture.

5.3 Exculpation and Indemnification. In carrying out their duties to the Joint

Venture, the Partners Steering Committee representatives appointed pursuant to Section 6.1 hereof, officers and employees ("Indemnified Persons") shall not be liable to the Joint Venture nor to any Partner for their good faith actions, or failure to act, nor for any errors of judgment, nor for any act or omission believed in good faith to be within the scope of authority conferred by this Joint Venture Agreement, but shall be liable to the Joint Venture for willful misconduct or gross negligence in the performance of their duties under this Joint Venture Agreement. The Joint Venture shall indemnify and hold harmless each of the Indemnified Persons against and from any personal loss, liability or damage incurred as a result of any act or omission of any Indemnified Persons believed in good faith to be within the scope of authority conferred by this Joint Venture Agreement, except for willful misconduct or gross negligence. Notwithstanding the foregoing, the Joint Venture's indemnification of the Indemnified Persons as to a third party shall be only with respect to such loss, liability or damage that is not otherwise compensated for by insurance carried for the benefit of the Joint Venture.

5.4 Representations and Warranties. Each Partner and person executing the Joint Venture Agreement on behalf of an Organization, hereby represents and warrants to the Joint Venture and each other Partner that the Partner is duly organized validly existing, and in good standing under the law of its state of organization and that it has full organizational power to execute and agree to the Joint Venture Agreement to perform its obligations hereunder.

5.5 Partner Expenses; Reimbursement. Any Partner shall be entitled to prompt reimbursement for expenses borne, incurred, or advanced on behalf of the Joint Venture as follows: A Partner which incurs direct costs and expenses (such as salaries paid to Partner employees) relating to Joint Venture operations shall be reimbursed promptly by the Joint Venture upon billing by the Partner. Such reimbursement shall be at the rate of 100% of direct costs only, which shall include labor burdens and benefits. Recovery of general and administrative costs, if any, will be determined and subject to unanimous consent of the Partners, following the conclusion of commercial negotiations of the Joint Venture's prime contract with its client. Subject to Section 8.6, and without diminishing the rights of any Partner to be reimbursed in the event that it incurs a disproportionate share of any Joint Venture liability, it is expressly agreed that payment to the Joint Venture by the client of any compensation, reimbursement or any other amounts due (including profits as set forth in section 4.2), pursuant to this Joint Venture Agreement and the prime contract, is an express condition precedent to the responsibility and liability of the Joint Venture to pay to each Partner its appropriate share of all such compensation, reimbursement or other amount due.

5.6 Confidential Information. Except as otherwise provided herein, the terms and conditions of this Joint Venture Agreement, and all data, reports, records, and other information of any kind whatsoever developed or acquired by the Joint Venture or any Partner in connection with this Joint Venture Agreement, shall be treated by the Joint Venture and the Partners as confidential (hereinafter called "Confidential Information") and neither the Joint Venture nor any Partner shall reveal or otherwise disclose such Confidential Information to third parties without the prior written consent of all the Partners. The restrictions of this Section 5.6 shall not apply to the disclosure of Confidential Information to any Affiliate or, to the extent reasonably required in the performance of a project related to the Business, to any public or private financing agency or institution, and to employees and consultants of the Joint Venture and the Partners; provided,

however, that in any such case only such Confidential Information as such third party shall have a legitimate business need to know shall be disclosed and the person or entity to whom disclosure is made shall first undertake in writing to protect the confidential nature of such Confidential Information at least to the same extent as the parties are obligated under this Section 5.6. In addition, the foregoing restrictions shall not apply to Confidential Information that (a) becomes generally available to the public other than as a result of a disclosure by the Joint Venture, any Partner or any of their officers, employees or agents; (b) was available on a non-confidential basis prior to its disclosure to the Joint Venture, any Partner or any of the officers, employees or agents or (c) becomes available on a non-confidential basis from a source other than the Joint Venture, any Partner or any of the officers, employees or agents, unless such source is known to be bound by a confidentiality agreement to a Partner or the Joint Venture. In the event that the Joint Venture or a Partner is required to disclose Confidential Information to any federal, state or local government, or any agency or department thereof, to the extent required by law or in response to a legitimate request for such Confidential Information, the Joint Venture or a Partner so required shall immediately notify the Partners of such requirement and the terms thereof prior to such submission. The Partners so notified shall have the right to file an objection to such disclosure with the agency or department concerned and to seek confidential treatment of any Confidential Information to be disclosed on such terms as such Partner shall, in its sole discretion and at its sole cost, determine. The provisions of this Section 5.6 shall apply during the term of this Joint Venture Agreement and shall survive termination of this Joint Venture Agreement for three years following termination of this Joint Venture Agreement, and shall continue to apply to a Partner who withdraws, who is deemed to have withdrawn, or who sells, assigns, transfers, or conveys all of its interest in the Joint Venture, for five years following the date of such occurrence.

5.7 Public Statements. The Joint Venture may make public announcements regarding the Joint Venture in the normal course of business, provided that no such announcement shall mention the name of a Partner without that Partner's prior written consent. No Partner shall make any public announcement or public disclosure with regard to this Joint Venture Agreement, the Joint Venture or any other Partner, any project relating to the Business, including Confidential Information and non-Confidential Information, without the prior written consent of the other Partners as to the content and timing of such announcement or disclosure, which consent shall not be unreasonably withheld; provided, however, that nothing shall prevent the Joint Venture or a Partner from making such an announcement or disclosure which is required by applicable law, regulation or stock exchange rule.

5.8 Right of First Refusal; Conflicts of Interest.

5.8.1 Each Partner agrees that neither it nor any of its Affiliates will compete with the Joint Venture by pursuing any business opportunity in the Business unless (i) such Partner has first offered the business opportunity to the Joint Venture, providing written notice thereof to the other Partners; and (ii) the other Partners shall not have elected in writing to pursue such business opportunity through the Joint Venture within 30 days following their receipt of the written notice from such Partner. Nothing in this Joint Venture Agreement shall be construed as a limitation of the powers or rights of any Partner to carry on its separate business for its sole benefit, except as provided to the

contrary in this Section 5.8.

5.8.1.1 Each Partner shall account to the Joint Venture and hold as trustee for it any property, profit, or benefit derived by such Partner, without the consent of the other Partners, in the conduct and winding up of the Joint Venture business or from a use or appropriation by the Partner of Joint Venture Property including Intellectual Property, information developed exclusively for the Joint Venture, and opportunities expressly offered to the Joint Venture.

5.8.1.2 A Partner does not violate a duty or obligation to the Joint Venture merely because the Partner's conduct furthers the Partner's own interest. The rights and obligations of a Partner who transacts business with the Joint Venture are the same as those of a person who is not a Partner, subject to other applicable law. No transaction with the Joint Venture shall be voidable solely because a Partner has a direct or indirect interest in the transaction if either the transaction is fair to the Joint Venture or the disinterested Partners in either case knowing the material facts of the transaction and the Partner's interest, authorize, approve, or ratify the transaction.

5.9 No Hire. Except in the event of a breach of this Joint Venture Agreement whereby any non-breaching Partner needs to hire the employee of a defaulting Partner to complete the Business or in the event that a Partner is insolvent or in bankruptcy, it is expressly agreed that during the term of the Joint Venture Agreement and for one year after its termination no Partner will directly or indirectly solicit for hire any employee of any other Partner who is associated with the proposed efforts covered by this Joint Venture Agreement without the agreement of such other Partner.

5.10 Bonds and Guarantees. Each Partner shall each be responsible for placing its proportionate share of payment and performance bonds, if any, required under the prime contract with the Joint Venture's client, to the extent of its respective Sharing Ratio. The Partners will provide guarantees from their ultimate parent companies to each other to secure performance under this Joint Venture Agreement, and, if and to the extent reasonably required, to the Joint Venture's client to secure performance of the Joint Venture under its prime contract. No consideration will be paid to any Partner or to any Partner's parent company for the provision of any such parent company guarantee.

SECTION 6 STEERING COMMITTEE; MEETINGS OF STEERING COMMITTEE

6.1 Steering Committee. Upon the signing of this Joint Venture Agreement, the Partners will establish a Steering Committee of four (4) representatives, composed of one (1) representatives from each Partner, who shall be an officer of the Partner. Each Partner will have an equal vote on the Steering Committee. The presence of one representative of each Partner shall be required to form a quorum necessary for the transaction of business. In the event the Steering Committee is not able to decide on an issue, the Managing Partner, as described in Section 7.1

hereof, may decide the issue, in good faith, if such failure to decide in the judgment of the Managing Partner, reasonably exercised, may negatively impact the project, and any disputes shall be resolved under the dispute resolution provisions of this Joint Venture Agreement. The Project Manager may attend Steering Committee meetings, but may not vote. The Steering Committee shall keep each Partner fully informed and consult on all matters and attempt to resolve all questions affecting the Partners and shall attempt to resolve questions raised by any Partner.

6.2 Meetings. The Steering Committee shall have meetings from time to time during the term of this Joint Venture Agreement, as necessary, at a mutually convenient location. Such meetings may be called by any Partner upon seven (7) calendar days written notice to the other Partners. However, in the event any Partner determines that a condition exists which requires an immediate meeting, any Partner may call an immediate meeting upon telephone or facsimile notice to the other Partners. The notice shall specify the matters to be decided at the meeting. Any Partner may add matters to be decided at such meeting by notice to the other Partners prior to the meeting.

6.3 Meeting of All Partners. If all Partners shall meet at any time and place, either within or outside of the State of New York and consent to the holding of a meeting at such time and place, such meeting shall be valid without call or notice, and at such meeting any lawful action may be taken.

6.3.1 Telephonic Meetings. Any Partner may participate in any meeting by telephone or other electronic means. The Partner so participating may vote if no other Partner expresses doubt as to the Partner's identity.

6.4 Quorum. All of the Partners, represented in person or by proxy, shall constitute a quorum at any meeting of Partners.

6.5 Manner of Acting. If a quorum is present, the affirmative vote of a majority of the Partners at a Steering Committee meeting shall be the act of the Partners, unless the vote of a greater or lesser proportion or number is otherwise required by this Joint Venture Agreement.

6.6 Proxies. At all meetings of the Steering Committee a Partner may vote in person or by proxy executed in writing by the Partner or by a duly authorized attorney-in-fact. Such proxy shall be filed with the Joint Venture before or at the time of the meeting. No proxy shall be valid after eleven months from the date of its execution.

6.7 Action by Partners Without a Meeting. Action required or permitted to be taken at a meeting of the Steering Committee may be taken without a meeting if the action is evidenced by one or more written consents describing the action taken, signed by each Partner entitled to vote, and delivered to the Joint Venture for inclusion in the minutes or for filing with the Joint Venture records. Action taken under this Section is effective when all Partners entitled to vote have signed the consent, unless the consent specifies a different effective date. The record date for determining Partners entitled to take action without a meeting shall be the date the first Partner signs a written consent.

6.8 Waiver of Notice. When any notice is required to be given to any Partner, a waiver thereof in writing signed by the person entitled to such notice, whether before, at, or after the time stated therein, shall be equivalent to the giving of such notice.

6.9 Powers of the Steering Committee. Subject to Section 5.2, the Steering Committee shall have the following powers, among others:

- (a) To approve contracts for the Business, and any modifications or amendments thereto.
- (b) To approve the assumption of liabilities or the undertaking of commitments by the Joint Venture when these liabilities and/or commitments are material.
- (c) To approve the nominees for the key personnel, except such personnel as otherwise specified in Article 7 for the Joint Venture Project.
- (d) To determine the time and place of holding its meetings and to establish procedures for conducting Steering Committee affairs.
- (e) To request from each Partner, on recommendation of the Project Manager, the provision of any necessary working capital for the performance and execution of the Joint Venture Project.
- (f) To authorize the establishment of a project office, or to authorize the use of a Partner's office and the rate of payment for such use.
- (g) To determine rental rates for equipment owned by any of the Partners and made available for use in connection with the Joint Venture Project. Any equipment owned by third parties will be invoiced to the Joint Venture at actual rental rates.
- (h) To determine Joint Venture insurance coverages and limits, and to determine insurance reserves and reserves for other potential liabilities that may result from or arise out of the Business.
- (i) To approve suretyships or guarantees that may be executed by the Partners in connection with the Joint Venture Project.
- (j) To consider all claims and disputes of any kind between the Joint Venture and its client, subcontractors and/or third parties and to authorize negotiation, arbitration, litigation, and/or any other process for their resolution.
- (k) To determine and act upon the various matters, expressly or impliedly contained in other sections of this Joint Venture Agreement, which require decision by the Steering Committee.

SECTION 7
DELEGATION OF AUTHORITY; OPERATIONS

7.1 Delegation of Authority. Fluor is hereby designated as the Managing Partner, subject, however, to the superior authority and control of the Steering Committee. The Managing Partner shall appoint the Project Manager.

7.1.1 The day to day activities of the Joint Venture and the primary contact with the owner of the Project shall be performed by the Project Manager or his designees, subject to the direction of the Steering Committee. The initial Project Manager shall be Gary W. Winsper, P.E., an employee of Skanska. Any subsequent Project Manager shall be appointed by the Managing Partner, subject to the approval of the Steering Committee. In addition, there shall be a Deputy Project Manager in the office of the Project Manager. The Deputy Project Manager shall initially be a Fluor employee. The Project Manager and Deputy Project Manager shall be employees of either Fluor or Skanska, but neither company shall occupy both positions at any one time. Fluor shall appoint the individual who will serve as Project controls, finance and administrative managers. Such employee shall assist the Project Manager and will be responsible for the financial management of the Joint Venture. The Project Manager shall also be responsible for the carrying out of all necessary correspondence with the owner of the Joint Venture Project and maintaining the appropriate Joint Venture Project correspondence files. Notwithstanding the foregoing, each Partner shall have the right to attend all meetings and to have access to all correspondence, minutes, and other documentation pertaining to the Joint Venture's services. Each Partner shall be responsible for the quality of its services and compliance with budget and time schedules.

7.1.2 The day-to-day management of the Joint Venture Project shall be under the direction of the Project Manager. The Project Manager shall be responsible for coordinating execution of the services under the contract for the Joint Venture Project.

7.1.3 Levels of approval authority will be defined for the Joint Venture Project. An approval authority matrix will be developed for the Project and approved by the Steering Committee.

7.1.4 The Project Manager will establish Joint Venture Project reporting requirements, and will define the types of reports and times of submittal to the Parties. As a minimum, the Project Manager will provide a monthly progress report (noting any problem areas) and a monthly financial status report.

7.1.5 Authority to act for and bind the Partners in connection with all or any part of the performance of the contract for the Joint Venture Project may from time to time be delegated to the Project Manager by the Steering Committee.

7.1.6 Any delegation of authority to any Partner or individual or individuals may be revoked by the Steering Committee; provided, however, that if the authority of the individual serving as Project Manager is revoked, the Managing Partner shall have the right and obligation to nominate another individual to serve in that capacity, subject to the approval of the Steering Committee.

7.2 **Plan and Joint Venture Budget.** Within 60 days prior to the end of each Fiscal Year of the Joint Venture, the Project Manager shall propose the Plan for the Joint Venture for the next Fiscal Year, setting forth the business and operations of the Joint Venture for such Fiscal Year (exclusive of Joint Venture Projects) and shall also propose the Joint Venture Budget for such Fiscal Year necessary to carry out the Plan, and providing for any Capital Calls necessary to fund the Joint Venture Budget and Plan. The Plan and Joint Venture Budget shall be submitted forthwith to the Partners. The Partners shall approve the Plan and Joint Venture Budget prior to the commencement of the Fiscal Year with such modifications as the Partners find necessary or appropriate.

7.3 **Steering Committee Representatives.** The Partners' initial Steering Committee representatives are set forth below. Each Partner represents that the representatives so identified are duly authorized to act on its behalf with respect to its participation in the Joint Venture. In the event that a Partner wishes to change its representatives in the future, it shall so notify all other Partners in accordance with Section 19.4 of this Joint Venture Agreement, by means of a letter from a corporate counsel and/or from another duly authorized officer of such Partner.

<u>Partner</u>	<u>Representative</u>	<u>Alternate</u>
Fluor:	Bob Prieto	David Gedney
Skanska:	Joseph LoCurto	Richard Cavallaro
Granite:	Mike Donnino	Darryl Goodson
Bovis:	James Abadie	Pete Marchetto

7.4 **Implementation of Budgets.** The Steering Committee and Project Manager shall operate the Joint Venture and perform the Joint Venture projects in accordance with the Joint Venture Budget and Plan, and the Plan will not be changed, nor may any approved budget be exceeded in any specific quarter, without prior unanimous written consent of the Partners.

SECTION 8 CONTRIBUTIONS AND CAPITAL ACCOUNTS

8.1 **Capital Requirements.** As soon as practicable following organization of the Joint Venture, and from time to time thereafter, the Steering Committee shall determine the capital

needs of the Joint Venture, and to the extent such needs cannot reasonably be met from cash on hand or Project revenues, shall give written notice (a "Capital Call") to the Partners of the amount of cash or other capital that must be contributed by the Partners to sustain the business operation of the Joint Venture for a period not to exceed ninety days from the date of Capital Call. The Partners shall endeavor to be unanimous with respect to any Capital Call, and in no event will a Capital Call be allowed unless approved by three (3) of the Partners.

8.2 Capital Contribution. Upon receipt of a Capital Call each Partner shall be obligated within ten (10) days to make a contribution (a "Capital Contribution") to the capital of the Joint Venture of cash or other capital specified in the Capital Call in an amount determined by applying the Partner's Sharing Ratio (as adjusted as of the time of the Capital Call) to the total amount of cash or other capital specified in the Capital Call, subject to the limitations stated in Section 8.1.

8.3 Capital Call Dispute. If a Capital Call is approved by the Steering Committee representatives of three (3) of the Partners, but a dissenting Partner disputes the need for or the amount of the Capital Call, it may, within 10 days of the vote, have the CPA conduct an independent review (at the dissenting Partner's expense) to determine if the amount of the Capital Call is reasonably required to meet projected cash requirements under the Client Contract and the approved budget for the "Business Plan". If the CPA finds any or all of the Capital Call is clearly unreasonable to meet these projected needs, it may adjust the Capital Call amount by the amount it finds to be clearly unreasonable. This shall be done within 30 days of notice from the dissenting Partner. Until such adjustment is made the dissenting Partner shall continue to meet the Capital Call requirements. If there is any adjustment, it will be made according to the Sharing Ratio, and the Partners will get a refund or pay the difference as the case may be within 10 days of written notice of the adjustment.

8.4 Capital Call Advance. If any Partner fails to make any required payment under this Article prior to expiration of the Capital Call Period, any other Partner(s) may advance (a "Capital Call Advance") to the Joint Venture any part or all of such required payment. In the absence of election by the advancing Partner(s) of one of the Special Elections provided under Section 15.3 of this Joint Venture Agreement, a Capital Call Advance shall be deemed to be an additional Capital Contribution by the advancing Partner(s), and such Partner's Sharing Ratio (with respect to profits, but not losses) shall be permanently adjusted to reflect the Partner's actual Capital Contributions as of the time of the making of the Capital Call Advance and the Partner(s) shall receive interest at the Prime Interest rate on the Capital Call Advance until the amount of the Capital Call Advance has been repaid. In any case adjustment to the Partners' profit Sharing Ratios shall be permanent notwithstanding reimbursement of the Capital Call Advance by the defaulting Partner or Partners.

8.5 Return of Capital Contributions. Capital Contributions shall be expended in furtherance of the Business of the Joint Venture. All costs and expenses of the Joint Venture, Capital Call Advances, and interest on Capital Call Advances shall be paid from its funds prior to any return of Capital Contributions. No other interest shall be paid on Capital Contributions.

8.6 Liabilities of Partners to Third Parties; Reimbursement. To the extent any Partner is legally required to pay any liability or obligation to any Person other than the other Partners or the Joint Venture arising out of or in any way connected with this Joint Venture Agreement or the Joint Venture, such payment shall be treated for all purposes of this Joint Venture Agreement (including adjustments of Sharing Ratios) as if such payment were a Capital Contribution made in response to a Capital Call pursuant to Section 8.2 of this Joint Venture Agreement; and to the extent any such payment exceeds the amount determined by applying such Partner's Sharing Ratio (as adjusted as of the time immediately prior to such payment) to the total amount of such liability or obligation, such excess shall be treated for all purposes of this Joint Venture Agreement as if such excess were a Capital Call Advance within the meaning of Section 8.4 of this Joint Venture Agreement; provided that in the event a portion of a payment made pursuant to this paragraph 8.6 is deemed to be a Capital Call Advance, the Partner on whose behalf such Capital Call Advance was made shall have ten days from the making of such advance to reimburse such advance to the paying Partner, in which case such reimbursement shall likewise be deemed to be a Capital Contribution for all purposes of this Joint Venture Agreement (including adjustment of Sharing Ratios); and provided further that in the event the Partner on whose behalf such Capital Call Advance is deemed to have been made pursuant to this paragraph 8.6 fails to reimburse the amount of such advance within such ten-day period, the provisions of Section 15.4 shall apply. The foregoing provisions are subject in all events to the Special Elections provided in Article 15 of this Joint Venture Agreement.

8.7 Capital Accounts. The Joint Venture shall maintain a separate capital account for each Partner in accordance with the Treasury Regulations under section 704(b) of the Code and such other accounts as may be necessary or desirable to comply with the requirements of applicable laws and regulations.

8.8 Special Allocations. Any Profits and Losses and other items of income, gain, loss, deduction or credit including depreciation recapture, with respect to any property (other than money) that has been contributed by a Partner to the Capital of the Joint Venture and which is required to be allocated to the Partners for income tax purposes pursuant to Section 704(c) of the Code so as to take into account the variation between the adjusted basis of the property for federal income tax purposes and its fair market value at the time of contribution shall be allocated to the Partners in the manner so required by Section 704(c) of the Code and the Treasury Regulations thereunder.

8.9 Distribution of Assets. If the Joint Venture at any time distributes any of its assets in-kind to any Partner, the Capital Account of each Partner shall be adjusted to account for that Partner's allocable share) of the net Profits or net Losses that would have been realized by the Joint Venture had it sold the assets that were distributed at their respective fair market values immediately prior to their distribution.

8.10 Sale or Exchange of Interest. In the event of a sale or exchange of some or all of a Partner's interest in the Joint Venture, if allowed pursuant to the terms of this Joint Venture Agreement, the Capital Account of the transferring Partner shall become the Capital Account of

the assignee, to the extent it relates to the portion of the interest transferred.

SECTION 9 ALLOCATIONS AND DISTRIBUTIONS

9.1 *Allocations of Net Profits and Net Losses from Operations.* Subject to prior repayment of additional Capital Contributions and interest thereon (as provided for in Section 8.4 – **Capital Call Advance**), and except as may be required by § 704(c) of the Code, net Profits, net Losses, and other items of income, gain, loss, deduction and credit shall be apportioned among the Partners in proportion to their Sharing Ratios, unless otherwise provided in this Joint Venture Agreement.

9.2 *Interim Distributions.* From time to time, and subject to Section 5.2, the Partners shall determine in their reasonable judgment to what extent, if any, there is Cash Available for Distribution. No distributions shall be made to Partners who are in default of their respective obligations to indemnify or fund as herein provided until and unless such default has been cured to the reasonable satisfaction of the non-defaulting Partners. To the extent such Cash Available for Distribution exists, and the Partners have approved pursuant to Section 5.2, the Joint Venture shall make distributions to the Partners in accordance with their Sharing Ratios.

SECTION 10 TAXES

10.1 *Elections.* Fluor shall be the "Tax Matters Partner" pursuant to § 6231(a)(7) of the Code and shall take such action as may be necessary to cause each other Partner to become a *notice partner* within the meaning of § 6223 of the Code. The Tax Matters Partner may make any tax elections for the Joint Venture allowed under the Code or the tax laws of any state or other jurisdiction having taxing jurisdiction over the Joint Venture, upon approval of all other Partners. All expenses incurred by the Tax Matters Partner while acting in that capacity shall be paid or reimbursed by the Joint Venture.

10.1.1 Subject to approval of the Steering Committee, the Tax Matters Partner may employ tax counsel to represent any audit or investigation of the Joint Venture by the Internal Revenue Service and any related administrative or judicial proceedings. The fees and expenses of such counsel shall be a Joint Venture expense. It shall be the responsibility of each Partner, at its own expense, to employ tax counsel to represent their separate interests.

10.1.2 The Joint Venture shall indemnify the Tax Matters Partner (including the officers and directors of a corporate Tax Matters Partner) against judgments, fines, amounts paid in settlement, and expenses (including attorney fees) reasonably incurred in any civil, criminal or investigative proceeding in which they are involved or threatened to be involved by reason of being the Tax Matters Partner, provided that the Tax Matters Partner acted in good faith, consistent with what it reasonably believed to be the best interests of the Joint Venture or its Partners. The indemnification provided hereunder shall not be deemed exclusive of any other rights to which those indemnified may be

entitled under any applicable status, agreement, vote of Partners, or otherwise.

10.2 Accrual Method of Accounting. The records of the Joint Venture shall be maintained on an accrual method of accounting employing percent of completion revenue and profit recognition.

SECTION 11 ASSIGNMENT OF PARTNERSHIP

11.1 Disposition. No Partner may dispose of or assign all or a portion of the Partner's Partnership interest in the Joint Venture to any person without the written consent of the other Partners. The Partners agree that due to the relationship of the parties, and the reliance of each Partner on the expertise and qualifications of the other Partners, that this restriction is reasonable and is part of the basis of the bargain in entering into this Joint Venture Agreement and forming the Joint Venture. The Partners agree that consent to Disposition of an interest in the Joint Venture may be withheld for any reason, and such withholding of consent shall be conclusively deemed to be reasonable.

11.2 Dispositions not in Compliance with this Section Void. Any attempted Disposition of a Partnership Interest, or any part thereof, not in compliance with this Section is null and void and shall be deemed a breach of this Joint Venture Agreement.

SECTION 12 DISSOCIATION OF A PARTNER

12.1 Dissociation. A Partner may not voluntarily Dissociate from the Joint Venture, except with the written consent of the other Partners and the approval of the Joint Venture's client in the event that a Contract for the Project is executed with said client. A Partner may not be involuntarily removed by a vote of the Partners. A Person shall cease to be a Partner of the Joint Venture upon the happening of any of the following events:

12.1.1 To the fullest extent permitted by applicable law, where a Partner (i) makes an assignment for the benefit of creditors; (ii) files a voluntary petition in bankruptcy or fails within 30 days to bring about the dismissal of an involuntary petition in bankruptcy filed with respect to such Partner; (iii) is adjudicated a bankrupt or insolvent; (iv) files a petition or answer seeking for the Partner any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any statute, law or regulation; (v) files an answer or other pleading admitting or failing to contest the material allegations of a petition filed against the Partner in any proceeding of this nature; or (vi) seeks, consents to, or acquiesces to the appointment of a trustee, receiver or liquidator of the Partner or of all or any substantial part of the Partner's properties, in each case, excepting the situation where the Partner assumes this Joint Venture Agreement and the prime contract with the Joint Venture's client, and provides adequate assurances of its continued ability to perform under both such agreements;

12.1.2 In the case of a Partner that is a corporation, the filing of a certificate of

dissolution, or its equivalent, for the corporation or the revocation of its charter.

12.2 *Rights of Dissociating Partner Where Dissolution Results.* In the event any Partner Dissociates prior to the expiration of the term of the Joint Venture and if the Dissociation causes a dissolution and winding up of the Joint Venture under Section 14, the Partner shall be entitled to participate in the winding up of the Joint Venture to the same extent as any other Partner except that any Distributions to which the Partner would have been entitled shall be reduced by the damages sustained by the Joint Venture as a result of the dissolution caused by the Dissociation and winding up.

**SECTION 13
NOT USED**

**SECTION 14
NOT USED**

**SECTION 15
DEFAULT AND REMEDIES**

15.1 *Default: Contribution Obligations.* Failure by any Partner to pay its share of a Capital Call within the Capital Call Period or failure by any Partner to make reimbursement within the time prescribed by Paragraph 8.6 of this Joint Venture Agreement shall be a default for purposes of this Section 15.1.

15.2 *Default: Other Obligations.* In the event any Partner fails, within thirty days of receipt of written demand for compliance from the other Partners, to fulfill any obligations under this Joint Venture Agreement other than obligations giving rise to default under the foregoing Section 15.1, then at the election of all of the non-defaulting Partner(s) and upon the delivery of written notice of default to the defaulting Partner, the defaulting Partner shall be in default within the meaning of this Section 15.2.

15.3 *Special Elections Upon Default Under Section 15.1.* Upon occurrence of a default under Section 15.1, any non-defaulting Partners shall have the right, but not be required, to elect one of the following alternative remedies by giving written notice of such election to the defaulting Partner prior to expiration of thirty days following occurrence of such default:

(a) **Contribution Loan.** To the extent a non-defaulting Partner(s) has made or is deemed to have made a Capital Call Advance in connection with such default, the non-defaulting Partner(s) may elect to treat such Capital Call Advance as a Contribution Loan to the defaulting Partner, in which case such Contribution Loan shall bear Default Interest from the date such advance is made or deemed to have been made, shall be payable upon demand. In the event of an election pursuant to this paragraph 15(a), adjustments shall be made retroactively to the date such advance was made or deemed to have been made so that no part of such Contribution Loan is taken into account in determining the electing Partner's Sharing Ratio, and the full amount of

such Contribution Loan shall be deemed a Capital Contribution by the defaulting Partner for all purposes of this Joint Venture Agreement.

(b) Joint Venture Loan(s). In the alternative, any non-defaulting Partner(s) may elect to convert the amount of any Capital Contribution or Capital Call Advance made or deemed to have been made by such non-defaulting Partner in response to the Capital Call giving rise to the default as a loan by the non-defaulting Partner to the Joint Venture as of the date of such contribution or advance. In the event of an election under this Section 15.3(b), Sharing Ratios shall be deemed adjusted retroactively to conform to the respective Partners' interests as they existed immediately prior to the Capital Call giving rise to the default by the defaulting Partner. Upon election under this Section 15.3(b), the full amount subject to the election shall be deemed to be a loan to the Joint Venture, shall be entitled to repayment in advance of any distribution made to any Partner, shall bear interest at the Default Rate from the date of each respective advance, and shall be payable upon demand. To the extent any Capital Call Advance made or deemed to have been made by the non-defaulting Partner is included in an election made under this Section 15.3-(b), repayment by the Joint Venture of such amount shall be guaranteed by the defaulting Partner, with the effect that the defaulting Partner shall be deemed to have guaranteed payment and not collection of the amount representing such Capital Call Advance, and shall be deemed to have waived notice of default, nonpayment, dishonor, acceptance, presentment, demand and any other notice that may be required in the absence of waiver under applicable law; and further shall be deemed to have agreed that no extension of time, forbearance, release or compromise of any obligations of the Joint Venture nor any other action by the non-defaulting Partner against the Joint Venture or any other Person shall be deemed to have compromised or released in any respect the obligations of the defaulting Partner under such guaranty.

15.4 Termination of Management Rights. In the event of any default, and until remedy of the default and payment of all interest owed by the defaulting Partner, (whether occurring under Section 15.1 or 15.2 of this Joint Venture Agreement), the defaulting Partner shall be deemed to have transferred to the non-defaulting Partners all rights and responsibilities for all acts, consents appointment authority and decisions with respect to the performance of the Contract and the management of the Joint Venture, including all voting rights of the defaulting Partner and the appointment of the entirety of the Steering Committee, which management activities shall thereafter be taken solely by the non-defaulting Partners without need to consult with or otherwise gain consent from the defaulting Partner. Notwithstanding such exercise of control by the non-defaulting Partners, the defaulting Partner shall remain a Partner and shall be entitled to profits and distributions and shall remain responsible for obligations and liabilities as provided under this Joint Venture Agreement, subject to limitation to the Partner's Sharing Ratio where applicable and as adjusted upon default(s) as provided in the foregoing Sections 8.4 and 15.3 and as reduced by the damages sustained by the Joint Venture or any Partner as a result of the default.

15.5 Other Remedies. In addition to other remedies provided under this Article 15, in the event of any default under this Article 15, the non-defaulting Partners shall have all other rights and remedies arising upon default under applicable law against the defaulting Partner, to the full extent that such other rights and remedies are not inconsistent with the exercise of remedies provided under this Article 15 or other express provisions of this Joint Venture

Agreement.

SECTION 16 DISSOLUTION AND WINDING UP

16.1 Dissolution. The Joint Venture shall be dissolved and its affairs wound up, upon the first to occur of the following events (which, unless the Partners agree to continue the business, shall constitute Dissolution Events):

16.1.1 the expiration of the term as provided in Section 2.5, unless the business of the Joint Venture is continued with the consent of all of the Partners;

16.1.2 the unanimous written consent of all of the Partners;

16.1.3 the Dissociation of any Partner, unless the business of the Joint Venture is continued with the consent of all of the remaining Partners within 90 days after such Dissociation so long as there are at least two remaining Partners in the Joint Venture;

16.1.4 the entry of a decree of judicial dissolution;

16.1.5 if the Joint Venture voluntarily or involuntarily, by way of condemnation or similar proceeding, disposes of all or substantially all of its real property assets;

16.1.6 if a Port Authority Contract for the Project is not awarded to the Joint Venture.

16.2 Effect of Dissolution. Upon dissolution, the Joint Venture shall cease carrying on its business, except for the winding up of the Joint Venture's business, which shall continue until the winding up of the affairs of the Joint Venture is completed.

16.3 Distribution of Assets on Dissolution. Upon the winding up of the Joint Venture, the Joint Venture Property shall be distributed:

16.3.1 to creditors, including Partners who are creditors, to the extent permitted by law, in satisfaction of Joint Venture Liabilities;

16.3.2 to Partners in accordance with positive Capital Account balances taking into account all Capital Account adjustments for the Joint Venture's taxable year in which the liquidation occurs. Liquidation proceeds shall be paid within 60 days of the end of the Joint Venture's taxable year or, if later, within 90 days after the date of liquidation. Such distributions shall be in cash or Property (which need not be distributed proportionately) or partly in both, as unanimously determined by the Partners.

16.4 Deficit Capital Account. A deficit balance in a Partner's Capital Account after liquidation of the Joint Venture shall be repaid to the Joint Venture no later than 90 days after the liquidation of such interest.

16.5 *Winding Up and Certificate of Cancellation.* The winding up of a the Joint Venture shall be completed when all debts, liabilities, and obligations of the Joint Venture have been paid and discharged or reasonably adequate provision therefor has been made, and all of the remaining property and assets of the Joint Venture have been distributed to the Partners.

SECTION 17 INTELLECTUAL PROPERTY

17.1 *License From Partners to Joint Venture.* To the extent each Partner has the legal right to do so, and subject to any restrictions under applicable license and other agreements, each Partner hereby grants to the Joint Venture a nonexclusive license to use such Partners' Intellectual Property insofar as the same is reasonably required and relates to the activities of the Joint Venture on the Joint Venture Project. Each Partner shall cooperate to make such Intellectual Property available and useful to the Joint Venture. The Joint Venture shall not sublicense any Partners' Intellectual Property to any other person, including any other Partner, without the prior written consent of the Partner owning such Intellectual Property.

17.2 *Intellectual Property Developed by the Joint Venture.* The Joint Venture shall own and hold in its own name all Intellectual Property created, developed or acquired (but not including any Intellectual Property licensed to the Joint Venture pursuant to Section 17.1) by the Joint Venture. Except as provided in this Section 17.2, the Joint Venture shall not license or sell any of its Intellectual Property to any person except with the prior written consent of all the Partners. To the extent the Joint Venture has the legal right to do so and subject to any restrictions under contracts or agreements on any Joint Venture Project and applicable license and other agreements, the Joint Venture hereby grants to each Partner a nonexclusive license to use the Joint Venture's Intellectual Property. No Partner shall sublicense any of the Joint Venture's Intellectual Property (except to its Affiliates) without the prior written consent of the other Partners.

17.3 *Use on Liquidation.* Upon liquidation of the Joint Venture, all Intellectual Property of the Joint Venture shall be transferred to the Partners jointly and each Partner shall be free to use, license, sell or otherwise deal with such Intellectual Property.

SECTION 18 AMENDMENT

18.1 *Joint Venture Agreement May Be Modified.* The Joint Venture Agreement may be modified as provided in this Section 18 (as the same may, from time to time be amended).

18.2 *Amendment or Modification of Joint Venture Agreement.* The Joint Venture Agreement may be amended or modified from time to time only by a written instrument adopted and executed by all of the Partners.

18.3 *Sharing Ratio Adjustment.* In the event that any Partner believes that the nature of the Joint Venture Project or the relative contributions of the Partners to the Business change,

such Partner may submit a request to the Steering Committee to adjust the Partners' Sharing Ratios in light of such asserted change. Any such change to the Sharing Ratios shall require the unanimous approval of the Partners.

SECTION 19 MISCELLANEOUS PROVISIONS

19.1 *Entire Agreement.* The Joint Venture Agreement represents the entire agreement among the Partners and between the Partners and the Joint Venture.

19.2 *Governing Law.* This Joint Venture Agreement shall be governed by, and construed in accordance with, the law of the State of New York, without reference to the State of New York's choice of law provisions.

19.3 *Litigation; Dispute Resolution.* In the event of any dispute between or among the Partners relating to or arising from the Joint Venture, this Joint Venture Agreement or to the affairs of the Joint Venture (a "Dispute"), any such Dispute shall be resolved as follows:

19.3.1 The Partners shall first use their best efforts to resolve any such Dispute through good faith negotiations among senior corporate officers with at least the title of Vice President and who are not on the Steering Committee.

19.3.2 Any Dispute not resolved through negotiation as provided for under Section 19.3.1 shall promptly be submitted to JAMS, or its successor, for mandatory, non-binding mediation. Any aggrieved Partner may commence mediation by providing to JAMS and the other Partners a written request for mediation, setting forth the subject of the Dispute and the relief requested. The mediation shall be conducted using the then-existing mediation rules of JAMS, and all affected Partners will cooperate with JAMS and with one another in timely scheduling the mediation proceedings and in selecting a mediator from an approved list of neutrals. Such list of neutrals will be developed and approved in writing by the Steering Committee within 60 days after award of a contract to the Joint Venture by the client. Mediation shall be a condition precedent to litigation of any Dispute, provided that any affected Partner may initiate litigation in accordance with 19.3.3 with respect to the matters submitted to mediation should the mediation session not occur within 90 days after the date of filing the written request for mediation.

19.3.3 Any Dispute that is not resolved under the mediation process provided for under 19.3.2 shall be resolved exclusively by the courts of the State of New York situated in the County of New York. Each Partner knowingly, voluntarily and upon consultation with counsel hereby agrees to waive any right it may have to a trial by jury of any Disputes, to the greatest extent permitted by applicable law, and agrees that any Disputes shall be tried before a judge sitting without a jury.

19.4 *Notices.* All notices under this Joint Venture Agreement shall be in writing, and shall be sufficiently given if delivered to the addresses in person or if mailed, postage prepaid, as follows:

To Fluor: Fluor Enterprises, Inc.
100 Fluor Drive
Greenville, South Carolina 29607
Att'n: David Gedney
with a copy to Richard A. Fierce

To Skanska: Slattery Skanska Inc.
16-16 Whitestone Expressway
Whitestone, NY 11357
Att'n: Gary Winsper
with a copy to David Finch

To Granite: Granite Halmar Construction Company, Inc.
160 West Lincoln Avenue
Mount Vernon, NY 10550

Att'n: Eugene Kelley
with a copy to Division Counsel, Heavy Civil Division
Granite Construction Company
585 West Beach Street
Watsonville, CA 95076

To Bovis: Bovis Lend Lease LMB, Inc.
200 Park Avenue
New York, NY 10166
Att'n: Mr. Jim Abadie
with a copy to Joseph Portela

To the Joint Venture: Phoenix Constructors, Joint Venture
505 8th Avenue, Suite 601
New York, NY 10019
Att'n: Gary Winsper

With copies to all members of the Steering Committee.

19.5 No Partnership Intended for Non-tax Purposes. The Partners have formed the Joint Venture with the express intention not to form a partnership under any law of the State, but do intend to qualify as a partnership for tax purposes.

The Partners do not intend to be agents one to another, or partners as to any third party. To the extent any Partner, by word or action, represents to another person that any other Partner

is an agent or that the Joint Venture is a partnership to any third party, the Partner making such wrongful representation shall be liable to any other Partner which incurs liability by reason of such wrongful representation.

19.6 *Rights of Creditors and Third Parties under Joint Venture Agreement.* The Joint Venture Agreement is entered into among the Joint Venture and the Partners for the exclusive benefit of the Joint Venture, its Partners, and their successors and assignees. The Joint Venture Agreement is expressly not intended for the benefit of any creditor of the Joint Venture or any other Person. Except and only to the extent provided by applicable statute, no such creditor or third party shall have any rights under the Joint Venture Agreement or any agreement between the Joint Venture and any Partner with respect to any Capital Contribution or otherwise.

19.7 *Profit Forecasts.* It is recognized that some Partners are publicly traded corporations that are required to generate accurate forecasts of the project profit (or loss) on a quarterly basis. Such forecasts begin at, or before, such time as the Project has expended twenty-five percent (25%) of the estimated project cost and continue through project acceptance.

19.8 *Joint Defense and Prosecution of Claims.* Should one or more of the Partners, or the Joint Venture entity itself, become a party to a legal claim, proceeding or lawsuit (each a "Proceeding"), whether offensive or defensive, involving or relating to the subject matter of this Joint Venture Agreement or the Business, other than a Proceeding solely between or among the Partners, the Partners agree that they have a mutual interest in proceeding together in a common defense or prosecution. Should one of the Partners be subject to a Proceeding unrelated to the Business of the Joint Venture, the provisions of this Article shall not apply. Without waiving their individual attorney client privilege, work product or any other privilege or immunity, except as provided herein, the Partners agree as follows:

a. The Partners and/or the Joint Venture shall be represented jointly by one attorney or firm in the Proceeding throughout the pendency of the Proceeding and shall jointly assume defense of the Joint Venture. The Partners shall choose counsel to represent the interests of the Joint Venture. To the greatest extent permitted by law, the Partners hereby waive any conflict in such joint representation. The costs and fees for such representation shall be borne by the Partners in the same proportion as their Sharing Ratio. The sharing of such defense costs shall not operate as any precedent in determining liability by and between the Partners and shall remain inadmissible for any purpose whatsoever. This agreement shall automatically apply to substitute or associated counsel who may appear in the Proceeding on behalf of any of the Partners. This agreement covers, applies to, and binds the firms, partners, associates and support staff of the undersigned counsel, as well as any consultants, investigators, or experts retained by them in connection with the defense of the Proceeding.

b. The Partners agree to share and exchange among themselves, witness statements, factual summaries, documents, legal strategies, intelligence, confidences, and other secrets (hereinafter the "Joint Defense Materials") for the limited and restricted purpose of assisting counsel in protecting the common rights and interests of the Partners. Any communications or Joint Defense Materials shared between the Partners are within the "common interest" and are, therefore, confidential and protected from disclosure to any third party by the attorney-client

privilege and the work product doctrine and may be used for no other purpose than the common interest of the Partners. All Joint Defense Materials (including all copies, summaries or excerpts thereof) shall be returned to the Partner who provided the same at the conclusion of the Proceeding.

c. None of the privileged or otherwise protected communications or Joint Defense Materials obtained by any Partner or information derived therefrom shall be disclosed or revealed to any third party except (i) as required by law or an order of a court of competent jurisdiction or (ii) with the written consent of all Partners. Should one Partner receive a subpoena or process requiring production of Joint Defense Materials, it shall provide 5 days written notice to all other Partners to give them an opportunity to move for a protective order.

d. Should a divergence of interest between the Partners arise during the Proceeding, the Partners agree to reserve and defer prosecution of any claim each may have against the other until the later of the conclusion of (i) the Proceeding or (ii) the Business (defined as the receipt of final payment therefor) and agree to abide by this Section 19.7 in good faith and proceed with the joint defense or prosecution of the Proceeding until the conclusion of the Proceeding and from any judicial and/or administrative appeals therefrom. Any period of limitations as to any claim between or among the Partners is tolled by this agreement until 60 days after such time. The attorney representing the Partners and/or the Joint Venture may not represent any Partner in a claim against one another nor appear as a witness in any such claim without the advance, express, written consent of the other Partners. No Partner shall object to a motion by another Partner to intervene in a pending Proceeding.

e. The Partners agree that this agreement set forth in Section 19.8 may be enforced by injunctive relief and that it shall not be subject to abrogation by an assignee, trustee in bankruptcy or other successor in interest to any Partner hereto. Nor shall such assignee, trustee in bankruptcy or other successor in interest waive any privilege or immunity with regard to the Joint Defense Materials shared by or among the Partners.

19.9 *Limitation on Claim Against Joint Venture Interest.* Without limiting the rights of the Partners or their parent company guarantors, the right of any Person or Organization claiming by, through, or under any Partner (including, but not limited to, judgment or other creditors, receivers, trustees, assignees, garnishees, executors, administrators, etc.) to assert any claim against the right, title, or interest of any Partner shall be limited in any event to the right to claim or receive after the completion of the Business and after the closing of the account of the Joint Venture the distributive share of such Partner in the compensation and reimbursable costs and profits payable hereunder, and then only subject to the equities of the other Partners or as set forth in this Joint Venture Agreement.

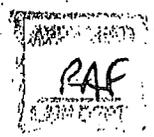
IN WITNESS WHEREOF, we have hereunto set our hands on the date set forth beside our names.

Fluor Enterprises, Inc.

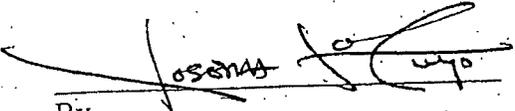
[Signature]

7/13/05
Date

By
Its *[Signature]*



Slattery Skanska Inc.


By _____
Its President _____

July 15, 2005
Date

Granite Halmar Construction Company, Inc.

A handwritten signature in black ink, appearing to read "Michael Donnino", is written over a horizontal line.

July, 13 2005

By Mike Donnino, Its Senior Vice President

Bovis Lend Lease LMB, Inc.

By James Abadie Date 7/14/05
Its James Abadie
Sr. Vice President-Principal in Charge

WTC-284.458 CM

Exhibits and Appendices for PA Agreement # WTC-284.458 CM

EXHIBITS

- A. Performance of Construction Management Services
- B. Construction Manager Compensation
- C. United States of America Department of Transportation Federal Transit Administration - Master Agreement for 'Lower Manhattan Recovery Grants' (Dated May 16, 2003)
- D. FTA Professional Services Attachment

APPENDICES

- E. LMRO Third Party Contracting Requirements (Dated August 21, 2003)
- F. World Trade Center Site Safety Program (Dated May 21, 2005)
- G. World Trade Center Transportation Hub – Project Quality Assurance Plan (Rev: 0)
- H. Miscellaneous Provisions
- I. Joint Venture Agreement of Phoenix Constructors (Dated as of July 15, 2005)



THE PORT AUTHORITY OF NY & NJ

HAND DELIVERY

January 23, 2006

Phoenix Constructors, JV
505 Eighth Avenue
Suite 601
New York, New York 10018

CONFIRMED

SUBJECT: CONTRACT WTC-284.458GC – GENERAL CONTRACTING SERVICES

Gentlemen:

The Port Authority of New York and New Jersey ("Authority") hereby accepts the Proposal, dated January 11, 2006, submitted by Phoenix Constructors, JV ("Phoenix"), for Contract WTC-284.458GC, subject to the following:

1. The Authority reserves the right to require Phoenix to furnish both performance bond(s) and payment bond(s) in increments, up to and including a total amount of \$250 million for each type of bond, which bonds shall in all respects comply with the terms and conditions of Contract WTC-284.458GC. The Authority may require Phoenix to furnish such bonds up to and including the point in time where Phoenix has been paid \$250 million pursuant to the compensation provisions of Contract WTC-284.458GC.
2. The Authority also reserves the right, subject to Federal Transit Administration (FTA) approval, to require Phoenix to furnish other security in lieu of the performance and payment bonds referred to in 1. above within the same time period.
3. The Authority further reserves the right to procure, maintain in force and pay the premiums on the insurance specified in the clause of Contract WTC-284.458GC entitled "Insurance Procured By The Authority" as the work is scheduled to be performed, provided that the insurance coverage with appropriate limits required to perform a work package is procured prior to the commencement of any work in connection with such work package.
4. Phoenix shall not perform any on-site work under Contract WTC-284.458GC prior to the procurement of the insurance required by the clauses of the Contract entitled "Insurance Procured By The Authority" and "Insurance Procured By Contractor".
5. Make the following change: In clause 20 entitled "Prequalification and Solicitation of Subcontractors", in the third line of "C" after the word "subcontract" delete the period and substitute therefor ", which terms shall include, but not be limited to, a direct right of action by the subcontractor against each of the individual corporations comprising the Phoenix Constructors joint venture."

One Madison Avenue
New York, NY 10010
T: 212 435 7000



THE PORT AUTHORITY OF NY & NJ

Contract WTC-284.458GC, which shall be deemed modified as set forth above, shall be the complete and exclusive statement of the agreement between the parties, notwithstanding any other documents, discussions, meetings, representations or agreement. In the event of any conflict between the provisions of any document previously issued by the Authority or submitted by Phoenix to the Authority in connection with Contract WTC-284.458GC, and anything contained in this Award Letter, this Award Letter shall control.

Your attention is directed to the clause of the Contract WTC-284.458GC entitled "Time for Completion and Damages for Delay" and to the fact that before you may commence performance of the work you must furnish whichever of the documents mentioned in that clause are applicable.

If the above meets with your approval, please indicate your concurrence by countersigning the enclosed duplicate originals of this letter and returning them to Ms. Lucy Foster, The Port Authority of New York and New Jersey, 1 Madison Avenue, 7th Floor, New York, New York 10010.

Please include the above-referenced Contract number on all correspondence.

Very truly yours,

THE PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

BY: Steven Plate
Director, Priority Capital Programs

BY: Andree Rorkum
Director, Procurement

Approved as to form:

Darrell Buchbinder
General Counsel

RJC
BY: [Signature]
Attorney

DATE: 1/19/06

CONCURRED IN AND CONFIRMED:

PHOENIX CONSTRUCTORS, JV

BY: Robert Pucio

TITLE: Principal - In-Charge

DATE: 1/23/06

GENERAL CONTRACTING SERVICES
Contract WTC-284.458(GC)
January 11, 2006

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PROPOSER CERTIFICATIONS AND NOTICES

1. MINORITY AND WOMEN'S BUSINESS ENTERPRISES PROGRAM (MBE/WBE)

The Port Authority has a long-standing practice of making its contract opportunities available to as many firms as possible and has taken affirmative steps to encourage Minority Business Enterprises (MBEs) and Women's Business Enterprises (WBEs) to seek business opportunities with it.

"Minority-owned business" or "MBE" means a business entity which is at least 51 percent owned by one or more members of one or more minority groups, or, in the case of a publicly held corporation, at least 51 percent of the stock of which is owned by one or more members of one or more minority groups, and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens.

"Women-owned business" or "WBE" means a business which is at least 51 percent owned by one or more women, or, in the case of a publicly held corporation, 51 percent of the stock of which is owned by one or more women, and whose management and daily business operations are controlled by one or more women who are citizens or permanent resident aliens.

"Minority group" means any of the following racial or ethnic groups:

- a. Black persons having origins in any of the black African racial groups not of Hispanic origin;
- b. Hispanic persons of Puerto Rican, Mexican, Dominican, Cuban, Central, or South American culture or origin, regardless of race;
- c. Asian and Pacific Islander persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands;
- d. Native American or Alaskan native persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

To ensure meaningful participation of MBEs and WBEs on this project, the Authority has set an overall combined contract goal of seventeen (17) percent participation by MBEs and WBEs for all procurement, subcontracting and ancillary service opportunities associated with this Contract.

In the event that the Contractor subcontracts any portion of the Work, the Contractor shall use and document every good faith effort to ensure MBE and WBE participation in the Work. Such good faith efforts shall include at least the following:

- a. Attendance at pre-bid meetings, if any, scheduled by the Engineering Department;

- b. Utilization of the Port Authority's Directory of certified MBE/WBEs annexed hereto and/or proposing for certification other MBE/WBEs which appear to meet the Port Authority's criteria for the Work which the proposer plans to subcontract;
- c. Active and affirmative solicitation of bids for subcontracts from MBE/WBEs;
- d. Advertisement in general circulation media, trade association publications and minority-focused media for a reasonable period before bids or proposals are due;
- e. Dividing the work to be subcontracted into smaller portions or encouraging the formation of joint ventures, partnerships or similar arrangements among subcontractors in order to increase the likelihood of achieving the MBE/WBE goal;
- f. Providing a sufficient supply of plans and specifications of prospective work to MBE/WBEs and providing appropriate materials to each in sufficient time to review; and
- g. Utilizing the services of available minority and women's community organizations; contractor's groups; local, State and Federal business assistance/development offices and other organizations that provide assistance to MBE/WBEs.

Subsequent to Contract award, the Contractor shall use and document every good faith effort to comply with its MBE/WBE Participation Plan and to permit its MBE/WBE subcontractors to perform. Participation percentages shall be monitored throughout the performance of this Contract. Such good faith efforts shall include at least the following:

- a. Ensuring that progress payments are made in a timely fashion in accordance with the requirements of this Contract;
- b. Not requiring bonds from and/or providing bonds and insurance for subcontractors where appropriate;
- c. Soliciting specific recommendations on methods for enhancing MBE/WBE participation from Port Authority staff responsible for such participation; and
- d. Nominating subcontractors for participation in business assistance programs sponsored by the Authority or the Regional Alliance of Small Contractors such as the Loaned Executive Assistance Program (L.E.A.P.).

Subsequent to Contract award, the Contractor shall also provide the Engineer, at his request, with a trade breakdown schedule showing when the Contractor's MBE/WBE subcontractors are scheduled to perform. The Contractor shall also submit to the Engineer, on a monthly basis, the Statement of Subcontractor's Payments annexed hereto as Schedule D of Appendix I.

If, during the performance of the Contract, the Contractor fails to demonstrate good faith in carrying out its MBE/WBE Participation Plan and in permitting its MBE/WBE subcontractors to perform and the Contractor has not demonstrated that a full or partial waiver of the above referenced MBE/WBE participation goal is appropriate, then, upon receipt of a future proposal or proposals from the Contractor, the Chief Engineer may advise the Contractor that it is not a responsible proposer and may reject such proposal(s).

Either prior or subsequent to acceptance of the Proposer's Proposal, the proposer may request a full or partial waiver of the above described MBE/WBE participation goal by providing a reasonable demonstration to the Chief Engineer that its good faith efforts will not result in compliance with the goal set forth above because participation by eligible MBE/WBEs could not be obtained at a reasonable price or that such MBE/WBEs were not available or refused to perform as subcontractors. The proposer shall provide such documentation to support its request as the Chief Engineer may require.

Once approved, the MBE/WBE Participation Plan submitted by the proposer may be modified only with the written approval of the Engineer.

Following approval by the Engineer under the clause entitled "Assignments and Subcontracts" of one or more subcontractors who are either MBEs or WBEs and listed in the MBE/WBE Directory or determined to be "eligible" by the Chief Engineer in accordance with this numbered clause, the Authority may, at its sole option, provide to said approved M/WBEs, without charge, whatever appropriate consultant services may be available under the L.E.A.P. Program; provided, however, that such consultant services will only be furnished pursuant to a request in writing from the Contractor to the Office of Regional and Economic Development, Small Business Programs, 233 Park Avenue South – 4th Floor, New York, New York 10003.

Such services will be discontinued following a written request from the Contractor to the Office of Regional and Economic Development, Small Business Programs, to discontinue them.

The L.E.A.P. services include advising on scheduling, purchasing, planning and other aspects of construction to firms to mitigate business or management problems, which could negatively impact on their performance. These services do not include engineering or legal advice. The determination as to whether or not to follow the advice given lies solely with the M/WBE subcontractor. Prior to being accepted as a participant in the L.E.A.P. Program, the M/WBE subcontractor will be required to release the Authority and the individuals furnishing consultant advice of all liability and responsibility in connection therewith.

The Authority has compiled and annexed hereto to form a part hereof an MBE/WBE Directory which specifies the firms the Authority has determined to be (1) MBEs/WBEs and (2) experienced in performing work in the trades and contract dollar ranges indicated in the Directory. The Authority makes no representation as to the financial responsibility of such firms or their ability to perform Work required under this Contract. Subject to the following paragraph, only MBEs/WBEs listed in the Directory will count toward the required MBE/WBE participation.

If the Contractor wishes to perform a portion of the Work through a firm not listed in the

Directory¹ but which the Contractor believes should be eligible because it is (1) an MBE/WBE, as defined above and (2) technically competent to perform portions of the Work or the Contractor believes it is such a firm, the Contractor shall submit to the Authority a written request for a determination that the proposed firm is eligible. This shall be done by completing and forwarding a) the form labeled "Schedule A" and, if appropriate, "Schedule B" which are annexed hereto as Appendix I, and form a part hereof and b) technical references of jobs completed of similar scope and complexity on the form annexed hereto and made a part hereof labeled "MBE/WBE Approval Request" and such other information as may be necessary to permit the Authority to determine whether the firm is in fact an MBE/WBE and technically competent to perform portions of the Work.

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| 1. | Air Services Development Office
Terminal 1 Bldg. 55
JFK International Airport
Jamaica, New York 11430
(718) 244-6852 | 8. | Hispanic American Chamber of
Commerce of Essex County
P.O. Box 9146
Newark, NJ 07104 |
| 2. | Association of Minority Enterprises
250 Fulton Avenue, Suite 507
Hempstead, New York 11550
(516) 489-0120 | 9. | Statewide Hispanic Chamber of
Commerce of New Jersey
482 Broadway
Paterson, NJ 07514 |
| 3. | Newark Opportunity Center
972 Broad Street
7th Floor
Newark, NJ 07102
(201) 622-4537 | 10. | National Minority Business
Council
235 East 42nd Street
New York, New York 10017
(212) 589-2385 |
| 4. | Council for Airport Opportunity
89-31 161st Street
Jamaica, NY 11432
(718) 526-3322 | 11. | Urban Business Assistance Corp.
44 West 4th Street
Room 5-61
New York, NY 10012
(212) 995-4404 |
| 5. | Greater Jamaica Development
Office
90-04 161st Street
Jamaica, NY 11432
(718) 291-0282 | 12. | Dormitory Authority of
the State of New York
1 Penn Plaza 52th Floor
New York, NY 10119-0118
(212) 356-0635 |

¹ The following organizations may be able to refer the Contractor to MBEs/WBEs who are technically competent to perform portions of the Work. Any referrals which are not listed in the Directory shall be submitted to the Authority for a determination as to eligibility as provided above.

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|-----|---|-----|--|
| 6. | Greater Newark Chambers of Commerce
1 Newark Center 22nd Floor
Newark, NJ 07102
(201) 624-6699 | 13. | NY/NJ Minority Purchasing Council
1271 Avenue of the Americas
New York, New York 10020
(212) 522-7632 |
| 7. | Jamaica Chamber of Commerce
89-31 161st Street
Jamaica, NY 11432
(718) 657-4800 | 14. | Queens Overall Economic Development Office
90-04 161st Street Room 801
Jamaica, NY 11432
(718) 262-8383 |
| 15. | Small Business Development Center
York College/City University of NY
Science Building Room 107
Jamaica, NY 11451
(718) 262-2880 | 18. | United Minority Brain Trust of NJ
P.O. Box 1291
Plainfield, NJ 07061
(908) 246-3332 |
| 16. | United Black Contractors
1061 Atlantic Avenue
Brooklyn, NY 11238
(718) 638-1300 | 19. | N.J. Air Services Development Office (ASDO)
Newark International Airport Building 80 - 2nd Floor
Airport Street Newark, N.J. 07114
(201) 961-4278 |
| 17. | United Black Entrepreneurs
117-02 Guy Brewer Boulevard
Jamaica, NY 11434
(718) 378-5400 | | |

All such requests shall be in writing addressed to the Chief Engineer. If any such firm is determined to be eligible it shall only be by a writing over the name of the Chief Engineer. In the event that such firm is found not to be eligible, the Chief Engineer will only consider as a substitute for such firm, a firm listed in the MBE/WBE Directory annexed hereto.

Please note that the Contractor must submit the names of proposed MBEs/WBEs for work on this Contract if their names do not appear in the MBE/WBE Directory attached to this Contract in accordance with the requirements of this clause and all other requirements of this Contract. MBEs/WBEs proposed as lessors of equipment or materialmen shall be deemed "subcontractors" for the purpose of this numbered clause and the clause hereof entitled "Assignments and Subcontracts" but shall not be deemed subcontractors for any other purpose. However only 60% of the amounts paid by the Contractor to such materialmen who are MBEs/WBEs, except in the case of firms who themselves manufacture materials for use under the Contract, shall be allowed in computing the percentages of the Contract Price required to be paid to MBEs/WBEs hereunder.

Nothing herein shall be deemed to supersede or to otherwise modify the clause of the Form of Contract entitled "Assignments and Subcontracts".

2. NOTIFICATION OF SECURITY REQUIREMENTS

The Port Authority of New York and New Jersey has facilities, systems, and projects where terrorism or other criminal acts may have a significant impact on life safety and key infrastructures. The Authority reserves the right to impose multiple layers of security requirements on the Contractor, its staff and subcontractors and their staffs depending upon the level of security required, as determined by the Authority. This includes the Contractor's responsibility to perform Contractor/subcontractor identity checks and background screening, including but not limited to: inspection of not less than two forms of valid/current government issued identification (at least one having an official photograph) to verify staff's name and residence; screening federal, state, and/or local criminal justice agency information databases and files; screening of any terrorist identification files; multi-year check of personal, employment and/or credit history. The Contractor shall, and shall instruct its subcontractors, to cooperate with Authority staff in adopting security requirements. These security requirements may include but are not limited to the following:

- a. access identification to include some form of biometric security methodology such as fingerprint, facial or iris scanning, or the like;

- b. Issuance of Photo Identification cards:

No person will be permitted on or about the construction site without a photo identification badge approved by the Engineer. The Authority will provide such identification badges for Contractor and subcontractor staff, and materialmen, if necessary. All employees of the Contractor, subcontractors and materialmen shall wear identification badges in a conspicuous and clearly visible position whenever they are working at the construction site.

- c. Access control, inspection, and monitoring by security guards:

The Authority may provide for construction site access control, inspection and monitoring by Authority retained security guards. However, this provision shall not relieve the Contractor of its responsibility to secure its equipment and work at the construction site at its own expense.

- d. Neither the Contractor nor any subcontractors shall issue or permit to be issued any press release, advertisement, or literature of any kind, which refers to the Authority or the Work performed in connection with this Contract without first obtaining the written approval of the Authority. Such approval may be withheld if for any reason the Authority believes that the publication of such information would be harmful to the public interest or is in any way undesirable.

- e. Under no circumstances shall the Contractor nor any subcontractor communicate in any way with any consultant, department, board, agency, commissioner or other organization or any person whether governmental or private in connection with the Work to be performed hereunder, unless required by Law, except upon

prior written approval and instructions of the Authority, provided, however that data from manufacturers and suppliers of material may be obtained when such data is necessary to the performance of the Work.

- f. Neither the Contractor nor any subcontractors shall provide access to the construction site to anyone other than their employees and others who are approved by the Authority to be directly involved in performing Work at the construction site.
- g. Neither the Contractor nor any subcontractor is permitted to take photographs or video recordings or make sketches at the construction site, except when necessary to perform the Work under this Contract. Upon request, any photograph, video recording or sketch taken at the construction site shall be submitted to the Authority to ascertain compliance with this paragraph.

The Contractor shall be required to have its staff and that of its subcontractors undergo a criminal history background check and shall furnish proof to the Authority, in a form acceptable to the Authority, that such check has been performed. No employee of the Contractor or any subcontractor will be permitted at the construction site without proof that such check has been performed.

In addition, the Authority may increase and/or upgrade security requirements for the Contractor, its staff and subcontractors and their staffs during the term of this Contract to address changing security conditions and/or new governmental regulations.

Should the Authority increase and/or upgrade security requirements in connection with a Work package issued prior to the execution of the GMP Amendment, the Contractor will be compensated for the additional cost of such increase and/or upgrade in accordance with the clause of the Contract entitled, "Extra Work."

Should the Authority increase and/or upgrade security requirements in connection with a Work package issued after the execution of the GMP Amendment, the Contractor will be compensated for the additional cost of such increase and/or upgrade in accordance with the clause of the Contract entitled, "Construction Contingency".

2A. PROTECTION OF SECURITY INFORMATION

1. The Contractor, subcontractors and others requiring access to Confidential and Privileged (C&P) security information and Sensitive Security Information (SSI) shall also be required to implement uniform security procedures regarding the identification, handling, care and storage of C&P security information belonging to the Authority; and SSI as defined in 49 CFR Parts 15 and 1520. Port Authority C&P security information is information that, if subject to unauthorized disclosure, access, alteration, loss or misuse would be detrimental to the public interest and/or might adversely affect, or compromise, public safety or security as it relates to Port Authority property, facilities, systems and/or operations, or which might otherwise adversely affect homeland security.

The Authority has developed requirements and other safeguards that are necessary both to prevent unauthorized disclosure of C&P security information and to control the authorized disclosure of this information for use internally within the Authority and when released by the Authority to outside entities for legitimate business purposes. These requirements and safeguards may be found in the Handbook for Protecting Security Information (November 1, 2004) and the Project's Security Information Practices and procedures manual, both of which will be made available to the Contractor and each subcontractor. Each Contractor, subcontractor and their staffs shall follow and implement the requirements and safeguards set forth in the aforementioned Handbook. Further, the staffs of the Contractor, subcontractors and others requiring access to C&P security information and SSI may also be required to sign a Non-Disclosure/Confidentiality Agreement (NDA), or an Acknowledgement thereof where an executed NDA is in place, prior to performing work activities in connection with this Contract.

2. The Contractor, each subcontractor and others requiring access to C&P security information and SSI, shall appoint a senior management level employee to be the company's Security Information Manager (SIM). The SIM is responsible for implementing and maintaining the firm's Program For Protecting C&P security information and/or SSI. A deputy SIM (DSIM) shall also be appointed in case the SIM is unavailable for any reason.
3. The SIM shall prepare an Authorized Personnel Contract Project List - a list of employees who are authorized to access C&P security information and the date each executed the NDA. A copy of this list shall be provided to the Authority and updated monthly. This list will be used to verify that individuals have been briefed into the program and are certified for access to C&P security information.

Protection of C&P security information and SSI is a material obligation of the Contractor hereunder and failure to do so is grounds for termination for cause.

In addition, an individual's access to C&P security information and SSI may be contingent upon the satisfactory completion of a security background check for such individual and proof of the implementation of satisfactory procedures for safeguarding such C&P security information and/or SSI.

Unauthorized disclosure of SSI may be grounds for a civil penalty and/or other enforcement or corrective action by the United States Department of Transportation and/or the United States Department of Homeland Security against individuals or entities they deem appropriate including but not limited to the Contractor, its subcontractors and their staffs. Corrective action may include issuance of an order requiring retrieval of SSI to remedy unauthorized disclosure or an order to cease future unauthorized disclosure.

4. The Contractor shall include and require the inclusion of this numbered provision in all subcontracts and contracts for Work, services or supplying materials required for this Contract of every tier."

3. PREVAILING RATE OF WAGE CERTIFICATION

The proposers' attention is directed specifically to the clause of the Form of Contract entitled "Prevailing Rate of Wage" and to the fact that the Authority requires a certification in writing from the successful proposer, in such form as may be required pursuant to such clause, that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause. This certification is required prior to his receipt of any payment from the Authority hereunder as provided in the clauses of the Form of Contract entitled "Monthly Advances" and "Final Payment" or at any other time.

4. CERTIFICATION OF NO INVESTIGATION (CRIMINAL OR CIVIL ANTI-TRUST), INDICTMENT, CONVICTION, SUSPENSION, DEBARMENT, DISQUALIFICATION, PREQUALIFICATION DENIAL OR TERMINATION, ETC; DISCLOSURE OF OTHER REQUIRED INFORMATION

By proposing on this Contract, each proposer and each person signing on behalf of any proposer certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that the proposer and each parent and/or affiliate of the proposer has not (a) been indicted or convicted in any jurisdiction; (b) been suspended, debarred, found not responsible or otherwise disqualified from entering into contracts with any governmental agency or been denied a government contract for failure to meet prequalification standards; (c) had a contract terminated by any governmental agency for breach of contract or for any cause related directly or indirectly to an indictment or conviction; (d) changed its name and/or Employer Identification Number (taxpayer identification number) following its having been indicted, convicted, suspended, debarred or otherwise disqualified, or had a contract terminated as more fully provided in (a), (b) and (c) above; (e) ever used a name, trade name or abbreviated name, or an Employer Identification Number different from those inserted in the Proposal; (f) been denied a contract by any governmental agency for failure to provide the required security, including proposal, payment or performance bonds or any alternative security deemed acceptable by the agency letting the contract; (g) failed to file any required tax returns or failed to pay any applicable federal, state or local taxes; (h) had a lien imposed upon its property based on taxes owed and fines and penalties assessed by any agency of the federal, state or local government; (i) been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or a civil anti-trust investigation by any federal, state or local prosecuting or investigative agency including an inspector general of a governmental agency or public authority; (j) had any sanctions imposed as a result of a judicial or administrative proceeding with respect to any professional license held or with respect to any violation of a federal, state or local environmental law, rule or regulation; and (k) shared space, staff or equipment with any business entity.

Under certain circumstances the successful Proposer may be required as a condition of this contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent monitor to be selected by the Authority. Said monitor shall be charged with, among other things, auditing the actions of the successful Proposer to determine whether its business practices and relationships indicate a level of integrity sufficient to permit it to do business with the Authority.

The foregoing certification as to "(a)" through "(k)" shall be deemed to have been made by the proposer as follows: if the proposer is a corporation, such certification shall be deemed to have been made not only with respect to the proposer itself, but also with respect to each director and officer, as well as, to the best of the certifier's knowledge and belief, each stockholder with an ownership interest in excess of 10%; if the proposer is a partnership, such certification shall be deemed to have been made not only with respect to the proposer itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate proposer, shall be deemed to have been authorized by the Board of Directors of the proposer, and such authorization shall be deemed to include the signing and submission of the proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the proposer cannot make the foregoing certification, the proposer shall so state and shall furnish with the signed proposal a signed statement which sets forth in detail the reasons therefor. If the proposer is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its proposal, setting forth an explanation for its uncertainty.

Notwithstanding that the certification may be an accurate representation of the proposer's status with respect to the enumerated circumstances provided for in this clause as requiring disclosure at the time that the proposal is submitted, the proposer agrees to immediately notify the Authority in writing of any change in circumstances during the period of irrevocability, or any extension thereof.

The foregoing certification or signed statement shall be deemed to have been made by the proposer with full knowledge that it would become a part of the records of the Authority and that the Authority will rely on its truth and accuracy in awarding this Contract. In the event that the Authority determines at any time prior or subsequent to the award of the Contract that the proposer has falsely certified as to any material item in the foregoing certification; willfully or fraudulently submitted any signed statement pursuant to this clause which is false in any material respect; or has not completely and accurately represented its status with respect to the circumstances provided for in this clause as requiring disclosure, the Authority may determine that the proposer is not a responsible proposer with respect to its proposal on this Contract or with respect to future proposals and may, in addition to exercising any other rights or remedies available to it, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of Authority". In addition, proposers are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et seq.). Proposers are also advised that the inability to make such certification will not in and of itself disqualify a proposer, and that in each instance the Authority will evaluate the reasons therefor provided by the proposer.

As used in this clause, the following terms shall mean:

Affiliate - An entity in which the parent of the proposer owns more than fifty percent of the voting stock, or an entity in which a group of principal owners which owns more than fifty percent of the proposer also owns more than fifty percent of the voting stock.

Agency or Governmental Agency - Any federal, state, city or other local agency, including departments, offices, quasi-public agencies, public authorities and corporations, boards of education and higher education, public development corporations, local development corporations and others.

Employer Identification Number - The tax identification number assigned to firms by the Federal government for tax purposes.

Investigation - Any inquiries made by any federal, state or local criminal prosecuting or investigative agency, including an inspector general of a governmental agency or public authority, and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal, state, and local inquiries into tax returns.

Officer - Any individual who serves as chief executive officer, chief financial officer, or chief operating officer of the proposer by whatever titles known.

Parent - An individual, partnership, joint venture or corporation which owns more than 50% of the voting stock of the proposer.

Space Sharing - Space shall be considered to be shared when any part of the floor space utilized by the submitting business at any of its sites is also utilized on a regular or intermittent basis for any purpose by any other business or not-for-profit organization, and where there is no lease or sublease in effect between the submitting business and any other business or not-for-profit organization that is sharing space with the submitting business.

Staff Sharing - Staff shall be considered to be shared when any individual provides the services of an employee, whether paid or unpaid, to the proposer and also, on either a regular or irregular basis, provides the services of an employee, paid or unpaid, to one or more other business (es) and/or not-for-profit organization(s), if such services are provided during any part of the same hours the individual is providing services to the proposer or if such services are provided on an alternating or interchangeable basis between the proposer and the other business (es) or not-for-profit organization(s). "The services of an employee" should be understood to include services of any type or level, including managerial or supervisory. This type of sharing may include, but is not limited to, individuals who provide the following services: telephone answering, receptionist, delivery, custodial, and driving.

Equipment Sharing - Equipment shall be considered to be shared whenever the proposer shares the ownership and/or the use of any equipment with any other business or not-for-profit organization. Such equipment may include, but is not limited to, telephones or telephone systems, photocopiers, computers, motor vehicles, and construction equipment. Equipment shall not be considered to be shared under the following two circumstances: when, although the equipment is owned by another business or not-for-profit organization, the proposer has entered into a formal lease for the use of the equipment and exercises exclusive use of the equipment; or when

the proposer owns equipment that it has formally leased to another business or not-for-profit organization, and for the duration of such lease the proposer has relinquished all right to the use of such leased equipment.

**5. NON-COLLUSIVE PROPOSING AND CODE OF ETHICS CERTIFICATION;
CERTIFICATION OF NO SOLICITATION BASED ON COMMISSION,
PERCENTAGE, BROKERAGE, CONTINGENT FEE OR OTHER FEE**

By proposing on this Contract, each proposer and each person signing on behalf of any proposer certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that: (a) the prices in its proposal have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other proposer or with any competitor; (b) the prices quoted in its proposal have not been and will not be knowingly disclosed, directly or indirectly, by the proposer prior to the official opening of such proposal to any other proposer or to any competitor; (c) no attempt has been made and none will be made by the proposer to induce any other person, partnership or corporation to submit or not to submit a proposal for the purpose of restricting competition; (d) this organization has not made any offers or agreements, or given or agreed to give anything of value (see definition of "anything of value" appearing in the clause of the Form of Contract entitled "No Gifts, Gratuities, Offers of Employment, etc.") or taken any other action with respect to any Authority employee or former employee or immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics and Financial Disclosure dated as of April 11, 1996 (a copy of which is available upon request to the individual named in the clause hereof entitled "Questions by Proposers"), nor does this organization have any knowledge of any act on the part of an Authority employee or former Authority employee relating either directly or indirectly to this organization which constitutes a breach of the ethical standards set forth in said Code; (e) no person or selling agency, other than a bona fide employee or bona fide established commercial or selling agency maintained by the proposer for the purpose of securing business, has been employed or retained by the proposer to solicit or secure this Contract on the understanding that a commission, percentage, brokerage, contingent or other fee would be paid to such person or selling agency; the proposer has not offered, promised or given, demanded or accepted, any undue advantage, directly or indirectly, to or from a public official or employee, political candidate, party or party official, or any private sector employee (including a person who directs or works for a private sector enterprise in any capacity), in order to obtain, retain, or direct business or to secure any other improper advantage in connection with this Contract.

The foregoing certification as to "(a)", "(b)", "(c)", "(d)" and "(e)" shall be deemed to have been made by the proposer as follows: if the proposer is a corporation, such certification shall be deemed to have been made not only with respect to the proposer itself, but also with respect to each parent, affiliate, director and officer of the proposer, as well as, to the best of the certifier's knowledge and belief, each stockholder of the proposer with an ownership interest in excess of 10%; if the proposer is a partnership, such certification shall be deemed to have been made not only with respect to the proposer itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate proposer, shall be deemed to have been authorized by the Board of Directors of the proposer, and such authorization shall be deemed to include the signing and submission of the proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the proposer cannot make the foregoing certification, the proposer shall so state and shall furnish with the signed proposal a signed statement which sets forth in detail the reasons therefor. If the proposer is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its proposal, setting forth in such statement the reasons for its uncertainty.

Notwithstanding that the proposer may be able to make the foregoing certification at the time the proposal is submitted, the proposer shall immediately notify the Authority in writing during the period of irrevocability of proposals on this Contract or any extension of such period, of any change of circumstances which might under this clause make it unable to make the foregoing certification or required disclosure. The foregoing certification or signed statement shall be deemed to have been made by the proposer with full knowledge that it would become a part of the records of the Authority and that the Authority will rely on its truth and accuracy in awarding this Contract. In the event that the Authority should determine at any time prior or subsequent to the award of this Contract that the proposer has falsely certified as to any material item in the foregoing certification or has willfully or fraudulently furnished a signed statement which is false in any material respect, or has not fully and accurately represented any circumstance with respect to any item in the foregoing certification required to be disclosed, the Authority may determine that the proposer is not a responsible proposer with respect to its proposal on this Contract or with respect to future bids on Authority contracts and may, in addition to exercising any other rights or remedies it may have, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of the Authority".

In addition, proposers are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et seq.). Proposers are also advised that the inability to make such certification will not in and of itself disqualify a proposer, and that in each instance the Authority will evaluate the reasons therefor provided by the proposer.

Under certain circumstances the successful Proposer may be required as a condition of this contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent monitor to be selected by the Authority. Said monitor shall be charged with, among other things, auditing the actions of the suggested Proposer to determine whether its business practices and relationships indicate a level of integrity sufficient to permit it to do business with the Authority.

**6. PROPOSER ELIGIBILITY FOR AWARD OF CONTRACTS -
DETERMINATIONS BY AN AGENCY OF THE STATE OF NEW YORK OR
NEW JERSEY CONCERNING ELIGIBILITY TO RECEIVE PUBLIC
CONTRACTS**

Proposers are advised that the Authority has adopted a policy to the effect that in awarding its contracts it will honor any determination by an agency of the State of New York or New Jersey that a proposer is not eligible to bid on or be awarded public contracts because the proposer has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing rate of wage legislation.

The policy permits a proposer whose ineligibility has been so determined by an agency of the State of New York or New Jersey to submit a bid on a Port Authority contract and then to establish that it is eligible to be awarded the contract on which it has bid because (i) the state agency determination relied upon does not apply to the proposer, or (ii) the state agency determination relied upon was made without affording the proposer the notice and hearing to which the proposer was entitled by the requirements of due process of law, or (iii) the state agency determination was clearly erroneous or (iv) the state agency determination relied upon was not based on a finding of conduct demonstrating a lack of integrity or a violation of a prevailing rate of wage law.

The full text of the resolution adopting the policy may be found in the Minutes of the Authority's Board of Commissioners meeting of September 9, 1993.

7. CERTIFICATION REGARDING DEBARMENT

This Contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that none of the entities comprising the Contractor, their principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by Port Authority of New York and New Jersey. If it is later determined that the proposer knowingly rendered an erroneous certification, in addition to remedies available to Port Authority of New York and New Jersey, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The proposer agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any Contract that may arise from this offer. The proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

8. CERTIFICATION OF CURRENT COST OR PRICING DATA

The Proposer is required to submit with its Proposal a Certificate of Current Cost or Pricing Data" attached hereto, certifying that to the best of its knowledge and belief, the cost or pricing data provided is accurate, complete, and current as of the date of the submission of the Proposal under the conditions stated in Federal Acquisition Regulation (FAR) 15.406-2 and will be further required to submit same for any contract modification involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4.

9. INTEGRITY MONITOR

In the event that the Authority hires an Integrity Monitor in connection with the World Trade Center Site, the Contractor and any subcontractors will cooperate fully with the Monitor and the Authority, which cooperation shall include, but is not limited to, providing complete access to all personnel and records in any way related to the work performed pursuant to this Agreement. Any failure to cooperate may result in the termination of this Agreement.

PROPOSAL

To The Port Authority of New York and New Jersey:

The undersigned Fluor enterprises, Inc., a corporation organized under the laws of the State of California, Slattery Skanska Inc., a corporation organized under the laws of the State of New York, Granite Construction Northeast, Inc., a corporation organized under the laws of the State of New York, and Bovis Lend Lease LMB, Inc., a corporation organized under the laws of the State of New York, which entities constitute the Joint Venture Phoenix Constructors (hereinafter called "the Contractor") hereby offers to perform all the obligations and to assume all the duties and liabilities of the Contractor provided for in the annexed Contract, at a compensation computed in accordance with the clause of the Form of Contract entitled, "Chapter 2 - Payments".

This offer shall be valid for 180 days from the Proposal due date.

To induce the acceptance of this Proposal, the undersigned hereby makes each and every certification, statement, assurance, representation and warranty made by the Contractor in said Contract. Moreover as a condition to receipt and consideration by the Authority of the Proposal whether or not it is accepted, the undersigned agrees that all information of any nature whatsoever, regardless of the form of the communication, received from the undersigned (including its officers, agents, or employees) by the Authority, its Commissioners, officers, agents or employees, and notwithstanding any statement therein to the contrary, has not been given in confidence and may be used or disclosed by or on behalf of the Authority without liability of any kind except as may arise under letters patent of the undersigned, if any.

The undersigned hereby designates the following as the proposers office:	505 Eighth Avenue, Suite 601 New York, NY 10018
The telephone number of the proposer is:	212-947-7110
The fax number of the proposer is:	212-947-7595
The E-Mail address of the proposer is:	Rick.Rye@fluor.com

SIGNATURE AND CERTIFICATE OF AUTHORITY⁴

Dated, January 11, 2006

(Signature of individual or name of corporation or partnership)

Fluor Enterprises, Inc.

(Signature of agent, partner or corporate officer)

By⁵
6

David Sedney

(Acknowledgment of signature to be taken on proper form on following page(s))

CERTIFICATE OF AUTHORITY, IF PROPOSER IS A CORPORATION

Assistant

I, the undersigned, as Secretary of the corporation submitting the foregoing Proposal, hereby certify that under and pursuant to the by-laws and resolutions of said corporation, each officer who has signed said Proposal on behalf of the corporation is fully and completely authorized so to do.

(Corporate Seal)

Richard A. Force

⁴ If proposer is a joint venture, insert signatures as appropriate for one participant of the joint venture on this page and attach and complete an additional signature sheet in the same form as appears on this page for each other participant as required.

⁵ If Proposal is signed by an officer or agent, give title.

⁶ **NOTE:** The foregoing signature shall be deemed to have been provided with full knowledge that the foregoing Proposal, the accompanying Contract booklet, as well as any certification, statement, assurance, representation, warranty, schedule or other document submitted by the proposer with the Proposal will become a part of the records of the Authority and that the Authority will rely in awarding the Contract on the truth and accuracy of such Proposal and each such certification, statement, assurance, representation, warranty and schedule made therein by the Contractor. Knowingly submitting a false statement in connection with any of the foregoing may be the basis for prosecution for offering a false instrument for filing (see, e.g., N.Y. Penal Law, Section 175.30 et seq.).

ACKNOWLEDGMENT⁷
ACKNOWLEDGMENT OF PROPOSER, IF A CORPORATION

State of
South Carolina

SS:

County of
Greenville

On this 11th day of January, 2006 before me personally came and appeared David Gedney, to me known, who, being by me duly sworn, did depose and say that he resides at 104 THORNBLADE BLVD, GREENVILLE, SC, that he is the Vice Pres. of Fluor Enterprises, Inc. the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation; and that he signed his name thereto by like order.

(Seal)

Bonnie W. Hill

ACKNOWLEDGMENT OF PROPOSER, IF A PARTNERSHIP

State of

**My Commission Expires
March 24, 2009**

SS:

County of

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be one of the members of the firm of _____, described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

⁷

If Proposer is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Acknowledgment sheet in the same form as appears on this page for each other participant as required

SIGNATURE AND CERTIFICATE OF AUTHORITY⁴

Dated, January 12, 2006

(Signature of individual or name of corporation or partnership)

Bovis Lend Lease LMB, Inc.

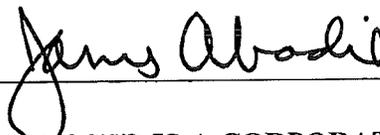
(Signature of agent, partner or corporate officer)

By

James Abadie⁵

Senior Vice President, Principal in Charge⁶

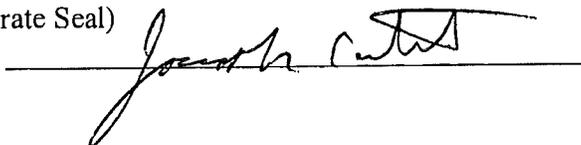
(Acknowledgment of signature to be taken on proper form on following page(s))



CERTIFICATE OF AUTHORITY, IF PROPOSER IS A CORPORATION

I, the undersigned, as Secretary of the corporation submitting the foregoing Proposal, hereby certify that under and pursuant to the by-laws and resolutions of said corporation, each officer who has signed said Proposal on behalf of the corporation is fully and completely authorized so to do.

(Corporate Seal)



⁴ If proposer is a joint venture, insert signatures as appropriate for one participant of the joint venture on this page and attach and complete an additional signature sheet in the same form as appears on this page for each other participant as required.

⁵ If Proposal is signed by an officer or agent, give title.

⁶ **NOTE:** The foregoing signature shall be deemed to have been provided with full knowledge that the foregoing Proposal, the accompanying Contract booklet, as well as any certification, statement, assurance, representation, warranty, schedule or other document submitted by the proposer with the Proposal will become a part of the records of the Authority and that the Authority will rely in awarding the Contract on the truth and accuracy of such Proposal and each such certification, statement, assurance, representation, warranty and schedule made therein by the Contractor. Knowingly submitting a false statement in connection with any of the foregoing may be the basis for prosecution for offering a false instrument for filing (see, e.g., N.Y. Penal Law, Section 175.30 et seq.).

ACKNOWLEDGMENT⁷
ACKNOWLEDGMENT OF PROPOSER, IF A CORPORATION

State of New York

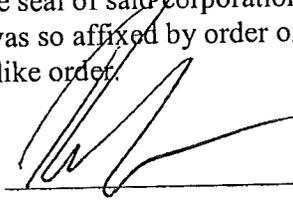
SS:

County of New York

On this 12th day of January, 2006, before me personally came and appeared James Abadie, to me known, who, being by me duly sworn, did depose and say that he resides at 47 Easthill Road, Cortlandt Manor, New York 10567, that he is a Senior Vice President and Principal in Charge of Bovis Lend Lease LMB, Inc., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation; and that he signed his name thereto by like order.

(Seal)

THOMAS GIORDANO
Notary Public, State of New York
No. 02GI5055254
Qualified in Westchester County
Commission Expires February 5, 2007



ACKNOWLEDGMENT OF PROPOSER, IF A PARTNERSHIP

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be one of the members of the firm of _____, described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

⁷

If Proposer is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Acknowledgment sheet in the same form as appears on this page for each other participant as required

SIGNATURE AND CERTIFICATE OF AUTHORITY⁴

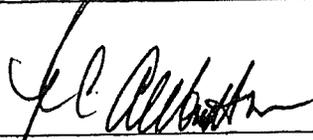
Dated, January 11, 20 06

(Signature of individual or name of corporation or partnership)

Granite Construction Northeast, Inc.

(Signature of agent, partner or corporate officer)

By⁵
6



R.C. Allbritton, Vice President

(Acknowledgment of signature to be taken on proper form on following page(s))

CERTIFICATE OF AUTHORITY, IF PROPOSER IS A CORPORATION

I, the undersigned, as Secretary of the corporation submitting the foregoing Proposal, hereby certify that under and pursuant to the by-laws and resolutions of said corporation, each officer who has signed said Proposal on behalf of the corporation is fully and completely authorized so to do.

(Corporate Seal)


By Michael Futch, Secretary

See attached Certificate of Secretary

⁴ If proposer is a joint venture, insert signatures as appropriate for one participant of the joint venture on this page and attach and complete an additional signature sheet in the same form as appears on this page for each other participant as required.

⁵ If Proposal is signed by an officer or agent, give title.

⁶ **NOTE:** The foregoing signature shall be deemed to have been provided with full knowledge that the foregoing Proposal, the accompanying Contract booklet, as well as any certification, statement, assurance, representation, warranty, schedule or other document submitted by the proposer with the Proposal will become a part of the records of the Authority and that the Authority will rely in awarding the Contract on the truth and accuracy of such Proposal and each such certification, statement, assurance, representation, warranty and schedule made therein by the Contractor. Knowingly submitting a false statement in connection with any of the foregoing may be the basis for prosecution for offering a false instrument for filing (see, e.g., N.Y. Penal Law, Section 175.30 et seq.).

#2

F060103000 614

CSC 45
DRAWDOWN

CERTIFICATE OF AMENDMENT

OF

GRANITE HALMAR CONSTRUCTION COMPANY, INC.

Under Section 805 of the Business Corporation Law

FILED

2006 JAN -3 AM 10:18

DS

1cc
STATE OF NEW YORK
DEPARTMENT OF STATE

FILED JAN 03 2006

TAXS

BY LAP

WEST

FILED BY:

GRANITE CONSTRUCTION INCORPORATED
585 W. Beach Street
Watsonville, CA 95076-5125

Cust. Ref#779914MPJ

DRAWDOWN

2006 JAN -3 AM 8:55

RECEIVED

2

639

CSC 45
DRAWING

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**CERTIFICATE OF AMENDMENT
OF THE
CERTIFICATE OF INCORPORATION
OF
GRANITE HALMAR CONSTRUCTION COMPANY, INC.**

Under Section 805 of the Business Corporation Law

The undersigned, being the President & Chief Executive Officer and Vice President, General Counsel and Secretary of Granite Halmar Construction Company, Inc. a corporation organized and existing under and by virtue of the Business Corporation Law of the State of New York (the "Corporation"), do hereby certify:

1. The name of the Corporation is Granite Halmar Construction Company, Inc. The name as originally filed by the Department of State is Halmar Builders of New York, Inc.
2. The Certificate of Incorporation of the Corporation was filed by the Department of State of the State of New York on March 6, 1989.
3. The Certificate of Amendment of the Certificate of Incorporation changing the name from Halmar Builders of New York, Inc. to Granite Halmar Construction Company, Inc. was filed by the Department of State of the State of New York on July 2, 2001.
4. The Corporation's Certificate of Incorporation is hereby amended to change the name of the Corporation to Granite Construction Northeast, Inc.
5. To effect the foregoing amendment, Paragraph 1 of the Certificate of Incorporation is now amended to read as follows:

"1. The name of the corporation is:

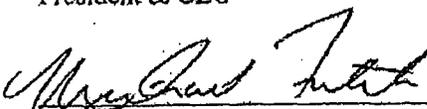
Granite Construction Northeast, Inc."

6. The above amendment was authorized by unanimous written consent of the Board of Directors and the sole Shareholder of the Corporation on November 30, 2005.

IN WITNESS WHEREOF, under penalty of perjury, the undersigned have executed and acknowledged this certificate this 1st day of December 2005.



William G. Dorey
President & CEO



Michael Futch
Vice President, General Counsel & Secretary

State of New York }
Department of State } ss:

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

Witness my hand and seal of the Department of State on

January 03, 2006



A handwritten signature in cursive script, appearing to read "R. L. ...".

Special Deputy Secretary of State

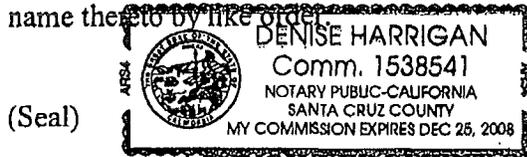
ACKNOWLEDGMENT⁷
ACKNOWLEDGMENT OF PROPOSER, IF A CORPORATION

State of
California

SS:

County of
Santa Cruz

On this 11th day of January, 2006 before me personally came and appeared R.C. Allbritton, to me known, who, being by me duly sworn, did depose and say that he resides at Salinas, California, that he is the Vice President of Granite Construction Northeast, Inc., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation; and that he signed his name thereto by like order.



By: Denise Harrigan / Denise Harrigan
Notary Public
DH3586

ACKNOWLEDGMENT OF PROPOSER, IF A PARTNERSHIP

State of

SS:

County of

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be one of the members of the firm of _____, described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

⁷ If Proposer is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Acknowledgment sheet in the same form as appears on this page for each other participant as required

SIGNATURE AND CERTIFICATE OF AUTHORITY

Dated, January 12, 2006

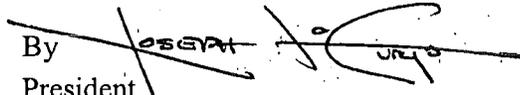
(Signature of individual or name of corporation or partnership)

Slattery Skanska Inc.

(Signature of agent, partner or corporate officer)

By

President



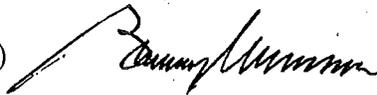
(Acknowledgment of signature to be taken on proper form on following page(s))

16-16 Whitestone Expresssway
Whitestone, NY 10707

CERTIFICATE OF AUTHORITY, IF PROPOSER IS A CORPORATION

I, the undersigned, as Secretary of the corporation submitting the foregoing Proposal, hereby certify that under and pursuant to the by-laws and resolutions of said corporation, each officer who has signed said Proposal on behalf of the corporation is fully and completely authorized so to do.

(Corporate Seal)



ACKNOWLEDGMENT

ACKNOWLEDGMENT OF PROPOSER, IF A CORPORATION

State of New York

SS:

County of Queens

On this 12th day of January, 2006 , before me personally came and appeared Joseph LoCurto, to me known, who, being by me duly sworn, did depose and say that he resides at 28 Thorngrove Lane, Dix Hills, NY, that he is the President of Slattery Skanska Inc., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation; and that he signed his name thereto by like order.

Letitia O'Brien

LETITIA O'BRIEN
Notary Public, State of New York
No. 41-4975928
Qualified in Queens County
Commission Expires Dec. 28, 2006

STATEMENT ACCOMPANYING PROPOSAL⁸

Names and Residences of Officers, if Proposer is a Corporation

Name	Title	Residence ⁹
------	-------	------------------------

Names and Residences of Partners, if Proposer is a Partnership

Name	General or Limited Partner	Residence ¹⁰
Fluor Enterprises, Inc.	General	See attached
Slattery-Skanska, Inc.	General	See attached
Granite Construction Northeast, INC.	General	See attached
Bovis Lend Lease LMB, Inc.	General	See attached

Proposer's Residence, If an Individual

Name	General or Limited Partner	Residence ¹¹
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⁸ If proposer is a joint venture, insert signature as appropriate for one participant of the joint venture on this page and attach and complete an additional Statement Accompanying Proposal sheet in the same form as appears on this page for each other participant as required.

⁹ Give Street and Number of Residence. Do not give business address.

¹⁰ Give Street and Number of Residence. Do not give business address.

¹¹ Give Street and Number of Residence. Do not give business address.

STATEMENT ACCOMPANYING PROPOSAL – FLUOR ENTERPRISES, INC.

Names and Residences of Officers, if Proposer is a Corporation

Name	Title	Residence
Stephen B. Dobbs	Group President, Industrial & Infrastructure	
David S. Gedney	Executive Vice President, Infrastructure	Exemption (1)
Robert Prieto	Senior Vice President	
Patrick Flaherty	Senior Vice President, Sales Infrastructure	

STATEMENT ACCOMPANYING PROPOSAL – SLATTERY SKANSKA INC.

Names and Residences of Officers, if Proposer is a Corporation

Name	Title	Residence
Salvatore Mancini	Chief Executive Officer	
Joseph LoCurto	President	Exemption (1)
Richard Cavallaro	Chief Operating Officer	
Michael J. Lembo	Executive Vice President	
Gary Winsper	Executive Vice President	
Barry W. Evans	Senior Vice President, Secretary	
Ralph V. Russo	Senior Vice President	
John Saunders	Vice President	
Michael Waters	Vice President	
Stuart Graham	Director	
Salvatore Mancini	Director	
William McGuinness	Director	

**STATEMENT ACCOMPANYING PROPOSAL GRANITE CONSTRUCTION
NORTHEAST, INC.**

Names and Residences of Officers, if Proposer is a Corporation

Name	Title	Residence
William G. Dorey	President, Chief Executive Officer	
Mark E. Boitano	Executive Vice President, Chief Operating Officer.	Exemption (1)
William E. Barton	Senior Vice President, Chief Financial Officer	
Michael F. Donnino	Senior Vice President, Assistant Secretary	
James H. Roberts	Senior Vice President, Assistant Secretary	
R. C. Allbritton	Vice President, Treasurer, Assistant Financial Officer, Assistant Secretary	
Michael Futch	Vice President, Secretary, General Counsel	
Darryl W. Goodson	Vice President, Assistant Secretary	
Mary G. McGann-Jenni	Vice President, Assistant Financial Officer, Controller, Assistant Secretary	
James M. Cady	Assistant Secretary, Assistant General Counsel	
David R. Grazian	Assistant Secretary, Director of Corporate Taxation	
Kenneth M. Smith	Assistant Secretary, Heavy Construction Division Counsel	

CONTRACT WTC 284.458(GC)

STATEMENT ACCOMPANYING PROPOSAL – BOVIS LEND LEASE LBM, INC.

Names and Residences of Officers, if Proposer is a Corporation

Name	Title	Residence
James Abadie	Principal in Charge	
Mark Melson	Executive Vice President	Exemption (1)
Thomas Matyola	Sr. Vice President/Treasurer	

CERTIFICATE OF CURRENT COST OR PRICING DATA

This is to certify that, to the best of my knowledge and belief, the cost or pricing data (as defined in section 2.101 of the Federal Acquisition Regulation (FAR) and required under FAR subsection 15.403-4) submitted, either actually or by specific identification in writing, to the Contracting Officer or to the Contracting Officer's representative in support of Contract Numbers WTC-284.458(CM) and WTC-284.458(GC) are accurate, complete, and current as of January 11, 2006. This certification includes the cost or pricing data supporting any advance agreements and forward pricing rate agreements between the offeror and the Government that are part of the proposal.

Firm Fluor Enterprises, Inc.

Signature 

Name Robert Prieto

Title Senior Vice President

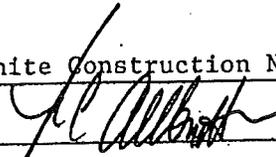
Date of execution January 12, 2006

CERTIFICATE OF CURRENT COST OR PRICING DATA

This is to certify that, to the best of my knowledge and belief, the cost or pricing data (as defined in section 2.101 of the Federal Acquisition Regulation (FAR) and required under FAR subsection 15.403-4) submitted, either actually or by specific identification in writing, to the Contracting Officer or to the Contracting Officer's representative in support of

_____ * are accurate, complete, and current as of _____ **. This certification includes the cost or pricing data supporting any advance agreements and forward pricing rate agreements between the offeror and the Government that are part of the proposal.

Firm Granite Construction Northeast, Inc.

Signature 

Name R.C. Allbritton

Title Vice President

Date of execution*** January 11, 2006

* Identify the proposal, request for price adjustment, or other submission involved, giving the appropriate identifying number (e.g., RFP No.).

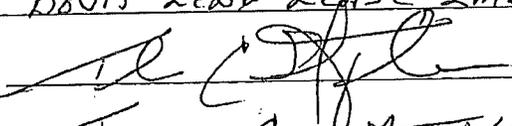
** Insert the day, month, and year when price negotiations were concluded and price agreement was reached or, if applicable, an earlier date agreed upon between the parties that is as close as practicable to the date of agreement on price.

*** Insert the day, month, and year of signing, which should be as close as practicable to the date when the price negotiations were concluded and the contract price was agreed to."

CERTIFICATE OF CURRENT COST OR PRICING DATA

This is to certify that, to the best of my knowledge and belief, the cost or pricing data (as defined in section 2.101 of the Federal Acquisition Regulation (FAR) and required under FAR subsection 15.403-4) submitted, either actually or by specific identification in writing, to the Contracting Officer or to the Contracting Officer's representative in support of PA Agreement #WTC-284.458 - PCP-05-03* are accurate, complete, and current as of December 31, 2005**. This certification includes the cost or pricing data supporting any advance agreements and forward pricing rate agreements between the offeror and the Government that are part of the proposal.

Firm BOVIS LEAD LEASE LMB, INC.

Signature 

Name THOMAS C. MATIJOLA

Title SENIOR VICE PRESIDENT

Date of execution*** January 11, 2006

* Identify the proposal, request for price adjustment, or other submission involved, giving the appropriate identifying number (e.g., RFP No.).

** Insert the day, month, and year when price negotiations were concluded and price agreement was reached or, if applicable, an earlier date agreed upon between the parties that is as close as practicable to the date of agreement on price.

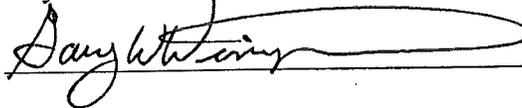
*** Insert the day, month, and year of signing, which should be as close as practicable to the date when the price negotiations were concluded and the contract price was agreed to."

CERTIFICATE OF CURRENT COST OR PRICING DATA

This is to certify that, to the best of my knowledge and belief, the cost or pricing data (as defined in section 2.101 of the Federal Acquisition Regulation (FAR) and required under FAR subsection 15.403-4) submitted, either actually or by specific identification in writing, to the Contracting Officer or to the Contracting Officer's representative in support of Contract Numbers WTC-284.458(CM) and WTC-284.458(GC) are accurate, complete, and current as of January 11, 2006. This certification includes the cost or pricing data supporting any advance agreements and forward pricing rate agreements between the offeror and the Government that are part of the proposal.

Firm Slattery Skanska Inc.

Signature



Name Gary Winsper

Title Executive Vice President

Date of execution January 12, 2006

**FORM OF CONTRACT
CHAPTER I**

GENERAL PROVISIONS

1. DEFINITIONS

To avoid undue repetition, the following terms whenever they occur in this Form of Contract or any of the other papers forming a part of the Contract shall be construed as follows:

"Contract" shall mean, in addition to this Form of Contract, the Proposal, the Authority's acceptance, the Specifications and the Contract Drawings (including written addenda issued over the name of the Director), all of which are made part hereof as though herein set forth in full. The Contract as so defined shall constitute the complete and exclusive statement of the terms of the agreement between the parties and the Contract may not be explained or supplemented by course of dealing, usage of trade or course of performance.

"Priority Capital Program (PCP)" shall mean the Port Authority's Priority Capital Programs Department, which is principally responsible for the design and construction of the WTC/HUB.

"WTC/HUB" shall mean World Trade Center Transportation Hub project.

The term "days" or "calendar days" in reference to a period of time shall mean consecutive calendar days, Saturdays, Sundays and holidays, included.

The term "construction site" or words of similar import shall mean the PATH facilities, including the temporary PATH Station and tracks, and the vicinities thereof; all at the World Trade Center site, and other PATH facilities in New York and New Jersey

"Bid" shall mean the Proposal.

"Proposer" shall mean the Proposer in response to the RFP.

"Bidding" shall mean the submittal of a Proposal in response to the RFP.

"RFP" shall mean Request for Proposal.

"Work" shall mean all structures, equipment, plant, labor, materials (including materials and equipment, if any, furnished by the Authority) and other facilities and all other things necessary or proper for or incidental to performing the construction of the World Trade Center Transportation Hub and the performance of related work to provide for a complete transportation center and passenger train station; PATH service for that station and all at the WTC site and other PATH facilities in New York and New Jersey; and all as directed by the Director and in accordance with the requirements of the Work package(s) issued by the Director and "performance of Work" and words of similar import shall mean the furnishing of such facilities and the doing of such things.

"Work required by the Contract Drawings and Specifications" or words of similar import shall include all Work required by the Specifications (whether or not shown upon the Contract Drawings), all Work shown upon the Contract Drawings (whether or not mentioned in the Specifications), and all Work involved in or incidental to the accomplishment of the results intended by the Specifications and Contract Drawings (whether or not mentioned therein or shown thereon) which make up the requirements of the Work package(s) issued by the Director.

"Equipment" and "plant" shall include construction equipment and plant rented as agent for the Authority.

"Contractor's Fee" shall mean the Contractor's profit from the performance of Work package which shall be computed by the Engineer in accordance with the Form of Contract clause entitled "General Contracting Services Compensation".

"Engineer's Initial Estimate" shall mean the Authority's initial estimate for the Work package for the preliminary determination of the Contractor's Fee computation as computed by the Engineer.

"Engineer's Final Estimate" shall mean the Authority's final estimate for the Work package to be used in the actual computation of the Contractor's Fee as specified in the clauses entitled "Contractor's Fee for Pre-GMP Work" and "Contractor's Fee for Post-GMP Work".

"Extra Work" shall mean Work required by the Director, which is in addition to that required by the Contract Drawings and Specifications, which accompany the individual Work packages. "Extra Work" required by the Director after the execution of the GMP Amendment shall be limited to additional Work required by the Director beyond the requirements of the Contract Drawings and Specifications which accompany the individual Work packages and beyond the parameters of the GMP. The amount(s) will be computed by the Engineer in accordance with the provisions of the Form of Contract clause entitled "Extra Work". The decisions and interpretations of the Director regarding what constitutes "Extra Work" shall be conclusive and binding on the parties. Nothing contained in this Contract, however, shall be construed to prevent the Director from consulting whatever sources the Director deems proper for engineering advice and assistance in rendering any of the opinions, decisions or interpretations referred to in this Contract.

"Construction Contingency" shall mean the amount(s) determined by the Director and computed by the Engineer in accordance with the provisions of the Form of Contract clause entitled "Construction Contingency".

"Specifications" shall mean Division 1 of the Specifications included as part of this Contract and any Specifications issued as part of the individual Work packages issued by the Director which shall be complied with by the Contractor for all the Work performed under that individual Work package.

"Contract Documents", "Construction Documents", and "Construction Contract Documents" shall mean Contract Drawings and Specifications.

"Contract Drawings" shall mean the Contract Drawings designated in the clause of the Specifications entitled "Contract Drawings", if any, and shall include any future alterations and revisions of said drawings, if any, and any drawings issued with an individual Work package by the Director.

"Shop Drawings" shall mean all drawings, diagrams, illustrations, schedules, including supporting data, which are specifically prepared for this Contract and submitted by the Contractor pursuant to the requirements of the Specifications or the Engineer to illustrate some portion of the Work. The terms "shop drawings", "placing drawings" and "working drawings" are used interchangeably in this Contract.

"Catalog Cuts" shall mean all standard drawings, diagrams, illustrations, brochures, schedules, performance charts and instructions submitted by the Contractor pursuant to the requirements of the Specifications or the Engineer to illustrate some portion of the Work.

"Director" shall mean the Director, Priority Capital Programs, acting either personally or through his duly authorized representatives acting within the scope of the particular authority vested in them.

"Chief Engineer" shall mean the Chief Engineer of the Authority acting personally. On behalf of the Director, the Chief Engineer is responsible for administration of the Contract.

"Engineer of Construction" shall mean the designated Engineer of Construction for the facility at which the Work is being performed or his successor in duties, acting personally. The Engineer of Construction for the purposes of this Contract is the Chief Engineer's duly authorized representative.

"Engineer" shall mean the Chief Engineer, acting either personally or through his duly authorized representatives or acting within the scope of the particular authority vested in them.

"Inspector" shall mean any representative of the Engineer designated by him as Inspector and acting within the scope of the particular authority vested in him.

"PATH" shall mean the Port Authority Trans-Hudson Corporation.

"Transit" shall mean the New York City Transit, a New York State Public Benefit Corporation.

The term "permanent construction" shall include all construction, installation, structures, equipment and materials (including materials and equipment, if any, furnished by the Authority) to be constructed, installed or left by the Contractor at or about the construction site (or elsewhere in the possession of the Authority) after the completion of the Work (whether or not they are yet delivered or installed), even though they are subsequently to be removed by others.

The terms, "permanent installation", "permanent structure", "permanent materials", and words of similar import shall have the same meaning as the term "permanent construction".

"Contractor" shall mean the Construction Manager/General Contractor or CM/GC. These terms shall be interchangeable.

"Subcontractor" shall mean anyone who performs Work (other than or in addition to the furnishing of materials, plant or equipment) at or about the construction site, directly or indirectly for or in behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any person who furnished merely his own personal labor or his own personal services or who performs Work which consists only of the operation of construction equipment of which he is the lessor.

"Materialman" shall mean anyone who furnishes materials, plant or equipment to the Contractor or any subcontractor for use at or about the construction site in the performance of Work.

"Materialman" or "subcontractor", however, shall exclude the Contractor or any subsidiary or parent of the Contractor or any person, firm or corporation which has a substantial interest in the Contractor or in which the Contractor or the parent or the subsidiary of the Contractor, or an officer or principal of the Contractor or of the parent or the subsidiary of the Contractor has a substantial interest, provided, however, that for the purpose of the clause hereof entitled "Assignments and Subcontracts" the exclusion in this paragraph shall not apply to anyone but the Contractor himself.

"Workingman" or "workman" shall mean any employee of the Contractor or of a subcontractor who performs personal labor or personal services at the construction site.

"Notice" shall mean a written notice.

"Early Action Construction Work" shall mean the General Contracting services required to perform Work packages issued prior to the execution of the GMP Amendment.

"Construction Management Services" shall mean the Contractor's services performed in accordance with the provisions of the agreement entitled "Construction Management Services, WTC-284.458(CM)".

"General Contracting Services" shall mean the Contractor's construction services in accordance with the provisions of the Form of Contract clause entitled "General Contracting Services", of this Agreement.

"NTE" shall mean Not to Exceed.

"GMP" shall mean the Contractor's Guaranteed Maximum Price in accordance with the provisions of the Form of Contract clause entitled "General Contracting Services Compensation"

The "GMP Amendment" shall mean the execution of the Contractor's "GMP" by amending this Form of Contract.

Whenever reference is made herein to the Work or its performance, "directed", "required", "permitted", "ordered", "designated", "prescribed" and words of similar import shall mean directed, required, permitted, ordered, designated or prescribed by the Director; and "approved", "acceptable", "satisfactory" and words of similar import shall mean approved by or acceptable or satisfactory to the Director; and "necessary", "reasonable", "proper", "correct" and words of similar import shall mean necessary, reasonable, proper or correct in the judgment of the Director.

Whenever "including", "such as" or words of similar import are used, the specific things thereafter enumerated shall not limit the generality of the things preceding such words.

"Change In Law" shall mean any of the following that occur after execution of the Contract: (a) a change in, or adoption of, any Federal, State, County, City or other local law, ordinance, code, rule, regulation or similar legislation, administrative, judicial or regulatory interpretation thereof, (b) the imposition, resulting from any Federal, State, County, City or other local law, ordinance, code, rule, regulation or similar legislative, administrative, judicial or regulatory interpretation of any conditions to the issuance, renewal or continuation of any official governmental permit, official governmental license or official governmental approval, or any failure of such permit to be issued or renewed, or (c) the order/and or judgment of a federal, State, County, City or local court, administrative agency or governmental body; which, in the case of any of the events described in clause (a), (b) or (c), delays and impacts the performance of the work in the sole opinion of the Engineer.

"Contracting Officer" shall mean the Director of Procurement or her duly authorized representative.

"DOT" shall mean the United States Department of Transportation.

"DCAA" shall mean the Defense Contract Audit Agency.

"Government", "United States Government", "Federal" or words of like import shall mean the United States of America.

"UMTA" or "FTA" shall mean the United States Department of Transportation, Federal Transit Administration (formerly known as the Urban Mass Transportation Administration).

"FTA" and "Government" shall be used interchangeably.

2. GENERAL AGREEMENT

The Contractor agrees to perform the construction of the World Trade Center Transportation Hub and the performance of related work to provide for a complete transportation center and passenger train station and PATH service for that station, all at the WTC site and other PATH facilities in New York and New Jersey; and all as directed by the Director, and in accordance with the requirements of the Work package(s) consisting of Contract drawings and specifications issued by the Director; and the Contractor further agrees to assume and perform all other duties and obligations imposed upon him by this Contract. The furnishing of equipment and plant, however, shall be subject to the provisions of the clause hereof entitled "Agency for Rental of Construction Equipment".

Subject to the clause hereof entitled, "Withholding of Payments" the Authority agrees to pay the Contractor and the Contractor agrees to accept from the Authority in full consideration for the performance by the Contractor of his duties and obligations under this Contract and the whole thereof, the compensation provided for in the Form of Contract clauses contained in Chapter II entitled "Payments".

This Contract is one entire contract for the accomplishment of the results and the doing of the things above specified and is not separable. Similarly, the Contractor's compensation is one entire compensation for the entire performance of his Work.

The enumeration in this Form of Contract and in the Specifications of particular things to be furnished or done at the Contractor's expense, or without cost or expense to the Authority, or without additional compensation to the Contractor shall not be deemed to imply that only things of a nature similar to those enumerated shall be so furnished and done; but the Contractor shall perform all Work as required without other compensation than that specifically provided, whatsoever changes may be made in the Contract Drawings and Specifications, whatsoever Work may be required in addition to that required by the Contract Drawings and Specifications in their present form, and whatsoever obstacles or unforeseen conditions may arise or be encountered.

3. STATEMENT OF WORK

General Contracting services shall include but shall not be limited to the following:

3.1 Construction Supervision

- a. Supervise and direct the work and be solely responsible for construction means, methods, techniques, sequences, and procedures for the work.
- b. Provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and all other facilities and services necessary for the proper execution and completion of the work in strict accordance with the requirements of the Contract Documents.
- c. Obtain any necessary construction permits not obtained by the Authority including, but not limited to, street closure permits and utility permits. Assist the Authority in coordination with other outside entities as directed by the Director.
- d. Inspect the work of subcontractors to ensure conformance with the Contract Documents.
- e. Monitor the work of the subcontractors as required and coordinate such work with the Authority with a goal to attain completion of the Project at a cost not to exceed the project construction budget and Guaranteed Maximum Price, and to timely attain the dates for Beneficial Use and Occupancy and completion of all Work.
- f. Assist the Authority, if required, in selecting and retaining professional services as needed (and not otherwise described in this Contract for the Project) and coordinate these services at the Authority's request in order to meet the Project schedule.

3.1A CM/GC Self-Performed Work

Perform all work necessary to provide, at a minimum, all required general conditions work of this contract as defined herein.

3.2 Project Team Coordination

- a. Attend Project progress meetings scheduled by the Authority no less often than once per month, and fully advise the Authority at such meetings as to Project status.
- b. Schedule and attend regular meetings with the Authority during the construction of the Project to discuss jointly such matters as procedures, progress, problems and scheduling. Identify critical construction activities which require immediate action and the date(s) by when the activity must be completed.
- c. The Contractor shall record the construction progress of the Work, submit written progress reports to the Director, including information on CM/GC self-performed and subcontractors' work and the percentage of completion, and keep a daily log of Project construction activities available for review by the Engineer. Each member of the Contractor's site personnel, whose job function involves or includes observation of the Work, shall maintain a daily log of construction activities and observations, which daily logs shall be submitted to the Engineer no less frequently than weekly for the immediately preceding week.

3.3 Procurement

- a. Manage and execute procurement activities.
- b. The Contractor shall be required to conduct publicly advertised subcontractor bidding unless otherwise directed by the Authority. The Contractor shall be required to solicit bids through a competitive process for subcontractor work that complies with federal requirements. The Contractor shall be required to procure a minimum of three bids for each solicitation unless otherwise permitted by the Authority.
- c. Prequalification of subcontractors by trade and/or specific Work packages will be considered by the Authority. If the Authority deems it appropriate, the Contractor shall publicly advertise upcoming trade work and/or specific Work packages in order to develop a competitively procured list of pre-qualified subcontractors. The Contractor will continuously pre-qualify subcontractors. The Authority will approve the Contractor's subcontractor prequalification process and reserves the right to review and, if appropriate, veto any subcontractor pre-qualified by the Contractor. Any subcontractor who wishes to be considered for work, shall be required to submit his qualifications to the Contractor at least sixty calendar days in advance of the scheduled bid date and shall be deemed qualified, or not

qualified, at least thirty calendar days prior to the bid date. The award of all subcontracts shall be subject to review of the Authority. The Contractor shall be required to take all reasonable measures to meet the combined goal for MBE and WBE participation in the Work.

- d. The Contractor shall submit to the Authority a summary of bid results and recommendations prior to final selection and award of the subcontract.
- e. The Authority will not permit the Contractor to assign or delegate any of its responsibilities as a General Contractor under this agreement without the express written approval of the Authority.
- f. Schedule and conduct pre-bid conferences with interested proposers, subcontractors, material suppliers, and equipment suppliers, and record minutes.

3.4 Subcontracts

- a. Award and enter into, as a General Contractor, all subcontracts necessary and appropriate to provide all labor, materials and equipment for the construction of the Work.
- b. Review and process all applications for payment from subcontractors and material suppliers. Review and resolve all subcontractor and material supplier payment request disputes.

3.5 General Coordination

Coordinate with third parties for including, but not limited to, permits and approvals as required or as directed by the Authority.

3.6 Schedule and Cost Control

- a. Track and manage the project construction budget.
- b. Provide regular monitoring, updating, and reissuing of the Critical Path Method Project Schedule as construction progresses, including, without limitation, detailed construction schedules, submittal schedules, inspection schedules, and occupancy schedules; identify potential and actual variances between scheduled and probable completion dates, review the schedules for work not started or incomplete, recommend to the Authority adjustments in the schedules to conform with the probable completion dates, and provide summary reports to the Authority of each schedule update and document all changes in construction schedules. Incorporate activities of the subcontractors and other parties affecting the progress of the work, including, without limitation, activity sequences and durations, allocation of labor and materials, processing of shop drawings, data and samples, delivery of long lead-time items. Include Authority's occupancy requirements and occupancy priorities. Evaluate the personnel and equipment, and availability of supplies and materials, with respect to the Contractor's and each subcontractor's ability to meet the Critical Path Method Project schedule.

Recommend action to the Authority when any requirement is not met, or appears unlikely to be met.

- c. Maintain cost accounting records in good form on expenditures and materials, or for any other expenditures requiring accounting records; and provide the Authority access to these records and preserve them for a period of four (4) years after final payment is made.
- d. Prepare, administer and provide to the Authority, the Contractor's and subcontractors' schedule of values, subcontractors' sworn statements and waivers of lien as required, contract and disbursement summaries, change order listings and change orders, and budget cost summary reports as required by the Authority.
- e. Promptly identify all variances between estimated costs and actual costs, and promptly report such variances to the Authority along with recommendations for action, but in any event, no more than two (2) business days after acquiring such information.
- f. Develop and implement a system acceptable to the Authority for the preparation, review and processing of change orders, change order requests, and requests for information.

3.7 Shop Drawings and Submittals

The Contractor shall prepare and submit all shop drawings, catalog cuts and samples which may be required in addition to the Work packages or in addition to any other drawings which the Authority may issue in supplementing the Work packages per the requirements as set forth in accordance with the provisions of the clause entitled, "Shop Drawings, Catalog Cuts and Samples".

3.8 Site Management

- a. Maintain competent, full-time staff at the construction site to coordinate and provide general direction over all of the Work and progress including the subcontractors and material men on the Project.
- b. Establish on-site organization of personnel and clearly defined lines of authority in order to effectuate the overall plans of the Authority.
- c. Expedite and coordinate, if required, delivery and installation of Authority procured material and equipment, if required.
- d. Manage all work in accordance with the agreed upon Conduct Of Work Plan. Coordinate with the Engineer on a daily basis so as to minimize impacts on PATH and New York City Transit Operations and other stakeholders.

3.9 Safety Program

- a. Implement and manage the safety program developed in accordance with the provisions in the agreement entitled, "Construction Management Services Agreement, WTC-284.458(CM)".
- b. Review the safety programs developed by each of the subcontractors and prepare and submit to the Authority a comprehensive safety program which complies with all applicable requirements of the Occupational Safety and Health Act and all other applicable state, local, or federal laws or regulations, and with the Owner-Controlled Insurance Program (OCIP).
- c. The Contractor shall ensure compliance by the subcontractors with their contractual safety requirements. The existence of any OCIP shall not operate to diminish or eliminate in any way the Contractor's responsibilities.

3.10 Quality Program

- a. Implement and manage a quality program developed in accordance with the provisions in the agreement, entitled, "Construction Management Services Agreement WTC-284.458(CM)".
- b. The Contractor shall submit the approved Quality Control Programs and applicable Plans from his/her respective subcontractors, suppliers and vendors for the Authority's review and approval.
- c. The Contractor shall submit the supplier/vendor's Quality Assurance Plan, and documented Quality Management System for the Authority's review and approval. The Authority's Project Quality Assurance Program is attached hereto as Appendix A.

3.11 Complete all Work

- a. Complete all early action construction work issued prior to the execution of the GMP Amendment within the time provided for in the approved Project Schedule.
- b. Complete all construction work issued after the execution of the GMP Amendment for a price not to exceed the Guaranteed Maximum Price, and within the time provided for in the approved Project Schedule.

3.12 Project Coordination

It is anticipated that the WTC/Hub Project will be executed concurrently with other major projects at the WTC site including the WTC Memorial Projects, Museum Complex, Performing Arts Center, Freedom Tower, retail development and related sub grade and surface infrastructure – all to be completed over the next 5 to 6 years. In addition, retail development and cultural facilities development at the WTC site are also likely to occur within the same timeframe. The Contractor will be responsible to coordinate all aspects of the WTC/Hub Project and to work in harmony with those specified above and any others involved in the projects and activities at the WTC site.

The Lower Manhattan Construction Command Center (LMCCC) has been established by New York City and New York State to coordinate between all major projects in Lower Manhattan in order to help facilitate the overall implementation of construction activities while minimizing the impact and disruption to the residential and business communities in Lower Manhattan. As such, the Authority and its contractors will be cooperating and participating in the work of the Command Center as it moves forward with these efforts.

4. AUTHORITY ACCESS TO RECORDS

The Authority and the FTA shall have access during normal business hours to all records and documents of the Contractor relating to any amounts for which the Contractor has been compensated, or claims he should be compensated, by the Authority by payment determined on any basis other than by payment of a lump sum or unit price amount agreed upon in writing by the Contractor and the Authority; provided, however, such access shall extend to certified payroll records as described in the clause of the Form of Contract entitled "Prevailing Rate of Wage" regardless of the method by which the Contractor is compensated under this Contract. The Contractor shall obtain for the Authority and the FTA similar access to similar records and documents of subcontractors. Such access shall be given or obtained both before and within a period of four years after Final Payment to the Contractor; provided, however, that if within the aforesaid four-year period the Authority has notified the Contractor in writing of a pending claim by the Authority under or in connection with this Contract to which any of the aforesaid records and documents of the Contractor or of his subcontractors relate either directly or indirectly, then the period of such right of access shall be extended to the expiration of 6 years from the date of Final Payment with respect to the records and documents involved.

No provision in this Contract giving the Authority or the FTA a right of access to records and documents is intended to impair or affect any right of access to records and documents which the Authority or the FTA would have in the absence of such provision.

The Authority (including its Inspector General), the FTA, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers and records of the Contractor which are pertinent to the Contract for the purpose of making audit, examination, excerpts and transcriptions.

5. AGENCY FOR RENTAL OF CONSTRUCTION EQUIPMENT

With respect to the performance of Work in the State of New York:

A. General Provisions

The Contractor further agrees to act as the agent of the Authority, subject to the provisions of this numbered clause relating to such agency for the rental of all construction equipment necessary or desirable for or incidental to the performance of the Contract (other than construction equipment owned and also used by the Contractor or owned and also used by any subcontractor) and, in the exercise of such agency, to assume all the obligations and duties imposed upon him by this Contract. The Contractor may

authorize any subcontractor to act as his subagent for rental of such equipment for use by such subcontractor, subject to all the provisions of this Contract. "Construction equipment" as used in this numbered clause shall include plant.

The Authority will pay the rental charges for said equipment directly to the lessors thereof, but the charges so paid shall be deducted from the compensation payable to the Contractor under the Contract; provided, however, that the Authority will pay such charges, and the Contractor is authorized by the Authority to act as such agent, to the extent only that the charges payable for such rental do not exceed the compensation payable to the Contractor under the Contract; and provided further that the Contractor performs all the obligations relating to said agency imposed upon him by this Contract.

The Authority will provide the Contractor with a statement to be furnished by him and the subcontractors to such lessors who will identify this Contract as the one under which the Contractor is authorized to rent said equipment and which will identify the site to which delivery must be made. The Contractor shall arrange for delivery of said equipment directly to the construction site. Payment of the rental charges therefore shall be made by the Authority on the basis of invoices made out to the Authority in which is contained the place of delivery and on which the Contractor has certified by endorsement that such construction equipment is being or has been used in the performance of the Contract, said invoices to be submitted through the Contractor to the Authority at the time said equipment is put into use at the construction site. In the event said invoices are not submitted promptly, at the time stated above, but are submitted at a time when, by reason of prior advances and payments to the Contractor or for his account, the amounts still payable to the Contractor in connection with the Contract are insufficient to pay said invoices, then the Authority shall not be liable to the lessors for any amounts in excess of said amounts still payable to the Contractor which remain in the possession of the Authority.

Notwithstanding the above agency arrangement, the Authority shall not be liable to lessors of construction equipment for any amounts except rental charges based on time of use of such equipment, and the Contractor's agency is limited accordingly. All obligations incurred by the Contractor or subcontractors for any other expenses, including repairs and damages for breach of the rental agreement, shall be obligations incurred by the Contractor or subcontractors as principal not as agent of the Authority. Moreover, as between the Authority and the Contractor, the Contractor shall be responsible for all amounts due to lessors of construction equipment notwithstanding the above agency arrangement.

The Contractor shall indemnify the Authority and the FTA against any claim of any kind whatsoever made against the Authority or the FTA by a lessor of construction equipment and the Contractor assumes the risk of all claims against him by any lessor of construction equipment, including in both cases, claims in connection with a subcontractor.

The agency provided for under this numbered clause shall not relieve the Contractor of any of his duties and obligations elsewhere provided for under this Contract.

B. Option Not to Act as Agent

Notwithstanding the provisions of A above, the Contractor shall have the right to elect not to act as the agent of the Authority for the rental of any particular item or items of said construction equipment, in which event, with regard to any such rentals by the Contractor as principal and not agent, the provisions of A of this numbered clause shall be inapplicable as well as those provisions of the clause of the Form of Contract entitled "Exemption From New York State and New York City Sales Taxes", which relate to rental of construction equipment.

6. EXEMPTION FROM NEW YORK STATE AND NEW YORK CITY SALES TAXES

A. Materials Incorporated in Permanent Construction

The attention of the Contractor is directed to the following provision of the New York State and New York City Sales and Compensating Use Tax Act:

"#1115. Exemptions from sales and use taxes. (a) Receipts from the following shall be exempt from the tax on retail sales imposed under subdivision (a) of section eleven hundred five and the compensating use tax imposed under section eleven hundred ten: (15) Tangible personal property sold to a contractor, subcontractor or repairman for use in erecting a structure or building of an organization described in subdivision (a) of section eleven hundred sixteen, or adding to, altering or improving real property, property or land of such an organization, as the terms real property, property or land are defined in the real property tax law; provided, however, no exemption shall exist under this paragraph unless such tangible personal property is to become an integral component part of such structure, building or real property."

The Authority is an exempt organization of the type described in subdivision (a) of section eleven hundred sixteen.

In view of the foregoing, the Contractor should not include in his price(s) any amounts for New York State and New York City sales and compensating use taxes on such tangible personal property.

If (i) any claim is made against the Contractor by the State of New York or City of New York for such sales or compensating use taxes, or (ii) any claim is made against the Contractor by a materialman or a subcontractor on account of a claim against such materialman or subcontractor by the State of New York or City of New York for such sales or compensating use taxes, then the Authority will reimburse the Contractor in an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that:

1. the Contractor, or the Contractor and any such subcontractor, as the case may be, have complied with such rules and regulations as may have been promulgated relating to the claiming of the exemption from such taxes and have filed all the forms and certificates required by the applicable laws, rules and regulations in connection therewith;
2. the Authority is afforded the opportunity before any payment of tax is made, to contest said claim in the manner and to the extent that the Authority may choose to settle or satisfy said claim and such attorney as the Authority may designate is authorized to act for the purpose of contesting, settling and satisfying said claim; and
3. the Contractor, or the Contractor and any such subcontractor, as the case may be, give immediate notice to the Authority of any such claim, cooperate with the Authority and its designated attorney in contesting said claim and furnish promptly to the Authority and said attorney all information and documents necessary or convenient for contesting said claim, said information and documents to be preserved for six years after the date of Final Payment or longer if such a claim is pending or threatened at the end of such six years.

If the Authority elects to contest any such claim, it will bear the expense of such contest.

B. Rental of Construction Equipment

The rental by the Contractor or subcontractor of construction equipment not owned by the Contractor or subcontractors for use in the performance of the Contract will also not be subject to New York State or New York City sales or compensating use taxes, provided that:

1. the Contractor's and any subcontractor's use of construction equipment rented from others, and any agreement for such rental, is based upon the agency arrangement provided for in the clause hereof entitled "Agency for Rental of Construction Equipment" and the Contractor and subcontractor's have performed all their obligations under said clause;
2. delivery of said equipment is to the construction site;
3. the Contractor or subcontractor has furnished to the lessor the statement from the Authority identifying this Contract as the one under which the Contractor or subcontractor has been authorized to rent said equipment and identifying the construction site to which delivery must be made;
4. the invoice for said equipment is made out to the Authority and prescribes the place of delivery; and the amounts payable for rental of said equipment do not exceed the amount of compensation payable in connection with the Work.

In view of the above, the Contractor should not include in his price(s) any amounts for New York State and New York City sales and compensating use taxes on such rentals of equipment. If (i) any claim is made against the Contractor by the State or City of New York for sales or compensating use taxes on such rental of construction equipment or (ii) any claim is made against the Contractor by a materialman, lessor or a subcontractor on account of a claim against such materialman, lessor or subcontractor by the State or City of New York for sales or compensating use taxes on rental of said equipment, then the Authority will reimburse the Contractor in an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that the provisos listed above in this numbered clause as A.1 through A.3 and B.1 through B.4 are complied with.

If the Authority elects to contest any such claim, it will bear the expense of such contest.

7. PERFORMANCE BOND

If required by the Authority, the Contractor shall furnish a bond for the faithful performance of all obligations imposed upon him by the Contract. Such bond shall be in the form bound herewith entitled, "Performance Bond", shall be in a penal sum equal to \$250 million and shall be signed by one or more sureties¹² satisfactory to the Authority. The bond may be executed on a separate copy of such form not physically attached to this Contract booklet. In any case, both the form of bond bound herewith and any unattached executed copy thereof shall form a part of this Form of Contract as though herein set forth in full.

If the Authority elects to require the Contractor to furnish such a bond, the Contractor shall deliver such bond to the Authority within seven days after receipt of the Authority's request.

The Authority shall give notice to the Contractor within ten (10) days after receipt of the Performance Bond as to whether or not such bond is satisfactory.

The Authority will reimburse the Contractor for the net amount actually paid by him to the surety or sureties as the premium on such bond. The Contractor shall deliver to the Engineer receipts from the surety or sureties evidencing such payment and the amount thereof. Within fifteen days after receipt of such evidence satisfactory to the Engineer, the Authority will pay to the Contractor by check the amount provided in this numbered clause.

If at any time the Authority will be or become dissatisfied with any surety or sureties then upon any bond furnished in accordance with the requirements of the Authority, or if for any other reason such bond shall cease to be adequate security to the Authority, the Contractor shall,

¹² Sureties must be corporations (commonly known as "surety companies"), authorized to do business as sureties in the state(s) in which the construction site is located, whose names appear on the current list of the Treasury Department of the United States in effect at the time of submission of the **Performance Bond** to the Authority as acceptable as sureties to the Treasury Department. In addition, the aggregate underwriting limitations on any one risk as set forth in the aforementioned list of the Treasury Department of the sureties shall equal or exceed the penal sum of the **Performance Bond**.

within five days after notice from the Authority so to do, substitute a new bond in such form and sum and signed by such other sureties as may be necessary in the opinion of the Authority to constitute adequate security.

8. PAYMENT BOND

The Contractor shall furnish a bond for the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of the Contract. Such bond shall be in the form bound herewith entitled, "Payment Bond", shall be in a penal sum equal to \$250 million and shall be signed by one or more sureties¹³ million and shall be signed by one or more satisfactory to the Authority. The bond may be executed on a separate copy of such form not physically attached to this Contract booklet. In any case, both the form of bond bound herewith and any unattached executed copy thereof shall form a part of this Form of Contract as though herein set forth in full.

If the Authority elects to require the Contractor to furnish such a bond, the Contractor shall deliver such bond to the Authority within seven days after receipt of the Authority's request.

The Authority shall give notice to the Contractor within ten (10) days after receipt of the Payment Bond as to whether or not such bond is satisfactory.

The Authority will reimburse the Contractor for the net amount actually paid by him to the surety or sureties as the premium on such bond. The Contractor shall deliver to the Engineer receipts from the surety or sureties evidencing such payment and the amount thereof. Within fifteen days after receipt of such evidence satisfactory to the Engineer, the Authority will pay to the Contractor by check the amount provided in this numbered clause.

If at any time the Authority will be or become dissatisfied with any surety or sureties then upon any bond furnished in accordance with the requirements of the Authority, or if for any other reason such bond shall cease to be adequate security to the Authority, the Contractor shall, within five days after notice from the Authority so to do, substitute a new bond in such form and sum and signed by such other sureties as may be necessary in the opinion of the Authority to constitute adequate security.

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Sureties must be corporations (commonly known as "surety companies"), authorized to do business as sureties in the state(s) in which the construction site is located, whose names appear on the current list of the Treasury Department of the United States in effect at the time of submission of the **Payment Bond** to the Authority as acceptable as sureties to the Treasury Department. In addition, the aggregate underwriting limitations on any one risk as set forth in the aforementioned list of the Treasury Department of the sureties shall equal or exceed the penal sum of the **Payment Bond**.

CHAPTER II PAYMENTS

9. GENERAL CONTRACTING SERVICES COMPENSATION

The Contractor's compensation under the Contract shall be defined as follows:

- A. In the event the Director orders Work which is performed by a subcontractor, the Contractor's compensation will be the sum of the following amounts and such amounts only:
1. The Subcontractor's lump sum bid amount in accordance with the clause entitled "Subcontractor Work"; plus
 2. An amount equal to the direct costs for the Contractor's labor, material and equipment for the Contractor's supervision work associated with item 1 above computed by the Engineer in accordance with the clause entitled "Contractor's Supervision"; plus
 3. An amount equal to the direct cost for the Contractor's labor, materials, and equipment for the Contractor's general conditions work associated with item 1 above computed by the Engineer in accordance with the clause entitled "Contractor's General Conditions Work"; plus
 4. An amount equal to the Contractor's negotiated fixed G&A rate of five percent (5%) applied to items 1,2 and 3 above computed by the Engineer in accordance with the clause entitled "Contractor's G&A".
 5. The Contractor's fee percentage for Work which will be as follows:
 - i.) For Work Ordered Prior to the execution of the GMP Amendment, an amount equal to 5.5 percent (5.5%) as the Contractor's fee applied to items 1,2,3 and 4 above in accordance with clause "Contractor's Fee For Pre-GMP Work"; and
 - ii.) For Work Ordered After the execution of the GMP Amendment, an amount equal to 5.5 percent (5.5%) as the Contractor's fee applied to items 1,2,3 and 4 above in accordance with the clause entitled, "Contractor's Fee For Post-GMP Work".
- B. In the event the Director orders Work which the Contractor self performs, the Contractor's compensation will be the sum of the following amounts and such amounts only:
1. (a) The Contractor's lump sum price in accordance with the clause entitled "Contractor's Self Performed Work". The Contractor's lump sum price shall include the cost of all Work including all direct costs for Contractor labor, material and equipment, indirect costs and fee in accordance with the subject clauses entitled "Contractor's Self-Performed Work", "Contractor's Supervision"; "Contractor's Indirect Cost", "Contractor's Fee for Pre-GMP Work" or "Contractor's Fee for Post -GMP Work", whichever is applicable;

OR

- (b) An amount equal to the costs of all Work described in provision B.1.a. above, computed in accordance with the provisions of the clause entitled "Cost Reimbursement Work" in the event that the Contractor has not received an acceptable subcontractor bid after bidding and the Director orders the Contractor to self-perform the Work; plus
 - 2. An amount equal to the costs for labor, materials, and equipment for the Contractor's general conditions Work associated with item 1 above computed by the Engineer in accordance with the clause entitled "Contractor's General Conditions Work", "Contractor's Indirect Cost", "Contractor's Fee for Pre-GMP Work" or "Contractor's Fee for Post -GMP Work", whichever is applicable.
- C. Compensation for the performance of Work in addition to Items A, and B above, if applicable, shall be computed by the Engineer in accordance with the following clauses:

1. If such Work is ordered prior to the execution of the GMP Amendment:

- a. "Compensation for Extra Work":
 - b. "Insurance Procured by the Contractor".
 - c. "Idle Salaried Workers and Equipment".
 - d. "Compensation for Emergency Delays".

2. If such Work is ordered after the execution of the GMP Amendment:

- a. "Compensation for Extra Work".
- b. "Insurance Procured by the Contractor".
- c. "Construction Contingency".

10. COMPENSATION FOR PERFORMANCE OF OPTIONAL WORK

The Authority shall have the option to direct the Contractor to perform the scope of work required for the installation of the slurry walls and tiebacks that will form the perimeter of the East Bathtub along Vesey Street, Greenwich Street, Liberty Street and Church Street within the eastern portion of the WTC site; the excavation to rock within the east bathtub; installation of an underground drainage system and grade level slab for the entire limit of the bathtub; additional underpinning of the NYCT 1/ 9 subway at Vesey and Liberty Streets; the construction of the structural support system for the East Bathtub including construction of grade and subgrade slabs; and any additional rock excavation required in the East Bathtub. Within two years of the award of the Contract, the Director may exercise this option. In the event the Director exercises this option, the Contractor shall proceed with the Work in conformance with the terms and conditions herein and will be compensated in accordance with the clause entitled, "General Contracting Services Compensation" with the following exception:

The Contractor's fee percentage for such optional work will be as follows:

- i.) For Work ordered Prior to the execution of the GMP Amendment, an amount equal to 5.5 percent (5.5%) in accordance with the clause entitled "Contractor's Fee For Pre-GMP Work"; and
- ii.) For Work ordered after the execution of the GMP Amendment, an amount equal to 5.5 percent (5.5%) in accordance with the clause entitled "Contractor's Fee For Post-GMP Work".

11. DIRECT HOURLY LABOR RATE SCHEDULE FOR CONSTRUCTION SERVICES

For the purpose of determining the Contractor's compensation for supervision, general conditions and self-performed work, the Contractor will be reimbursed for the direct hourly rate for each Contractor's employee performing construction services for Contractor's supervision, general conditions and self-performed work.

The schedule for direct hourly labor rates for the Contractor's supervision, general conditions and self-performed work (attached hereto as Attachment A) does not constitute an outline of Work required by the Contract, but is merely a list of all the Contractor's direct hourly labor rates for all employees above trade level including but not limited to the salaries of all supervisors, superintendent(s), engineers, time keepers, clerks and secretaries to be used in computing the Contractor's compensation in accordance with the provisions herein.

12. SUBCONTRACTOR WORK

The Contractor shall be required to competitively bid work to subcontractors as set forth in the provision entitled "Prequalification and Solicitation of Subcontractors". The subcontractor's lump sum prices shall include all subcontractor labor, material, equipment, direct and indirect costs and its fee to complete the Work ordered by the Authority.

12A. CONTRACTOR'S SELF-PERFORMED WORK

The Contractor's self-performed work includes all Work to be performed by the Contractor's own forces, such Work being listed below in this clause. The Contractor's self performed work however, excludes General Conditions work as defined in the clause entitled "Contractor's General Conditions Work" and Contractor's Supervision work as defined in the clause entitled "Contractor's Supervision".

Contractor's Self Performed Work

- 1.) Substructure work including excavation, support of the excavation ground stabilization, including but not limited to sheeting, piles, caissons, underpinning, slurry wall construction, site dewatering, test pits.
- 2.) Underground utilities, installation, protection, relocation of storm and sanitary lines, ductbanks (not including conduit installation or cable wire pulling related to electrical, communications, data, cable, fiber, etc.
- 3.) Cast in Place concrete below and above grade including formwork and rebar installation.

- 4.) Structural Precast Concrete fabrication and erection.
- 5.) Structural Steel erection except for steel with complex connections.
- 6.) Demolition.
- 7.) Trackwork.
- 8.) Temporary and permanent roadways.

The Contractor's compensation for self performed Work will be a negotiated lump sum amount. In the event that agreement on a lump sum amount for a Work package or a portion of a Work package cannot be reached, the Contractor will not be permitted to self perform the work and the Authority, in its sole discretion, will direct the Contractor to competitively bid the Work package to subcontractors as set forth in the provisions of the clause entitled "Prequalification and Solicitation of Subcontractors".

The Contractor will not be permitted to self perform Work other than the Work specified above in this clause. Therefore, the Contractor will not be permitted to submit bids on subcontractor packages.

13. CONTRACTOR'S SUPERVISION

Except as provided for in the clause entitled "Contractor's Self-Performed Work, the Contractor will be compensated for the direct costs of the Contractor's supervision labor; including but not limited to, the salaries of all supervisors, superintendents, engineers, time keepers, clerks and secretaries, based on the provision entitled "Direct Hourly Labor Rate Schedule For Construction Services" and the direct material and equipment costs for the maintenance and operation of the Contractor's field office at the World Trade Center site.

The Contractor's compensation for supervision work will be computed by the Engineer in accordance with the provisions of the clause entitled "Cost Reimbursement Work".

14. CONTRACTOR'S GENERAL CONDITIONS WORK

General Conditions Work shall mean Contractor self performed work at the construction site including but not limited to the furnishing, installation, operation and maintenance of all temporary structures, facilities, utilities and services considered necessary or incidental for site safety, security, access, maintenance and protection of pedestrians, patrons and traffic, power and light, potable and construction water and sanitary, coordination with other contractors and tenant work within the WTC site, the performance of all surveys and testing including that necessary for quality assurance and control, the performance of site maintenance including but not limited to dust control, snow removal, continuous and final clean-up, janitorial services, garbage and debris removal and the implementation and enforcement of the Authority's Environmental Performance Commitments (EPCs) including mitigation and monitoring.

The Contractor will be compensated for the direct costs of the Contractor's general conditions labor pursuant to the provision entitled "Direct Hourly Labor Rate Schedule For Construction Services", and the direct costs of Contractor materials and Contractor equipment. The Contractor's compensation for General Conditions Work will be computed by the Engineer in accordance with the provisions of the clause entitled "Cost Reimbursement Work".

15. CONTRACTOR'S INDIRECT COSTS

The Contractor's audited indirect cost rate is defined and shall be computed for each partner as set forth in the Federal Acquisition Regulations, 48 CFR 31 or as otherwise agreed to by the parties in writing. The indirect cost rate applied to a given employee will be the rate of the joint venture partner that employs such employee.

The Contractor's indirect cost rate will address all indirect costs associated with the Contractor's business operations. The Contractor's compensation for Indirect Costs will be computed by the Engineer in accordance with the provisions of the clause entitled "Cost Reimbursement Work".

15A. CONTRACTOR'S G&A

The Contractor's negotiated G&A rate shall be fixed at five percent (5%) and shall be applied to all elements of cost to be reimbursed under this Contract. Such rate shall not be subject to adjustment for the duration of the Contract.

16. CONTRACTOR'S FEE FOR PRE-GMP WORK

The Contractor's fee for Work ordered by the Authority prior to the execution of the GMP Amendment represents the Contractor's fee for Work packages consisting of Contractor's self performed or subcontracted work, and associated Contractor supervision and Contractor general conditions work. The Engineer's Initial Estimate, which will be finalized prior to subcontractor bidding or commencement of negotiations of the lump sum amount for Contractor's self performed work, will include estimates for the subcontracted work or Contractor's self performed work, Contractor's supervision work and Contractor's general conditions work. The Contractor's fee and anticipated indirect costs will be computed by the Engineer based on information furnished by the Contractor in the clause entitled "General Contracting Services Compensation". The Contractor's Pre-GMP Fee shall be computed by multiplying the Contractor's Pre-GMP fee percentage by the estimated value for the total of the subcontracted or Contractor's self performed work, Contractor's supervision work and the Contractor's general conditions work, such estimated value to be agreed upon between the Engineer and the Contractor. If such agreement on the estimated value of the total of the subcontracted or Contractor's self performed work, Contractor supervision work and Contractor general conditions work is not reached, the Contractor's Pre-GMP fee shall be computed by multiplying the Contractor's Pre GMP fee percentage by the Engineer's Final Estimate for the total of the subcontracted or Contractor's self performed work, Contractor supervision work and Contractor general conditions work.

17. CONTRACTOR'S FEE FOR POST-GMP WORK

The Contractor's fee for Work ordered by the Authority after the execution of the GMP Amendment represents the Contractor's fee for Work packages consisting of subcontracted or

Contractor's self performed work, and associated Contractor supervision and Contractor general conditions work. The Engineer's Initial Estimate, which will be finalized prior to subcontractor bidding or commencement of negotiations of the lump sum amount for Contractor's self performed work, will include estimates for the subcontracted or Contractor's self performed work, Contractor's supervision work and Contractor's general conditions work. The Contractor's fee and anticipated indirect cost will be computed by the Engineer based on information furnished by the Contractor in the clause entitled "General Contracting Services Compensation". The Contractor's Post-GMP Fee shall be computed by multiplying the Contractor's Post-GMP fee percentage by the estimated value for the total of the subcontracted or Contractor's self performed work, Contractor's supervision work and Contractor's general conditions work, such estimated value to be agreed upon between the Engineer and the Contractor. If such agreement on the estimated value of the total of the subcontracted or Contractor's self performed work, Contractor's supervision work and Contractor's general conditions work is not reached, the Contractor's Post-GMP fee shall be computed by multiplying the Contractor's Post-GMP fee percentage by the Engineer's Final Estimate for the total of the subcontracted or Contractor's self performed work, Contractor supervision work and Contractor general conditions work.

18. GUARANTEED MAXIMUM PRICE (GMP)

The GMP is a negotiated "Not To Exceed" (NTE) amount, which is made up of the following components:

- A. Estimate for all direct and indirect costs for labor, and all direct costs for material and equipment necessary to perform all construction work other than early action construction work. This includes all work whether performed by subcontractors, or the Contractor with his own forces.
- B. The NTE Fee for work ordered after the GMP Amendment shall be computed by multiplying the amount in item A above by the Contractor's fee percentage for Post-GMP Work.
- C. The Construction Contingency allowance.

In negotiating a GMP amount, the Authority acknowledges that the Contractor may include in its GMP amount reimbursement for unanticipated costs not reasonably inferable from the Contract Documents including unanticipated market conditions, labor and material conditions, overtime, subcontractor defaults or deficiencies, buyout overruns, costs attributable to schedule recovery and interfacing omissions between and from the various work categories. However, by listing the above factors to be considered in negotiating a GMP, the Authority does not agree on the amounts for such factors or that any or all such factors apply to a specific Work package.

The Contractor shall be responsible for managing the GMP and assumes the risk of all overruns. Under no circumstances shall the Contractor be entitled to any compensation in excess of the GMP and the Contractor hereby waives all claims to any such compensation in excess of the GMP. It is expressly understood and agreed that the Contractor shall be required to perform all Work even though the performance of such Work would have otherwise resulted in additional compensation to the Contractor but for the limitation contained herein.

Excluded from the GMP is all compensation for Construction Management services as well as general contracting services for the early action construction work ordered prior to the execution of the GMP Amendment and for the performance of any Extra Work ordered after the execution of the GMP Amendment by the Authority and acknowledged by the Authority in writing to be such. The GMP will be incorporated into the Contract by amendment. The Authority anticipates initiating negotiations for a GMP based on approximately 60-70% completed final Contract Documents, measured in the sole opinion of the Engineer and for negotiations to be completed by the First Quarter of 2006, unless extended for good cause in the sole discretion of the Director.

19. COST REIMBURSEMENT WORK

- A. Cost Reimbursement for Contractor's supervision, general conditions and other self-performed work as well as the associated indirect costs shall be determined by the Engineer in accordance with the following provisions and shall include the following amounts and such amounts only as applicable:
1. In the case of labor performed by the Contractor with its own forces which is necessary for performance of Work required hereunder, an amount equal to the direct cost in money of the labor required for the Work.
 - a. As used in this numbered clause "labor" means on site labor necessarily performed at the construction site by the superintendent, foremen, surveyors, laborers, mechanics, timekeepers, and other employees directly employed at the construction site by the Contractor and "cost of labor" means the direct wages paid and received by such employees engaged in operations under this Contract plus a proper proportion of (i) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligations upon the basis of such wages, (ii) vacation allowances which the employer actually pays to salaried employees (the employees to be included under this subsection (ii) being subjected to the approval of the Engineer), and (iii) a. taxes and unemployment insurance actually paid by the employer pursuant to law upon the basis of such wages; or b. indirect costs pursuant to the clause entitled "Contractor's Indirect Costs".
 - b. No inclusion in Cost Reimbursement shall be made for any salaried employee whose salary and whose employment on the job has not been approved in advance by the Engineer in writing. No inclusion in Cost Reimbursement shall be made for any wage in excess of prevailing wage rates in which the work is being performed without prior written approval of the Engineer. In addition to the foregoing, no inclusion in Cost reimbursement shall be made for overtime (other than the straight time wages) unless approved in advance by the Engineer in writing.
 2. In the case of permanent, temporary or consumable materials necessary for performance of Work required hereunder, an amount equal to the direct amounts paid by the Contractor for such material (less salvage value of temporary materials) and

any purchased tools and purchased equipment as provided in the immediately following sentence; such salvage value shall be as determined by the Engineer at the conclusion of the Work plus the reasonable cost of inspection, testing, transportation, storage and handling of such materials all in strict conformity with purchase orders approved in writing by the Engineer. As used herein, materials shall include temporary materials (including temporary utility services) consumable items (including temporary sanitary facilities) and tools (excluding non powered hand tools) equipment, purchased if directed by the Engineer where the Engineer has determined that the Contractor will not be compensated for the use of such tools and equipment under subparagraph 5 below.

3. If the Contractor is the manufacturer or producer of materials necessary for the performance of the Work, the reasonable cost to the Contractor of the manufacture, production, inspection, testing, transportation, storage and handling of such materials, provided said materials are manufactured or produced after the written approval of the Engineer is obtained.
4. The direct costs actually paid by the Contractor for items of expense approved in advance by the Engineer for field office expenses, including the direct cost in money of furnishing and maintaining any field office, trailer, utilities and sanitary facilities for trailers and engineering supplies.
5. For rental of equipment (excluding non-powered hand tools) or construction aids (such as scaffolds, ladders, stairs, ramps, runways, platforms, railing, chutes and other such facilities) whether owned or not owned by the Contractor an amount computed pursuant to the clause herein entitled "Computation of Rental for Construction Equipment", for equipment actually and necessarily used by the Contractor for the performance of the Work required hereunder.
6. An amount equal to the direct cost in money, as approved by the Engineer in writing, expended by the Contractor for procuring bonds, insurance or permits approved by the Engineer as necessary for the performance of the Work required hereunder.
7. An amount equal to the direct cost in money, as approved by the Engineer in writing, paid by the Contractor for items of expense approved in advance by the Engineer for maintenance and protection of traffic as directed by the Engineer.
8. The Contractor's fixed G&A rate as set forth in the clause entitled, "Contractor's G&A" will be applied to all costs reimbursed under this clause entitled, "Cost Reimbursement Work".

B. Exclusions

1. In computing the Cost Reimbursement of the Work, no amounts shall be included other than those expressly set forth above. Moreover, in determining the Cost

Reimbursement of the Work there shall not be included any amount attributable to furnishing, delivering and maintaining non-powered hand tools, nor any amount not representing direct costs to the Contractor, and in particular, any discount, refund or credit received or receivable shall be applied to reduce the Cost Reimbursement of the Work.

C. General

1. No expenditure shall be included more than once in the Cost Reimbursement even though fitting under more than one item provided for above.
2. The Contractor shall exercise his best efforts to avoid unnecessary expenditures and to keep expenditures to the minimum consistent with satisfactory performance of the Contract. Expenditures shall be included in the Cost Reimbursement only to the extent that they represent reasonable, allowable and allocable amounts for items described herein, as determined by the Engineer, in accordance with 48 CFR 31.
3. No expenditure shall be included in the Cost Reimbursement on account of any subcontract agreement or other type of agreement unless the Contractor has complied with the provisions relating to such agreement set forth in the clause herein entitled "Prequalification and Solicitation of Subcontractors". No payment of any type in connection with any such agreement shall be included in the Cost Reimbursement in addition to the original price hereunder unless such additional payment has been approved by the Engineer.
4. When requested by the Engineer, before commencing the performance of any Work the Contractor shall furnish to the Engineer a memorandum showing the rates to be used in computing amounts to be included under subparagraph A.1.) above, and if any such rates shall change at any time or if Work is performed involving different rates for such amounts, the Contractor shall immediately furnish to the Engineer a memorandum showing such changes or different rates.
5. The Contractor shall, at the end of each day on which Work is performed, furnish to the Engineer daily time slips showing the name or number of each employee whose salary or wages is to be included under subparagraph A.1.) above, the number of hours which he is employed on the Work and the character of his duties. Moreover, if the compensation to be paid by the Authority for any Work performed by a subcontractor is in whole or in part of the basis of cost of labor, equipment or other items of expense, the Contractor shall also, at the end of each day on which any such work is performed, furnish to the Engineer daily time slips and memoranda of the above types showing in similar detail the items of expense incurred for such Work.

All the foregoing time slips and memoranda are for the purpose of enabling the Engineer to keep an accurate record of all items of expense incurred, to verify the amount of such expenses at the time they are incurred, and to determine the amount of the Cost Reimbursement, as above provided, and the furnishing thereof as above

required shall be a condition precedent to payment. Accordingly the failure of the Contractor to furnish such time slips and memoranda as above required with regard to any items of expense allegedly incurred shall be deemed to be a conclusive and binding determination on his part that no such expenses were in fact incurred and shall be deemed to be a waiver by the Contractor of all rights to compensation for such expenses.

6. The Contractor shall furnish copies of payrolls within one week after employees have been paid upon the basis of such payrolls.

The Engineer shall have authority to agree in writing with the Contractor on behalf of the Authority on methods of computing, liquidating or determining any portion of the Cost Reimbursement in lieu of the methods above provided in this numbered clause.

20. PREQUALIFICATION AND SOLICITATION OF SUBCONTRACTORS

The Contractor will be required to solicit bids through a publicly advertised competitive process that complies with Federal requirements. As a condition precedent to payment by the Authority to the Contractor for subcontractor work, the Contractor shall:

- A. Prepare and submit a "Subcontractor Prequalification and Solicitation Plan" for the Authority's review and approval. The plan shall include the following:
 1. The prequalification process for subcontractors addressing:
 - a. Advertising methods, types of work, trade and work value categories.
 - b. Prequalification of subcontractors by trade and/or specific Work packages will be considered by the Authority. If the Authority deems it appropriate, the Contractor shall publicly advertise upcoming trade work and/or specific Work packages in order to develop a competitively procured list of pre-qualified subcontractors. The Contractor will continuously pre-qualify subcontractors. The Authority will approve the Contractor's subcontractor prequalification process and reserves the right to review and, if appropriate, veto any subcontractor pre-qualified by the Contractor. Any subcontractor who wishes to be considered for work, shall be required to submit his qualifications to the Contractor at least sixty calendar days in advance of the bid date and shall be deemed qualified, or not qualified, at least thirty calendar days prior to the bid date.
 - c. Subcontractor integrity certification and verification in compliance with the provisions of the clause entitled "Assignments and Subcontracts" and Chapter VII entitled "Federal Transit Administration Requirements".
 - 1A. The prequalification process for Contractor self-performed work:

- a. As specified in the clause entitled "Contractor's Self-Performed Work", the Contractor shall demonstrate, both prior to the Authority's acceptance of its Proposal and at the time of the negotiation of a lump sum amount for a Work package or a portion thereof that it meets the prequalification requirements of the Work package in order to self perform such Work package.

2. The solicitation process for prequalified subcontractors addressing:

- a. The Contractor shall be required to conduct publicly advertised subcontractor bidding for all Work with the exception of Contractor general conditions Work and any other Contractor self-performed Work listed in the clause entitled "Contractor's Self-Performed Work" unless otherwise directed by the Authority. The Contractor shall be required to solicit bids through a competitive process for subcontractor work that complies with federal requirements.
- b. Advertising methods, types of work, trade and work value categories.
- c. Schedule and conduct pre-bid conferences with interested bidders, subcontractors, material suppliers, and equipment suppliers, and record minutes of it.
- d. Receipt of bids or proposals:
Subcontractor work packages shall be awarded to the lowest, responsive, bidder. All awards are to be based on procurement guidelines established before the issuance of the invitation for bids. The Contractor shall receive and open all trade contractor or subcontractor bids or proposals in a manner that does not disclose the contents of the bid or proposal during the selection process. The subcontractor's bids shall be unqualified and all inclusive of the subject work in the Work packages.

The Contractor shall attempt to obtain a minimum of three bids for each solicitation, document the process, and make a written recommendation to the Authority prior to the award. If less than three bids are received, the Contractor shall review the bid(s) against the GMP or other appropriate cost data to determine if the lowest bid is reasonable, and make a written recommendation to the Authority. If directed by the Authority, the Contractor shall reject the bid(s) and follow a procedure agreed upon with the Authority, which might include re-bidding the work or the Contractor's self-performance of the work.

For highly specialized work or materials, the Contractor may request a best value basis for the selection of the subcontractor as determined by the Authority. The Contractor shall clearly define the criteria for selection prior to the issuance of the bids.

3. Review process for subcontractors covering prequalification, solicitation and final selection.
 4. Provisions for updating and revisions to the plan as required or directed by the Authority.
- B. The Contractor shall incorporate the combined goal for MBE and WBE participation.
- C. In accordance with the provisions of the clause entitled "Assignments and Subcontracts", obtain the prior written approval of the Authority for each subcontract the Contractor desires to enter into, including the subcontractor and terms of the subcontract.
- D. The Authority will not permit the Contractor to assign or delegate any of his responsibilities as a general contractor without the express written approval of the Authority.

21. COMPUTATION OF RENTAL FOR CONSTRUCTION EQUIPMENT

The rental for equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such equipment, shall be computed by the Engineer on the basis of the following:

- A. 1. Hourly rental for those items of equipment listed in the "Rental Rate Blue Book" (published by Machinery Information Division, K III Directory Corporation, 1735 Technology Drive, Suite 410, San Jose, California 95110) hereinafter called "the Blue Book") shall be 100% of the applicable rates as listed in said book, reduced to an hourly basis (see formula below), except that such applicable rates shall be reduced by 50% for all hours of rental payable hereunder in excess of 8 hours each day. The edition of this publication to be used shall be the one in effect on the date of the actual rental of the equipment. The "Estimated Operating Cost per Hour" as set forth for such item of equipment in the Blue Book shall be added to the hourly rental for each hour that such equipment is actually engaged in performing Work. No amount of operating cost will be allowed during periods when such equipment is not actually engaged in performing Work (i.e. standby rental time). None of the provisions of the Blue Book shall be deemed referred to or included in this Contract except as specifically set forth in this Section.
2. If no listing of rental rate and/or hourly operating cost for the item of equipment is in the Blue Book, the Engineer shall determine the reasonable rate of rental and/or hourly operating cost of the particular item of equipment by such other means as he finds appropriate.

B. When utilizing the rental rates appearing in the Blue Book, the Engineer shall determine the applicable rate and the hourly rental determined therefrom by applying the following criteria:

1. The rate to be applied for an item of tool, equipment or construction aid used on a particular Work package shall be the daily, weekly or monthly rates from the foregoing publication based on the total number of work days or portions thereof that a particular item of tool, equipment or construction aid, or substitute item of equipment is at the construction site for use by the Contractor or subcontractors whether under this Contract or any other contract with the Authority. Included within this period will be (i) work days of idleness of the tool, equipment or construction aid at the construction site whether such idleness results from acts or omissions of the Contractor, Authority or third persons, breakdowns in the tool, equipment or construction aid or any other cause, (ii) work days on which the equipment is removed from the construction site solely to enable the performance of repairs thereon, and (iii) work days intervening between the removal of tool, equipment or construction aid from the construction site for repairs and the delivery to the construction site of the same or substitute tool, equipment or construction aid. The number of workdays in the period for each rate shall be as indicated below:

Three work days or less	daily rate
More than three work days but not more than fifteen work days	weekly rate
More than fifteen work days	monthly rate

The pro rata portion which one-hour bears to the applicable rate shall be determined in accordance with the following formula:

Hourly rate based on daily rental	1/8 of daily rental from Blue Book
Hourly rate based on weekly rental	1/40 of from weekly rental Blue Book
Hourly rate based on monthly rental	1/176 of from monthly rental Blue Book

2. The rental rate shall be multiplied by the applicable regional adjustment factor shown for such item of tool, equipment or construction aid in the Blue Book. The adjustment factor shall not apply to the hourly operating cost.

3. If the Engineer should determine that the nature, number of pieces or size of the tool, equipment or construction aid used by the Contractor in connection with the Work is more pieces, or larger or more elaborate, as the case may be, than the size or nature of the minimum equipment determined by the Engineer to be suitable for the Work, the reasonable rental will not be based upon the tool, equipment or construction aid used by the Contractor but will be based on the smallest quantity or smallest or least elaborate tool, equipment or construction aid determined by the Engineer to have been suitable for the performance of the Work.

There will be added to the rental as computed above (a) the reasonable cost of transporting such tool, equipment or construction aid to and from the construction site, (b) with respect to Work performed in New Jersey, the taxes on the rental actually paid by the Contractor or subcontractor and (c) notwithstanding the number of hours during which such of tool, equipment or construction aid is utilized, the minimum rental therefor will be for a period of eight hours.

Notwithstanding anything to the contrary contained in this numbered clause, the Authority shall not be liable for any amount attributable to the rental of non-powered hand tools.

22. COMPENSATION FOR EXTRA WORK

Should the Director order that Extra Work be performed by the Contractor, compensation for such Extra Work shall be computed as follows:

- A. The Director; acting personally, shall have authority to agree in writing with the Contractor on behalf of the Authority upon lump sum or other compensation for Extra Work in lieu of the compensation for which provision is hereinafter made in this numbered clause.
- B. If such agreement on compensation is not made, and Extra Work be performed, the Contractor's compensation shall be computed in accordance with the following amounts and such amounts only:
 1. If such Work is ordered prior to the execution of the GMP Amendment, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus the Contractor's Fee percentage inserted in item 5 (i). of the clause entitled "General Contracting Services Compensation" or item (i) of clause 10, entitled "Compensation For Performance of Optional Work" as applicable, applied to the Authority's Engineer's Final Estimate for such Work in accordance with the clause entitled "Contractor's Fee for Pre-GMP Work", plus the Contractor's audited Indirect Cost rate as specified in the clause entitled "Contractor's Indirect Cost ", plus such rental for equipment (other than small tools) required for such Extra Work as computed in accordance with the clause entitled "Computation of Rental for Construction Equipment", plus the

Contractor's fixed G&A rate as set forth in the clause entitled, "Contractor's G&A" applied to all of the foregoing.

2. If such Work is ordered after the execution of the GMP Amendment, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, a reasonable Contractor's fee, computed by the Engineer, utilizing the maximum of the lesser of two Contractor's Fee percentage as inserted in item 5(i). and 5 (ii). of the clause entitled "General Contracting Services Compensation" or items (i) and (ii) of clause 10, entitled "Compensation For Performance Of Optional Work" as applicable, applied to the Authority's Engineer's Final Estimate for such Work in accordance with the clause entitled "Contractor's Fee for Post-GMP Work", plus the Contractor's audited Indirect Cost rate as specified in the clause entitled "Contractor's Indirect Cost ", plus such rental for equipment (other than small tools) required for such Extra Work as computed in accordance with the clause entitled "Computation of Rental for Construction Equipment", plus the Contractor's fixed G&A rate as set forth in the clause entitled, "Contractor's G&A" applied to all of the foregoing.

- C. The Contractor shall not be entitled to any compensation other than as specified in B.1 and B.2 above.

As used in this numbered clause (and in this clause only):

"Labor" means foremen, surveyors, laborers, mechanics and other employees; including but not limited to, superintendent, timekeepers, directly employed at the construction site whether employed by the Contractor or by the subcontractors, subject to the Engineer's authority to determine what employees of any category are "required for Extra Work" and as to the portion of their time allotted to Extra Work; and "cost of labor" means the direct wages paid to and received by such employees plus; proper proportion of (a) premiums, if any, actually paid by the employer for the workers compensation insurance on the basis of such wages, (b) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, and (c) a. taxes and unemployment insurance actually paid by the employer pursuant to law upon the basis of such wages, or b. indirect costs pursuant to the clause entitled, "Contractor's Indirect Costs".

"Employees" as used above means only the employees of one employer.

"Materials" means temporary and consumable materials as well as permanent materials; and "cost of materials" means the price (including taxes actually paid by the Contractor pursuant to law upon the basis of such materials) for which such materials are sold for cash by the manufacturers or producers thereof, or by regular dealers therein, whether or not such materials are purchased directly from the manufacturer, producer or dealer (or if the Contractor is the manufacturer or producer thereof, the reasonable cost to the Contractor of the manufacture and production), plus the reasonable cost of delivering such materials to the construction site in the event that the price paid to the manufacturer, producer or dealer does not include delivery and in case of temporary materials, less their salvage value, if any.

"Work day" in reference to an item of equipment means a day other than a Saturday, Sunday or legal holiday except that if the particular item of equipment is actually utilized at the construction site by the Contractor or subcontractors under this or any other Contract with the Authority on a Saturday, Sunday or legal holiday said day shall be deemed a work day.

The rental for equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such equipment, shall be computed by the Engineer in accordance with the clause entitled "Computation of Rental for Construction Equipment".

In computing the Contractor's compensation, insofar as it is based upon Extra Work, and notwithstanding any provision to the contrary appearing in the "Blue Book", no consideration will be given to any items of cost or expense not expressly set forth above, it being expressly agreed that the costs and percentage additions hereinbefore provided cover items of cost and expense to the Contractor of any type whatsoever, including administration, indirect costs, taxes (other than those enumerated above), clean-up, consumables (including gas and oil), drafting (including printing and other reproduction), coordination, field measurements, maintenance, repairs, insurance, fee to the Contractor, and small tools.

Whenever any Extra Work is performed (whether by the Contractor directly or through a subcontractor), the Contractor shall, at the end of each day, submit to the Engineer (a) daily time slips showing the name and number of each workman employed on such Work, the number of hours which he is employed thereon, the character of his duties, and the wages to be paid to him, (b) a memorandum showing the state and federal taxes based on such wages, and vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages (c) a memorandum showing the amount and character of the materials furnished for such Work, from whom they were purchased and the amount to be paid therefore, and (d) a memorandum of equipment used in the performance of such Work, together with the rental claimed therefore. Such memoranda and time slips are for the purpose of enabling the Engineer to determine the amounts to be paid by the Authority under this numbered clause; and accordingly, they shall constitute a condition precedent to such payment and the failure of the Contractor to furnish them with respect to any Work shall constitute a conclusive and binding determination on his part that such Work is not Extra Work and shall constitute a waiver by the Contractor of claims for payment for such Work. In the event that the Director and the Contractor shall agree in writing upon a lump sum or other compensation for Extra Work in lieu of compensation as provided in B. in the first paragraph of this clause, the daily time slips and memoranda required by this paragraph shall not be required subsequent to the date on which such agreement has been reached.

23. COMPENSATION FOR EMERGENCY DELAYS

If during work ordered prior to the execution of the GMP Amendment, the Contractor is specifically directed by the Engineer to suspend his operations as stipulated in the clause of the Specifications entitled "Conditions and Precautions for Work Performed Outside of PATH Operations Area", "PATH Operations and Conditions" and "Transit Operations" or if the Contractor is specifically directed not to start his operations at a time when operations are permitted to start as stipulated in such Section(s), and if solely because of such suspension or

direction not to start any of the Contractor's or subcontractor's employees or equipment then engaged in or about to start such Work are necessarily kept idle at the construction site, during the hours when they would otherwise be engaged in the performance of the Work, then the Contractor's compensation shall be increased by an amount equal to the direct salaries and wages in amounts approved by the Engineer which the employer is required to pay and actually pays to such employees for the period or periods of such idleness, plus a proper proportion of (a) 1. taxes and unemployment insurance actually paid by the employer pursuant to law upon the basis of such salaries and wages, or 2. indirect costs pursuant to clause entitled, "Contractor's Indirect Costs" and (b) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligations upon the basis of such salaries and wages, and in addition thereto such rental as the Engineer deems reasonable for such equipment during the period or periods of such idleness. The rental for idle equipment shall be computed by the Engineer in accordance with the provisions of the clause of the Form of Contract entitled "Idle Salaried Workers and Equipment". All such costs shall be marked up by the Contractor's G&A rate pursuant to the clause entitled, "Contractor's G&A".

In the event that the Contractor deems that any payment should be made pursuant to this numbered clause, he shall give prompt written notice to the Director stating the reasons why he believes such payments should be made and shall moreover, furnish to the Engineer at the end of each day, a memorandum showing the name, payroll title, salary rate and employer of each of the workingmen, and description, owner and claimed rental rate for each item of equipment claimed to have been kept idle. Said notice and memorandum are for the purpose of enabling the Engineer to verify the Contractor's claim at the time. Accordingly, notwithstanding any other provisions hereof, the failure of the Contractor to furnish such notice and memorandum shall constitute a conclusive binding determination on his part that he is not entitled to compensation as provided herein and shall constitute a waiver by the Contractor of all claims for such payment, such notice and memorandum being conditions precedent to payment under this numbered clause.

24. MONTHLY ADVANCES

On or about the first day of each month, the Director shall (upon receipt from the Contractor of such information as he may require, including a certification in writing, in such form as may be required pursuant to the clause hereunder entitled "Prevailing Rate of Wage", that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause) estimate and certify to the Authority the approximate amount of Work performed and compensation earned by the Contractor up to that time showing separately:

- A. The sum determined in accordance with the provisions of the section entitled "General Contracting Services Compensation" for work performed; plus
- B. For the performance of the Work ordered by the Authority prior to the execution of the GMP Amendment; the increases if any in the Contractor's compensation for which provision is specifically made in the clauses of the Contract entitled

"Compensation for Extra Work", "Idle Salaried Workers and Equipment",
"Compensation for Emergency Delays" and "Insurance Procured by Contractor".

- C. For the performance of the Work ordered by the Authority after the execution of the GMP Amendment, the increases if any in the Contractor's compensation for which provision is specifically made in the clauses of the Contract entitled "Compensation for Extra Work", "Construction Contingency", and "Insurance Procured by Contractor".

As an aid to the Contractor and to facilitate his performance, the Authority shall, within fifteen days after the receipt of each such monthly certificate, advance to the Contractor by check the sums so certified, minus, however, two and three quarters per cent (2 3/4%) of the sum certified pursuant to subparagraph A of this numbered clause, and minus all prior advances and payments to the Contractor or for his account and minus payments by the Authority to lessors of construction equipment.

The Contractor shall also reimburse the Authority for any Mobilization Payment furnished to the Contractor, in equal monthly installments commencing on the first month after receipt of such Mobilization Payment and continuing over the term of the Contract.

Within seven days of receipt of any sum attributable to Work performed by a subcontractor or materialman or within such later period as is provided in the subcontract or purchase agreement, the Contractor shall advance to the subcontractor or materialman said sum, less such amount, if any, as the Contractor is authorized to retain under the subcontract or purchase agreement.

Notwithstanding the above, the Authority shall have the right, at its sole discretion, to directly pay the subcontractors and material suppliers who perform Work for or furnish materials to the Contractor in connection with the Work of this Contract.

Prior to certifying any amount for payment hereunder, the Engineer may require that the Contractor submit a certification accurately and fully setting forth the total amount due and payable to each subcontractor and supplier for Work performed or materials provided by such subcontractor or supplier in connection with the Work of this Contract. Any payment made by the Authority to a subcontractor or supplier pursuant to the provisions of this numbered clause shall be made in reliance upon such certification and all such payments shall be considered as advances to the Contractor of the compensation payable hereunder. No such payment shall relieve the Contractor of any of its obligations hereunder.

Nothing contained herein shall be deemed to create any additional rights in such subcontractors or suppliers or to alter the rights of the Authority as such are set forth in the clause hereof entitled "Withholding of Payments".

25. FINAL PAYMENT

After the rendition of the Certificate of Final Completion by the Director and upon receipt from the Contractor of such information as may be required, the Engineer shall certify in writing to the Authority and to the Contractor the total compensation earned by the Contractor.

If so required, the Contractor shall thereupon (i) certify to the Authority in writing, in such form as may be required pursuant to the clause hereunder entitled "Prevailing Rate of Wage", that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause and (ii) furnish to the Authority a detailed sworn statement of all claims, just and unjust, of subcontractors, materialmen and other third persons then outstanding and which he has reason to believe may thereafter be made on account of the Work.

Within thirty days after issuance of such certificate of total compensation earned (or within thirty days after receipt of the documents provided for in the immediately preceding paragraph, if required), the Authority shall pay to the Contractor by check the amount stated in said certificate, less all other payments and advances whatsoever to or for the account of the Contractor. All prior estimates and payments shall be subject to correction in this payment, which is throughout this Contract called the Final Payment.

The acceptance by the Contractor, or by anyone claiming by or through him, of Final Payment shall be and shall operate as a release to the Authority of all claims and of all liability to the Contractor for all things done or furnished in connection with the Contract and for every act and neglect of the Authority and others relating to or arising out of the Contract, including claims arising out of breach of contract and claims based on claims of third persons, excepting only his claims for reimbursement for certain sales taxes as hereinbefore provided. No payment, however, final or otherwise, shall operate to release the Contractor from any obligations in connection with this Contract, the Performance Bond or the Payment Bond.

The Contractor's agreement as provided in the immediately preceding paragraph above shall be deemed to be based upon the consideration forming part of this Contract as a whole and not to be gratuitous; but in any event even if deemed gratuitous and without consideration, such agreement as provided in the immediately preceding paragraph above shall nevertheless be effective. Such release shall include all claims, whether or not in litigation and even though still under consideration by the Authority or the Engineer. Such release shall be effective notwithstanding any purported reservation of right by the Contractor to preserve such claim. The acceptance of any check designated as "Final Payment" or bearing any similar designation shall be conclusively presumed to demonstrate the intent of the Contractor that such payment was intended to be accepted as final, with the consequences provided in this numbered clause, notwithstanding any purported reservation of rights.

The Contractor agrees that he shall not be entitled to, and hereby waives any right he might otherwise have to, and shall not seek any judgment whether under this Contract or otherwise for any such Final Payment or for an amount equivalent thereto or based thereon, or for any part thereof, if such judgment would have the effect of varying, setting aside, disregarding or making inapplicable the terms of this numbered clause or have the effect in any way of entitling the Contractor to accept such Final Payment or an amount equivalent thereto or based thereon or any part thereof other than in the same fashion as a voluntary acceptance of a Final Payment subject to all the terms of this Contract including this numbered clause, unless and until the Contractor should

obtain a judgment on any claim arising out of or in connection with this Contract (including a claim based on breach of contract) for an amount not included in said Final Payment. In any case in which interest is allowable on the amount of the Final Payment, such interest shall be at the rate of 6% per annum for the period, if any, in which such interest is due.

26. WITHHOLDING OF PAYMENTS

If (1) the Contractor fails to perform any of his obligations under this Contract or any other agreement between the Authority and the Contractor (including his obligation to the Authority to pay any claim lawfully made against him by any materialman, subcontractor or workman or other person which arises out of or in connection with the performance of this Contract or any other agreement with the Authority) or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Authority and the Contractor is made against the Authority or (3) any subcontractor under this Contract or any other agreement between the Authority and the Contractor fails to pay any claims lawfully made against him by any materialman, subcontractor, workman or other third person which arises out of or in connection with this Contract or any other agreement between the Authority and the Contractor or if in the opinion of the Chief Engineer any of the aforesaid contingencies is likely to arise, then the Authority shall have the right, in its discretion, to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as the Chief Engineer may deem ample to protect it against delay or loss or to assure the payment of just claims of third persons, and to apply such sums in such manner as the Chief Engineer may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Authority to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Authority does not intend to exercise its right with respect to such contingency. Neither the above provisions for rights of the Authority to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Authority shall create any obligation of any kind to such materialmen, subcontractors, workmen or other third persons.

Until actual payment to the Contractor, his right to any amount to be paid under this Contract (even though such amount has already been certified as due) shall be subordinate to the rights of the Authority under this numbered clause.

In the event that wages and/or supplements have been paid in an amount less than as required by this Contract, the Authority shall also have the right to withhold from the Contractor out of any payment, final or otherwise, on this, or any other open contract that the Contractor has with the Authority, so much as may be necessary to pay to laborers, mechanics, architects, draftsmen, engineers and technical workers, and others employed on the Work, the difference between the sums such persons should have received as wages and/or supplements and the amounts they actually received, and to pay such sums over to such persons. All such payments shall be deemed to be payments for the Contractor's account. In addition, the Contractor shall be required to pay to the Authority an amount equal to the Authority's cost of any investigation conducted by or on behalf of the Authority, that discovers a failure to pay wages and/or supplements as required by this Contract by the Contractor or its subcontractors, the cost of such investigation to be determined by the Chief Engineer personally. If the Contractor fails or refuses to pay for the cost any such investigation after demand by the Authority, the Authority may deduct from any

amount payable to the Contractor by the Authority, under the Contract or under any other open contract between the Contractor and the Authority, an amount equal to the cost of such investigation.

If, however, the payment of any amount due to the Contractor shall be improperly delayed by the fault of the Authority, the Authority shall pay the Contractor interest thereon at the rate of six percent (6%) per annum for the period of delay, it being agreed that such interest shall be in lieu of and in liquidation of any damages to the Contractor because of such delay.

27. CONSTRUCTION CONTINGENCY

A Not-to-Exceed ("NTE") Construction Contingency Allowance will be established during the GMP negotiations, which is to be used solely to reimburse the Contractor for additional costs plus the Contractor's Fee resulting from the occurrence of specific items which impact Work issued after the execution of the GMP Amendment as determined by the Director.

A. The following amounts, and only such amounts, shall be considered as amounts due and owing the Contractor out of the NTE Contingency Amount:

1. Amounts determined under the clause hereof entitled "Subsurface Conditions", computed in accordance with the provisions of this clause.
2. Amounts determined under the clause hereof entitled "Monitoring and Mitigation of Vibration, Settlement, Air Quality and Noise", computed in accordance with the provisions of this clause.
3. Amounts determined under the clause hereof entitled "Asbestos & Other Hazardous Materials" computed in accordance with the provisions of this clause.
4. Amounts determined under the clause hereof entitled "Construction Site Support" computed in accordance with the provisions of this clause.
5. Amounts determined under the clause hereof entitled "Requirements to Accommodate PATH and NYCT Operations" computed in accordance with the provisions of this clause.
6. Amounts determined under the clause hereof entitled "Preservation of Elements of Historical Significance" computed in accordance with the provisions of this clause herein.
7. Amounts determined under the clause hereof entitled "Adjustment of Steel Material Prices" computed in accordance with the provisions of this clause.

B. Should the Director order that Contingency Work be performed by the Contractor, compensation for such Work shall be computed as follows:

1. The Director, acting personally, shall have authority to agree in writing with the Contractor on behalf of the Authority upon lump sum or other compensation for

Contingency Work in lieu of the compensation for which provision is hereinafter made in this numbered clause.

2. If such agreement on compensation is not made, and Contingency Work be performed, the Contractor's compensation shall be increased by the following amounts and such amounts only:

An amount equal to the direct cost in money of the labor and materials required for such Contingency Work, plus a Contractor's Fee not to exceed the lesser of the two Contractor's Fees as inserted in item 5(i). and 5 (ii). of clause entitled "General Contracting Services Compensation" and applied to the Authority's Engineer's Final Estimate for such Work in accordance with the clause entitled "Contractor's Fee for Post-GMP Work", plus the Contractor's audited Indirect Cost rate as specified in the clause entitled "Contractor's Indirect Cost", plus such rental for equipment (other than small tools) required for such Contingency Work as computed in accordance with the clause entitled "Computation of Rental for Construction Equipment". All such costs shall be marked up by the Contractor's G&A rate pursuant to the clause entitled, "Contractor's G&A".

As used in this numbered clause (and in this clause only):

"Labor" means foremen, surveyors, laborers, mechanics and other employees; including but not limited to, superintendent, timekeepers, directly employed at the construction site, whether employed by the Contractor or by the subcontractors, subject to the Engineer's authority to determine what employees of any category are "required for Contingency Work" and as to the portion of their time allotted to Contingency Work; and "cost of labor" means the direct wages paid to and received by such employees plus; proper proportion of (a) premiums, if any, actually paid by the employer for the workers compensation insurance on the basis of such wages, (b) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, and (c) 1. taxes and unemployment insurance actually paid by the employer pursuant to law upon the basis of such wages, or 2. indirect costs pursuant to clause entitled, Contractor's Indirect Costs.

"Employees" as used above mean only the employees of one employer.

"Materials" means temporary and consumable materials as well as permanent materials; and "cost of materials" means the price (including taxes actually paid by the Contractor pursuant to law upon the basis of such materials) for which such materials are sold for cash by the manufacturers or producers thereof, or by regular dealers therein, whether or not such materials are purchased directly from the manufacturer, producer or dealer (or if the Contractor is the manufacturer or producer thereof, the reasonable cost to the Contractor of the manufacture and production), plus the reasonable cost of delivering such materials to the construction site in the event that the price paid to the manufacturer, producer or dealer does not include delivery and in case of temporary materials, less their salvage value, if any.

"Work day" in reference to an item of equipment means a day other than a Saturday, Sunday or legal holiday except that if the particular item of equipment is actually utilized at the construction site by the Contractor or subcontractors under this or any other Contract with the Authority on a Saturday, Sunday or legal holiday said day shall be deemed a work day.

The rental for equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such equipment, shall be computed by the Engineer in accordance with the clause entitled "Computation of Rental for Construction Equipment".

In computing the Contractor's compensation, insofar as it is based upon Contingency Work, and notwithstanding any provision to the contrary appearing in the "Blue Book", no consideration will be given to any items of cost or expense not expressly set forth above, it being expressly agreed that the costs and percentage additions hereinbefore provided cover items of cost and expense to the Contractor of any type whatsoever, including administration, indirect costs, taxes (other than those enumerated above), clean-up, consumables (including gas and oil), drafting (including printing and other reproduction), coordination, field measurements, maintenance, repairs, insurance, fee to the Contractor, and small tools.

Whenever any Contingency Work is performed (whether by the Contractor directly or through a subcontractor), the Contractor shall, at the end of each day, submit to the Engineer (a) daily time slips showing the name and number of each workman employed on such Work, the number of hours which he is employed thereon, the character of his duties, and the wages to be paid to him, (b) a memorandum showing the state and federal taxes based on such wages, and vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages (c) a memorandum showing the amount and character of the materials furnished for such Work, from whom they were purchased and the amount to be paid therefore, and (d) a memorandum of equipment used in the performance of such Work, together with the rental claimed therefore. Such memoranda and time slips are for the purpose of enabling the Engineer to determine the amounts to be paid by the Authority under this numbered clause; and accordingly, they shall constitute a condition precedent to such payment and the failure of the Contractor to furnish them with respect to any Work shall constitute a conclusive and binding determination on his part that such Work is not Contingency Work and shall constitute a waiver by the Contractor of claims for payment for such Work. In the event that the Director and the Contractor shall agree in writing upon a lump sum or other compensation for Contingency Work in lieu of compensation as provided in B. in the first paragraph of this clause, the daily time slips and memoranda required by this paragraph shall not be required subsequent to the date on which such agreement has been reached.

The Contractor shall not be compensated under more than one of the above-mentioned items in connection with performance of the same item of Work.

Under no circumstances shall the Contractor be entitled to any compensation in excess of the Not-to-Exceed Contingency Amount for any items specified above, and the Contractor hereby waives all claims to any such compensation in excess of the Not-to-Exceed Contingency Amount. It is expressly understood and agreed that the Contractor shall be required to perform all Work even though the performance of such Work would have otherwise resulted in additional compensation to the Contractor but for the limitation contained in this clause.

No amounts shall be considered payable out of the Not-to-Exceed Contingency Amount except pursuant to written orders of the Director expressly approving the manner in which the Contingency Work is to be performed and that the Director will treat the work described therein as compensable under the Not-to-Exceed Contingency Amount.

In the absence of such an order signed by the Director, if the Engineer directs, orders or requires any Work, whether orally or in writing, which the Contractor deems to be covered by the Not-to-Exceed Contingency Amount ("contested Contingency Work"), the Contractor shall nevertheless comply therewith, but shall within five (5) working days give written notice thereof to the Director, stating why the Contractor deems it to be covered under the Not-to-Exceed Contingency Amount, and shall moreover furnish to the Engineer time slips and memoranda as required by the Article hereof entitled "Compensation for Extra Work" as if such contested Contingency Work were to be performed as Extra Work. Said notice, time slips and memoranda are for the purpose of affording to the Director, an opportunity to verify the Contractor's claim at the time and (if the Director desires so to do) to cancel promptly such order, direction or requirement of the Engineer, of affording to the Engineer an opportunity of keeping an accurate record of the materials, labor and other items involved, and generally of affording to the Authority an opportunity to take such action as it may deem desirable in light of the Contractor's claims. Accordingly, the failure of the Contractor to serve such notice or to furnish such time slips and memoranda will be deemed to be a conclusive and binding determination on the Contractor's part that the direction, order or requirement of the Engineer does not involve the performance of contested Contingency Work, and will be deemed to be a waiver by the Contractor of all claims for additional compensation or damages by reason thereof, such written notice, time slips and memoranda being a condition precedent to such claims.

28. GMP SAVINGS INCENTIVE

In the event the Contractor is able to complete the Contract for less than the agreed upon GMP, the Authority will share any remaining dollars, 40% Contractor and 60% Port Authority. Each of the GMP components (Work, Contingency and Fee) represent a Not to Exceed amount.

The Savings Incentive is determined as follows:

The GMP amount as defined in clause entitled "Guaranteed Maximum Price" minus the total actual amount paid out by the Authority for the completion of all Work required by this Contract, including any claims. The only exception would be any amounts paid out by the Authority for Extra Work items beyond the parameters of the GMP.

The Savings Incentive will not be paid out until the Contract is closed out and Final Payment is made to the Contractor.

CHAPTER III PROVISIONS RELATING TO TIME

29. TIME FOR COMPLETION AND DAMAGES FOR DELAY

The Contractor shall complete the performance of all Work required by a Work package within the time frame(s) specified by the Director in such Work package. An individual Work package may contain the Authority's right to recover liquidated damages for Work not completed within the time frame(s) in such Work package. However, the total liquidated damages in connection with all Work packages shall not exceed \$50 Million. An individual Work package may also contain the Contractor incentives for completion of Work prior to the time frame specified in such Work package.

It is the Authority's intent to have the Contractor complete the performance of all Work under this Contract to achieve Beneficial Use and Occupancy of the WTC/Hub not later than 1400 calendar days after receipt by him of the acceptance of his Proposal. Beneficial Use and Occupancy shall include the performance of all permanent construction Work necessary to provide for a level of service acceptable to PATH and necessary for the operation of a complete and fully code compliant transportation center and passenger train station.

It is the Authority's intent to have the Contractor complete the balance of all remaining Work under this Contract not later than 1750 calendar days after receipt by him of the acceptance of his Proposal.

The Contractor shall not commence the performance of the Work until the later of the following dates:

- A. The date(s) of receipt by him of notice from the Authority that the Performance Bond and the Payment Bond furnished by him are satisfactory;
- B. The date of receipt by him of notice from the Authority that the insurance procured by him pursuant to said clause is satisfactory, as evidenced by the certificate to be furnished in accordance with the clause entitled "Insurance Procured by the Contractor".

The time(s) for completion shall not be extended on account of the time required to furnish the documents referred to in A. above, but the Authority shall give notice to the Contractor within ten days after receipt of the certificate of insurance as to whether or not such insurance is satisfactory.

The Contractor's obligations for the performance and completion of the Work within the time or times provided for in this Contract are of the essence of this Contract. The Contractor guarantees that he can and will complete the performance of the Work within the time hereinbefore stipulated or within the time as extended in accordance with the clause hereof entitled "Extensions of Time".

30. EXTENSIONS OF TIME

The time above provided for completion of any part of the Contract shall be extended (subject, however, to the provisions of this numbered clause) only if in the opinion of the Director the Contractor is necessarily delayed in completing such part by such time solely and directly by a cause which meets all the following conditions:

- A. Such cause is beyond the Contractor's control and arises without his fault. Such causes may include:
- (a) Acts of God, landslides, lightning, earthquakes, fires, explosions, floods, epidemics, acts of public enemy, wars, blockades, riots, rebellions, sabotage, terrorism, insurrections and civil disturbances;
 - (b) National, regional, or local industry-wide construction labor strikes, work stoppages, boycotts or walkouts or any national, regional, local or industry-wide manufacturing plant labor strikes, work stoppages, boycotts or walkouts;
 - (c) Expropriation, confiscation or condemnation of the construction site;
 - (d) Change-In-Law as defined in clause "1. DEFINITIONS" of **GENERAL PROVISIONS** herein;
 - (e) Encountering of human remains at the construction site;
 - (f) Any other cause that is or was not within the control of the party claiming such cause, provided that, such cause shall not include any such event to the extent that it results from the acts of omissions whether negligent or not of the Contractor, its Subcontractors, Vendors or Materialmen (of any tier); and
 - (g) Unavailability of insurance.

B.1 Such cause comes into existence after award of this Contract and neither was nor could have been anticipated by investigation before such Award in connection with pre-GMP Work packages.

B.2 Such cause comes into existence after agreement on a GMP has been reached and neither was nor could have been anticipated by investigation before such agreement was reached in connection with post-GMP Work packages.

Any claim for money damages resulting from the occurrence of a cause specified above, shall be submitted to the Chief Engineer for his consideration.

Should the Chief Engineer determine that the Contractor is entitled to money damages resulting from the occurrence of a cause specified above, such money damages will be considered to be outside the Contractor's agreed to GMP.

Variations in temperature and precipitation shall be conclusively deemed to have been anticipated except to the extent that the actual monthly average temperature varies from a temperature which is 10 per cent (10%) above or below the monthly normal temperature and except to the extent that the actual number of days of precipitation (of 0.1 inch or more) per month exceeds a number equal to two plus the normal number of days of precipitation per month.

In any case, the variations in temperature and precipitation described in the immediately preceding sentence will be cause for an extension of time only if occurring between the actual time of commencement of the Work at the construction site and the time for completion stipulated in the clause hereof entitled "Time for Completion and Damages for Delay" (or such time as extended as provided for herein). In the case of portions of months the number of days will be pro-rated by the Engineer. Temperature and precipitation shall be as recorded by the U. S. Weather Bureau in its publications, including that entitled "Local Climatological Data with Comparative Data", which is applicable to the area in which the Work is to be performed, and in the case of precipitation, the normal number of days of precipitation (of 0.1 inch or more) per month as abstracted from the aforementioned publications are as follows:

Month	Normal number of days per month on which precipitation exceeds 0.1 inch
January	7
February	7
March	8
April	7
May	6
June	6
July	5
August	7
September	6
October	6
November	7
December	7

In any event, even though a cause of delay meets all the above conditions, an extension shall be granted only to the extent that (i) the performance of the Work is actually and necessarily delayed and (ii) the effect of such cause cannot be anticipated and avoided or mitigated by the exercise of all reasonable precautions, efforts and measures (including planning, scheduling and rescheduling), whether before or after the occurrence of the cause of delay, and an extension shall not be granted for a cause of delay which would not have affected the performance of the Contract were it not for the fault of the Contractor or for other delay for which the Contractor is not entitled to an extension of time.

Any reference herein to the Contractor shall be deemed to include subcontractors and materialmen, whether or not in privity of contract with the Contractor, and employees and others performing any part of the Contract and all the foregoing shall be considered as agents of the Contractor.

The period of any extension of time shall be that necessary to make up the time actually lost, subject to the provisions of this numbered clause, and shall be only for the portion of the Contract actually delayed. The Director may defer all or part of his decision on an extension and any extension may be rescinded or shortened if it subsequently is found that the delays can be overcome or reduced by the exercise of reasonable precautions, efforts and measures.

As a condition precedent to an extension of time, the Contractor shall give written notice to the Director within 48 hours after the time when he knows or should know of any cause which might under any circumstances result in delay for which he claims or may claim an extension of time (including those causes which the Authority is responsible for or has knowledge of), specifically stating that an extension is or may be claimed, identifying such cause and describing, as fully as practicable at the time, the nature and expected duration of the delay and its effect on the various portions of the Contract. Since the possible necessity for an extension of time may materially alter the scheduling, plans and other actions of the Authority, and since, with sufficient opportunity, the Authority might if it so elects attempt to mitigate the effect of a delay for which an extension of time might be claimed, and since merely oral notice may cause disputes as to the existence or substance thereof, the giving of written notice as above required shall be of the essence of the Contractor's obligations and failure of the Contractor to give written notice as above required shall be a conclusive waiver of an extension of time.

It shall in all cases be presumed that no extension, or further extension, of time is due unless the Contractor shall affirmatively demonstrate to the satisfaction of the Director, that it is. To this end the Contractor shall maintain adequate records supporting any claim for an extension of time, and in the absence of such records, the foregoing presumption shall be deemed conclusive.

31. IDLE SALARIED WORKERS AND EQUIPMENT

If any salaried and hourly workers or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day on which they would be otherwise engaged in the performance of Work issued prior to the execution of the GMP Amendment, but for causes solely due to acts or omissions of the Authority or Director and if such idleness is not due to any cause within the control of the Contractor or any of its subcontractors or material suppliers or its or their employees, then the Port Authority will pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Authority or the Director) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Director deems reasonable. The rental for idle equipment, whether owned by the Contractor or subcontractors or rented from

others and notwithstanding the actual price of any rental or actual costs associated with such idle equipment, shall be computed by the Director in accordance with the provisions of the clause of the Form of Contract entitled "Computation of Rental for Construction Equipment"; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Director within twenty-four hours of the occurrence of such idleness (whether or not the Port Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered Clause), specifically stating that salaried workers or equipment have been kept idle under circumstances which might result in payment under this numbered Clause; and the Contractor shall furnish with such notice for all the days that have occurred, and shall in addition furnish with such notice, at the end of each additional day of such idleness, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried workers claimed to have been kept idle at the construction site, and the rates and amounts of Workers' Compensation Insurance premiums, if any, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Director, to verify the Contractor's claim at the time and of enabling the Director, to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered Clause.

32. DELAYS TO CONTRACTOR

As between the Contractor and the Authority, the Contractor assumes the risk of all suspensions of or delays in performance of the Contract, regardless of the length thereof, arising from all causes whatsoever, whether or not relating to this Contract, including wrongful acts or omissions of the Authority, its officers, agents, employees and contractors, except only to the extent, if any, that compensation or an extension of time may be due as expressly provided for elsewhere in this Contract for such suspension or delays. Subject only to such exceptions, the Contractor shall bear the burden of all costs, expenses and liabilities which he may incur in connection with such suspensions or delays, and all such suspensions, delays, costs, expenses and liabilities of any nature whatsoever, whether or not provided for in this Contract, shall conclusively be deemed to have been within the contemplation of the parties.

Notwithstanding any provisions of this Contract, whether relating to time of performance or otherwise, the Authority makes no representation or guaranty as to when the construction site or any part thereof will be available for the performance of the Contract or as to whether conditions at the construction site will be such as to permit the Contract to be performed thereon without interruption or by any particular sequence or method or as to whether the performance of the Contract can be completed by the time required under this Contract or by any other time.

Wherever in connection with this Contract it is required, expressly or otherwise, that the Authority shall perform any act relating to the Contract, including making available or furnishing any real property, materials, or other things, no guaranty is made by the Authority as to the time

of such performance and the delay of the Authority in fulfilling such requirement shall not result in liability of any kind on the part of the Authority except only to the extent, if any, that an extension of time or compensation may be due as expressly provided for elsewhere in this Contract.

33. CANCELLATION FOR DELAY

If the performance of the Contract or any portion of it shall, in the opinion of the Director, be materially delayed, whether or not through the fault of the Contractor, by any cause which affects the Contractor's ability to perform the Contract without affecting to the same degree the Authority's own ability to perform it, either directly or through others, the Authority shall have the right at any time during the existence of such delay to cancel this Contract as to any portion not yet performed, without prejudice to the rights, liabilities and obligations of the parties under this Contract arising out of portions already performed, provided, however, that such right of cancellation shall not exist if the delay be due to any wrongful act or omission of the Authority. In the event of such cancellation, no allowance shall be made for anticipated profits.

CHAPTER IV CONDUCT OF CONTRACT

34. AUTHORITY OF DIRECTOR

Inasmuch as the public interest requires that the project to which this Contract relates shall be performed in the manner which the Authority, acting through the Director, deems best, the Director shall have absolute authority to determine what is or is not necessary or proper for or incidental to the portion thereof specified in the clause hereof entitled "General Agreement" and the Contract Drawings and Specifications shall be deemed merely his present determination on this point. The absolute authority of the Director shall include but not be limited to approval of all compensation due to this Contractor under this Contract including the authorization of Extra Work and schedule modifications.

If at any time it shall be, from the viewpoint of the Authority, impracticable or undesirable in the judgment of the Director, to proceed with or continue the performance of the Contract or any part thereof, whether or not for reasons beyond the control of the Authority, the Director shall have authority to suspend performance of any part or all of the Contract until such time as the Director may deem it practicable or desirable to proceed. Moreover, if at any time it shall be, from the viewpoint of the Authority impracticable or undesirable in the judgment of the Director to proceed with or continue the performance of the Contract or any part thereof whether or not for reasons beyond the control of the Authority, the Director shall have authority to cancel this Contract as to any or all portions not yet performed and as to any materials not yet installed even though delivered. Such cancellation shall be without prejudice to the rights and obligations of the parties arising out of portions already performed, but no allowance shall be made for anticipated profits.

35. AUTHORITY AND DUTIES OF CHIEF ENGINEER

In the performance of the Contract, the Contractor shall conform to all orders, directions and requirements of the Engineer and shall perform the Contract to the satisfaction of the Engineer at such times and places, by such methods and in such manner and sequence as he may require, and the Contract shall at all stages be subject to his inspection. The Engineer shall determine the amount, quality, acceptability and fitness of all parts of the Work and shall interpret the Contract Drawings and Specifications. The Contractor shall employ no equipment, materials, methods or men to which the Engineer objects, and shall remove no materials, equipment or other facilities from the construction site without permission. Upon request, the Engineer shall confirm in writing any oral order, direction, requirements or determination.

In the exercise of this authority, the Engineer, acting on the behalf of the Director, shall have power to alter the Contract Drawings and Specifications; to require the performance of Work not required by them in their present form, even though of a totally different character from that now required; and to vary, increase and diminish the character, quantity and quality of, or to countermand, any Work now or hereafter required. Such variation, increase, diminution or countermanding need not be based on necessity but may be based on convenience.

The Contractor is requested to orally advise the Engineer of questions as they arise. Although such advice will not substitute for the written notice and information for which requirements are set forth elsewhere herein, it is anticipated that it will facilitate prompt decisions on the part of the Engineer and others.

The enumeration herein or in the Specifications of particular instances in which the opinion, judgment, discretion or determination of the Engineer shall control or in which the Contract shall be performed to his satisfaction or subject to his inspection, shall not imply that only the matters of a nature similar to those enumerated shall be so governed and performed, but without exception the entire Contract shall be so governed and so performed.

To resolve all disputes and to prevent litigation the parties to this Contract authorize the Chief Engineer to decide all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and claims of a type which are barred by the provisions of this Contract) and his decision shall be conclusive, final and binding on the parties for any individual claims for damages up to and including \$5 Million, but non-binding on the parties for any individual claim for damages in excess of \$5 Million. Individual claims may not be aggregated to exceed the \$5 Million amount and the Chief Engineer will determine, in his sole discretion, whether the \$5 Million amount has been exceeded by an individual claim for damages. The Chief Engineer's decision may be based on such assistance as he may find desirable. The effect of his decision shall not be impaired or waived by any negotiations or settlement offers in connection with the question decided, whether or not he participated therein himself, or by any prior decision of the Engineer, Director or others, which prior decisions shall be deemed subject to review, or by any termination or cancellation of this Contract:

All such questions shall be submitted in writing by the Contractor to the Chief Engineer for his decision, together with all evidence and other pertinent information in regard to such questions, in order that a fair and impartial decision may be made. In any action against the Authority relating to any such question the Contractor must allege in his complaint and prove such submission, which shall be a condition precedent to any such action. No evidence or information shall be introduced or relied upon in such an action that has not been so presented to the Chief Engineer.

In addition, to resolve disputes between the Contractor and subcontractors, materialmen and others performing Work, services or supplying materials required for this Contract of any tier, as well as disputes among such subcontractors, materialmen and others, such disputes not to include claims against the Authority, the disputants shall secure the services of an impartial, third party arbitrator or panel of three arbitrators as they shall determine, at the expense of the disputants, through the American Arbitration Association, whose rules shall be applied to the determination of the disputes. The decision of the arbitrator or panel shall be final and binding on the disputants but shall in no respect be binding on the Authority or diminish in any respect the authority of the Chief Engineer as stated above in this numbered clause. In light of the dispute resolution procedure set forth above, subcontractors, materialmen and others performing Work, services or supplying materials required for this Contract of any tier expressly relinquish any right to suspend or terminate their performance under the Contract. The Contractor shall include

and require the inclusion of this numbered provision in all subcontracts and contracts for Work, services or supplying materials required for this Contract of every tier.

This numbered clause shall be governed by and construed in accordance with the law of the State of New York, without giving effect to its choice of law provisions.

36. NOTICE REQUIREMENTS

No claim against the Authority shall be made or asserted in any action or proceeding at law or in equity, and the Contractor shall not be entitled to allowance of such claim, unless the Contractor shall have complied with all requirements relating to the giving of written notice of the information with respect to such claim as provided in this numbered clause. The failure of the Contractor to give such written notice and information as to any claim shall be conclusively deemed to be a waiver by the Contractor of such claim, such written notice and information being conditions precedent to such claim. As used herein "claim" shall include any claim arising out of, under, or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and claims of a type which are barred by the provisions of this Contract) for damages, payment or compensation of any nature or for extension of any time for performance of any part of this Contract.

The requirements as to the giving of written notice and information with respect to claims shall be as follows:

- A. In the case of any claims for extension of time for completion, idle salaried men and equipment, or any other matter for which requirements are set forth elsewhere in this Contract as to notice and information, such requirements shall apply.
- B. In the case of all other types of claim, notice shall have been given to the Engineer, personally, as soon as practicable, and in any case, within 48 hours, after occurrence of the act, omission, or other circumstance upon which the claim is or will be based, stating as fully as practicable at the time all information relating thereto. Such information shall be supplemented with any further information as soon as practicable after it becomes or should become known to the Contractor, including daily records showing all costs which the Contractor may be incurring or all other circumstances which will affect any claim to be made, which records shall be submitted to the Engineer, personally.

The above requirements for notices and information are for the purpose of enabling the Authority to avoid waste of public funds by affording it promptly the opportunity to cancel or revise any order, change its plans, mitigate or remedy the effects of circumstances giving rise to a claim or take such other action as may seem desirable and to verify any claimed expense or circumstances as they occur, and the requirements herein for such notice and information are essential to this Contract and are in addition to any notice required by statute with respect to suits against the Authority.

The above referred to notices and information are required whether or not the Authority is aware of the existence of any circumstances which might constitute a basis for a claim and whether or

not the Authority has indicated it will consider a claim.

No act, omission, or statement of any kind shall be regarded as a waiver of any of the provisions of this numbered clause or may be relied upon as such waiver except only either a written statement signed by the Executive Director of the Authority or a resolution of the Commissioners of the Authority expressly stating that a waiver is intended as to any particular provision of this numbered clause, and more particularly no discussion, negotiations, consideration, correspondence, or requests for information with respect to a claim by any Commissioner, officer, employee or agent of the Authority shall be construed as a waiver of any provision of this numbered clause or as authority or apparent authority to effect such a waiver. Since merely oral notice or information may cause disputes as to the existence or substance thereof, and since notice, even if written, to other than the Authority representative above designated to receive it may not be sufficient to come to the attention of the representative of the Authority with the knowledge and responsibility of dealing with the situation only notice and information complying with the express provisions of this numbered clause shall be deemed to fulfill the Contractor's obligation under this Contract.

37. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, the Contractor agrees as follows:

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin. Such action shall be taken with reference, but not be limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.
- B. The Contractor shall send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commission for Human Rights, advising such labor union or representative of the Contractor's agreement under clauses A through H (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the Authority as part of the bid or negotiation of this Contract, the Contractor shall request such labor union or representative to furnish him with a written statement that such labor union or representative will not discriminate because of race, creed, sex, color or national origin and that such labor union or representative either will affirmatively cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses or that it consents and agrees that recruitment, employment, and the terms and conditions of employment under this Contract, shall be in accordance with the purposes and provisions of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such

a statement, the Contractor shall promptly notify the State Commission for Human Rights of such failure or refusal.

- C. The Contractor shall post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commission for Human Rights setting forth the substance of the provisions of clauses A and B and such provisions of the State's laws against discrimination as the State Commission for Human Rights shall determine.
- D. The Contractor shall state, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin.
- E. The Contractor shall comply with the provisions of Sections 291-299 of the Executive Law and the Civil Rights Law, shall furnish all information and reports deemed necessary by the State Commission for Human Rights under these non-discrimination clauses and such sections of the Executive Law, and shall permit access to his books, records and accounts by the State Commission for Human Rights, the Attorney General and the Industrial Commissioner for the purposes of investigation to ascertain compliance with these non-discrimination clauses and such sections of the Executive Law and Civil Rights Law.
- F. This Contract may be forthwith canceled, terminated or suspended, in whole or in part, by the Authority upon the basis of a finding made by the State Commission for Human Rights that the Contractor has not complied with these non-discrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State, the Authority or other public authority or agency of the State, until he has satisfied the State Commission for Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such finding shall be made by the State Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to the Contractor by the Commission and an opportunity has been afforded him to be heard publicly before the State Commissioner of Human Rights or his designee. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.
- G. The Contractor shall include the provisions of clauses A through F in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The Contractor shall take such action in enforcing such provisions of such subcontract or purchase order as the Authority may direct, including sanctions or remedies for non-compliance. If the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the Authority, the Contractor shall promptly so notify

the General Counsel to the Authority, requesting him to intervene and protect the interests of the Authority.

- H. The provisions of this numbered clause which refer to the State Commission for Human Rights, the Attorney General and the Industrial Commissioner are inserted in this Contract for the benefit of such parties, as well as for the benefit of the Authority, and said Commission, Commissioner and the Attorney General shall have a direct right of action against the Contractor to effectuate the intent of this clause.

38. AFFIRMATIVE ACTION PROGRAMS

The Contractor assures that it will undertake an affirmative action program as required by 14 CFR Part 152, Subpart E, to insure that no person shall on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CFR Part 152, Subpart E. The Contractor assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this subpart. The Contractor assures that it will require that its covered sub organizations provide assurances to the Contractor that they similarly will undertake affirmative action programs and that they will require assurances from their sub organizations, as required by 14 CFR Part 152, Subpart E, to the same effect.

39. PREVAILING RATE OF WAGE

The Contractor shall pay or provide (and shall cause all subcontractors to pay or provide) to his or their workmen, laborers and mechanics (who are employed by him or them to work on an hourly or daily basis at any trade or occupation at or about the construction site) at least the prevailing rate of wage and supplements for others engaged in the same trade or occupation in the locality in which the Work is being performed in accordance with the provisions of the clause entitled "Davis-Bacon Act-Contracts Exceeding \$25,000" in the FTA Construction Attachment as determined by the Engineer.

For purposes of this Contract, the Engineer has determined that the prevailing rates of wage and supplements are those established by the Secretary of Labor of the United States pursuant to the Davis-Bacon Act (40 U.S.C.A. 276a) for the locality in which the Work is to be performed. The schedule of wages and supplemental benefits which are currently in effect is attached hereto. However, the applicable rates shall be those which are in effect at the time the work is performed. Although the wage and supplements determination of the Secretary may change during the term of this Contract, and the Contractor shall be bound to pay the revised amounts, no change in lump sum, unit price or combination of lump sum and unit price compensation to the Contractor shall be due based upon a change in the Secretary's determinations of wages or benefits.

The Authority shall not be a necessary party to any action brought by any workman, laborer or mechanic to obtain a money judgment against the Contractor or any subcontractor pursuant to this numbered clause.

Nothing herein contained shall be construed to prevent the Contractor or any subcontractor from paying higher rates of wages or providing higher supplements than the minimum hereinbefore prescribed; and nothing herein contained shall be construed to constitute a representation or guarantee that the Contractor or any subcontractor can obtain workmen, laborers and mechanics for the minimum herein before prescribed.

The Contractor shall post at the Work site, in a place that is prominent, accessible and visible to all employees of the Contractor and its subcontractors during the daily time period that the Contractor and/or subcontractor performs Work at the site, the appropriate prevailing wage and supplement schedules. The Contractor must inform all employees, including those of its subcontractors, that they may obtain a copy of the prevailing wage and supplement schedule from the Contractor.

The Contractor and every subcontractor shall make and maintain weekly payroll records during the course of the Work and for the period set forth in the clause hereof entitled "Authority Access to Records" for all employees employed in the Work. Such records shall contain the name, address, and social security number of each such employee, the employee's correct payroll classification, rate of pay and supplements, daily and weekly number of hours worked, deductions made and actual wages and supplements paid. The Contractor shall submit these weekly payroll records to the Authority (on forms furnished by the Authority) of all his payroll records and those of each of his subcontractors as the Authority may require with the Contractor's monthly Payment Application, together with an affidavit by the Contractor and by each subcontractor to the effect that such payroll records are correct and complete, the wage and supplement rates contained therein are not less than those required by the provisions of this Contract, and the classifications set forth for each employee conform with the work performed. Such copies and summaries and the original payroll records shall be available for inspection by the Authority (including its Inspector General), and the Contractor and its subcontractors shall permit such representatives to interview employees during working hours on the job site.

The Engineer may at any time request the Contractor to prepare a daily report on the Authority form entitled Contractor Daily Sign-In Sheet, copies of which can be obtained from the Engineer. The Contractor Daily Sign-In Sheet shall be completed as follows:

1. At the beginning of each workday, the Contractor shall:
 - a. fill in the top of the Contractor Daily Sign-In Sheet, including the location, date, and contractor/ subcontractor name and contract number;
 - b. ensure that each employee, including those of subcontractors, has printed and signed his or her name and indicated his or her work classifications, the last four digits of his or her social security number, and his or her starting time;
2. At the end of each workday, the Contractor shall:

- a. ensure that each employee, including those of subcontractors, has signed out and indicated his or her ending time.
- b. sign the Certification Statement at the bottom of the form to indicate that the information contained in the Contractor Daily Sign-In Sheet is true and accurate; and
- c. submit the original completed form to the Engineer's representative.

The Contractor's failure to comply with any provision of this numbered clause shall be deemed a substantial breach of this Contract and the Performance Bond and Payment Bond.

39. MINIMUM WAGE RATES

At the direction of the Federal Transit Administration, the attention of the Contractor is directed particularly to the Schedule of Minimum Wage Rates attached to this Contract as Appendix F and made a part hereof.

The minimum wage rates as established by the Secretary of Labor are subject to change at any time before the award of the Contract except that if the change is made within five days after the opening of bids and the award is made within thirty days after the bids are opened, or ninety days after the date of wage decisions, whichever is earlier, the change is not effective. Such a change is necessary in order to comply with a decision of the U. S. Department of Labor.

40. EXTRA WORK

No Extra Work shall be performed except pursuant to written orders of the Director expressly and unmistakably indicating the Director's intention to treat the Work described therein as Extra Work; and, exclusive of Extra Work expressly authorized by or pursuant to a resolution of the Commissioners of the Authority or its Committee on Construction, the Director will have authority to order any item of Extra Work, if the cost thereof to the Authority together with the cost of all other Extra Work previously ordered and not expressly authorized as aforesaid will not be in the aggregate in excess of the sum specified in the Letter of Acceptance of the Contractor's Proposal as the limit on such authority to order Extra Work; provided, however, that Extra Work in excess of such aggregate amount may be ordered by the Director as above provided to the extent expressly authorized in a writing signed by the Executive Director of the Authority delegating authority vested in the Executive Director pursuant to a resolution of the Commissioners of the Authority or its Committee on Construction.

In the absence of such an order signed by the Director, if the Engineer directs, orders or requires any Work, whether orally or in writing, which the Contractor deems to be Extra Work, the Contractor shall nevertheless comply therewith, but shall within five (5) working days give written notice thereof to the Director, stating why the Contractor deems it to be Extra Work, and shall moreover furnish to the Engineer time slips and memoranda as required by the Article hereof entitled, "Compensation for Extra Work". Said notice, time slips and memoranda are for the purpose of affording to the Director an opportunity to verify the Contractor's claim at the time and

(if the Director desires so to do) to cancel promptly such order, direction or requirement of the Engineer, of affording to the Engineer an opportunity of keeping an accurate record of the materials, labor and other items involved, and generally of affording to the Authority an opportunity to take such action as it may deem desirable in light of the Contractor's claims. Accordingly, the failure of the Contractor to serve such notice or to furnish such time slips and memoranda will be deemed to be a conclusive and binding determination on the Contractor's part that the direction, order or requirement of the Engineer does not involve the performance of extra Work, and will be deemed to be a waiver by the Contractor of all claims for additional compensation or damages by reason thereof, such written notice, time slips and memoranda being a condition precedent to such claims.

41. PERFORMANCE OF EXTRA WORK

The provisions of this Form of Contract relating generally to Work and its performance shall apply without exception to any Extra Work required and to the performance thereof. Moreover, the provisions of the Specifications relating generally to the Work and its performance shall also apply to any Extra Work required and to the performance thereof, except to the extent that a written order in connection with any particular item of Extra Work may expressly provide otherwise.

42. TITLE TO MATERIALS

All materials to become part of the permanent construction shall be and become the property of the Authority upon delivery at the construction site or upon being especially adapted for use in or as a part of the permanent construction, whichever may first occur, subject however to the Contractor's assumption of risk under the clause hereof entitled "Risks Assumed by the Contractor", subparagraph A.

The Contractor shall promptly furnish to the Authority such bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, assuring to it title to such materials, free of encumbrances and shall mark or otherwise identify all such materials as the property of the Authority.

43. ASSIGNMENTS AND SUBCONTRACTS

Any assignment or other transfer by the Contractor of this Contract or any part hereof or of any of his rights hereunder or of any monies due or to become due hereunder and any delegation of any of his duties hereunder without the express consent in writing of the Authority shall be void and of no effect as to the Authority, provided, however, that the Contractor may subcontract portions of the Work to such persons as the Engineer may, from time to time, expressly approve in writing. For each individual, partnership or corporation proposed by the Contractor as a subcontractor, the Contractor shall submit to the Authority a certification or, if a certification cannot be made, a statement by such person, partnership or corporation to the same effect as the certification or statement required from the Contractor pursuant to the clauses of the "Information For Proposers" entitled "Certification of No Investigation (Criminal or Civil Anti-

Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc; Disclosure of Other Required Information" and "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee". Notwithstanding the aforementioned, for any subcontract or supply contract greater than \$25,000, the Contractor shall obtain certifications and any necessary disclosure forms from all subcontractors and suppliers as set forth in the clause entitled "Ineligible Contractors" in the FTA Construction Attachment, and for any subcontract or supply contract greater than \$100,000, the Contractor shall obtain certifications and any necessary disclosure forms from all subcontractors and suppliers as set forth in the clause entitled "Restrictions on Lobbying" in the FTA Construction Attachment and forward the originals to the Director of Procurement, Procurement Department, Port Authority of New York & New Jersey, One Madison Avenue, 7th Floor New York, New York 10010. All further subcontracting by any subcontractor shall also be subject to such approval of the Engineer. Approval of a subcontractor may be conditioned on (among other things) the furnishing, without expense to the Authority, of a surety bond guaranteeing payment by the subcontractor of claims of materialmen, subcontractors, workmen and other third persons arising out of the subcontractor's performance of any part of the Work.

No consent to any assignment or other transfer, and no approval of any subcontractor, shall under any circumstances operate to relieve the Contractor of any of his obligations; no subcontract, no approval of any subcontractor and no act or omission of the Authority or the Engineer shall create any rights in favor of such subcontractor and against the Authority; and as between the Authority and the Contractor, all assignees, subcontractors, and other transferees shall for all purposes be deemed to be agents of the Contractor. Moreover, all subcontracts and all approvals of subcontractors shall be and, regardless of their form, shall be deemed to be conditioned upon performance by the subcontractor in accordance with this Contract; and if any subcontractor shall fail to perform the Contract to the satisfaction of the Engineer, the Engineer shall have the absolute right to rescind his approval forthwith and to require the performance of the Contract by the Contractor personally or through other approved subcontractors for the original Bid Award and no additional Fee.

44. CLAIMS OF THIRD PERSONS

The Contractor undertakes to pay all claims lawfully made against him by subcontractors, materialmen and workmen, and all claims lawfully made against him by other third persons arising out of or in connection with or because of the performance of this Contract and to cause all subcontractors to pay all such claims lawfully made against them.

45. CERTIFICATES OF PARTIAL COMPLETION

If at any time prior to the rendition of the Certificate of Final Completion, any portion of the permanent construction has been satisfactorily completed, and if in the judgment of the Director such portion of the permanent construction is not necessary for the operations of the Contractor but will be immediately useful to and is needed by the Authority for other purposes, the Director shall request and the Engineer may render to the Authority and to the Contractor a certificate in writing to that effect (herein called a Certificate of Partial Completion), and thereupon or at any

time thereafter the Authority may take over and use the portion of the permanent construction described in such Certificate and exclude the Contractor therefrom.

The rendition of a Certificate of Partial Completion shall not be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates in the event that he has failed to complete the same in accordance with the terms of this Contract. Moreover, the acceptance of a Certificate of Partial Completion by the Authority shall not operate to release the Contractor from any obligations under or upon this Contract, the Performance Bond and/or the Payment Bond.

46. CERTIFICATE OF FINAL COMPLETION

After the satisfactory completion of all Work whatsoever required and the making of such tests and inspections as may be necessary or desirable, the Director shall request and the Engineer shall render to the Authority and to the Contractor a certificate in writing (herein called the Certificate of Final Completion) certifying that in his opinion all Work under this Contract, including Extra Work, has been completed in accordance with the Contract Drawings and Specifications and the requirements of the Director, and certifying the date as of which it was so completed.

The rendition of the Certificate of Final Completion shall not be construed to constitute an extension of the Contractor's time for performance in the event that he has failed to complete the Work in accordance with the terms of this Contract. Moreover, the acceptance of the Certificate of Final Completion by the Authority shall not operate to release the Contractor from any obligations under or upon this Contract, the Performance Bond and/ or the Payment Bond.

47. NO GIFTS, GRATUITIES, OFFERS OF EMPLOYMENT, ETC.

During the term of this Contract, the Contractor shall not offer, give or agree to give anything of value either to an Authority employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority, or to a member of the immediate family (i.e., a spouse, child, parent, brother or sister) of any of the foregoing, in connection with the performance by such employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority of duties involving transactions with the Contractor on behalf of the Authority, whether or not such duties are related to this Contract or any other Authority contract or matter. Any such conduct shall be deemed a material breach of this Contract.

As used herein "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by the Contract or any other Authority contract), etc., which might tend to obligate the Authority employee to the Contractor, and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include compensation contemplated by this Contract or any other Authority contract.

Where used in this clause, the term "Authority" shall be deemed to include all subsidiaries of the Authority. Currently, those subsidiaries are the Port Authority Trans-Hudson Corporation (PATH), the Newark Legal and Communications Center and the New York and New Jersey Railroad Corporation.

In addition, during the term of this Contract, the Contractor shall not make an offer of employment or use confidential information in a manner proscribed by the Code of Ethics and Financial Disclosure dated as of April 11, 1996 (a copy of which is available upon request to the Office of the Secretary of the Authority).

The Contractor shall include the provisions of this clause in each subcontract entered into under this Contract.

48A. FAILURE TO NEGOTIATE A GMP

- i.) Should the Authority and the Contractor fail to agree on a GMP, this Contract shall terminate according to its terms after the completion of all other Work.
- ii.) Such termination shall likewise terminate all further services of the Contractor in connection with the WTC Hub project. The Contractor shall accept the amounts negotiated or completed herein for Pre-GMP construction work as full and complete reimbursement for all costs and services performed by the Contractor for Pre-GMP construction work under the Contract, and shall not be entitled to any further amount for services set forth under or related to this Contract. Thereafter, the Authority shall have the right to continue with the WTC Hub project construction with no further obligation to the Contractor and with full ownership and the right to use any data and information developed either by the Contractor or the Authority during the Pre-GMP activities."

**CHAPTER V
WARRANTIES MADE AND LIABILITY
ASSUMED BY THE CONTRACTOR**

48. CONTRACTOR'S WARRANTIES

The Contractor represents and warrants:

- A. That he is financially solvent, that he is experienced in and competent to perform the type of services contemplated by this Contract, that the facts stated or shown in any papers submitted or referred to in connection with his Proposal are true, and, if the Contractor be a corporation, that it is authorized to perform this Contract;
- B. That he has carefully examined and analyzed the provisions and requirements of this Contract and inspected the construction site, that from his own investigations he has satisfied himself as to the nature of all things needed for the performance of this Contract, the general and local conditions and all other matters which in any way affect this Contract or its performance, and that the time available to him for such examination, analysis, inspection and investigations was adequate;
- C. That the Contract is feasible of performance in accordance with all its provisions and requirements and that he can and will perform it in strict accordance with such provisions and requirements;
- D. That no Commissioner, officer, agent or employee of the Authority is personally interested directly or indirectly in this Contract or the compensation to be paid hereunder; and
- E. That, except only for those representations, statements or promises expressly contained in this Contract, no representation, statement or promise, oral or in writing, of any kind whatsoever by the Authority, its Commissioners, officers, agents, employees or consultants has induced the Contractor to enter into this Contract or has been relied upon by the Contractor, including any with reference to: (1) the meaning, correctness, suitability, or completeness of any provisions or requirements of this Contract; (2) the nature, existence or location of materials, structures, obstructions, utilities or conditions, surface or subsurface, which may be encountered at the construction site; (3) the nature, quantity, quality or size of the materials, equipment, labor and other facilities needed for the performance of this Contract; (4) the general or local conditions which may in any way affect this Contract or its performance; (5) the price of the Contract; or (6) any other matters, whether similar to or different from those referred to in (1) through (5) immediately above, affecting or having any connection with this Contract, the proposing thereon, any discussions thereof, the performance thereof or those employed therein or connected or concerned therewith.

- F. That he shall perform all construction supervision and general conditions work unless otherwise directed by the Engineer.

Moreover, the Contractor accepts the conditions at the construction site as they may eventually be found to exist and warrants and represents that he can and will perform the Contract under such conditions and that all materials, equipment, labor and other facilities required because of any unforeseen conditions (physical or otherwise) shall be wholly at his own cost and expense, anything in this Contract to the contrary notwithstanding.

Nothing in the Contract Drawings or Specifications or any other part of the Contract is intended as or shall constitute a representation by the Authority as to the feasibility of performance of this Contract or any part thereof. Moreover, the Authority does not warrant or represent either by issuance of the Contract Drawings and Specifications or by any provision of this Contract as to time for performance or completion or otherwise that the Contract may be performed or completed by the times required herein or by any other times.

The Contractor further represents and warrants that he was given ample opportunity and time and by means of this paragraph was requested by the Authority to review thoroughly all documents forming this Contract prior to opening of Proposals on this Contract in order that he might request inclusion in this Contract of any statement, representation, promise or provision which he desired or on which he wished to place reliance; that he did so review said documents; that either every such statement, representation, promise or provision has been included in this Contract or else, if omitted, that he expressly relinquishes the benefit of any such omitted statement, representation, promise or provision and is willing to perform this Contract without claiming reliance thereon or making any other claim on account of such omission.

The Contractor further recognizes that the provisions of this numbered clause (though not only such provisions) are essential to the Authority's consent to enter into this Contract and that without such provisions, the Authority would not have entered into this Contract.

49. RISKS ASSUMED BY THE CONTRACTOR

The Contractor assumes the following distinct and several risks, whether they arise from acts or omissions (whether negligent or not) of the Contractor, of the Authority, or of third persons, or from any other cause, and whether such risks are within or beyond the control of the Contractor, excepting only risks which arise solely from affirmative acts done by the Authority subsequent to the opening of Proposals on this Contract with actual and willful intent to cause the loss, damage and injuries described in subparagraphs A through D below:

- A. The risk of loss or damage to the permanent construction prior to the rendition of the Certificate of Final Completion (other than loss or damage to the portions of the permanent construction with respect to which Certificates of Partial Completion have been issued), and the Contractor shall forthwith repair, replace and make good any such loss or damage to the permanent construction without cost to the Authority;

- B. The risk of claims, fines or penalties, just or unjust, made by third persons or assessed by courts or governmental agencies or entities against the Contractor or the Authority on account of injuries (including wrongful death), loss, damage or liability of any kind whatsoever arising or alleged to arise out of or in connection with the performance of the Work (whether or not actually caused by or resulting from the performance of the Work) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site or Authority premises, including claims against the Contractor or the Authority for the payment of workers' compensation, whether such claims, fines or penalties are made or assessed and whether such injuries, damage, loss and liability are sustained at any time both before and after the rendition of the Certificate of Final Completion;
- C. The risk of loss or damage to any property of the Contractor, and of claims made against the Contractor or the Authority for loss or damage to any property of subcontractors, materialmen, workmen and others performing the Work, occurring at any time prior to completion of removal of such property from the construction site or Authority premises or the vicinity thereof.
- D. The risk of loss, damage to or alterations of the structures to be demolished occurring prior to completion of demolition by the Contractor (such structures being still included, however, in the term "Work"). In the event of such loss, damage or alterations, the Contractor shall nevertheless complete the performance of the Work, including the demolition, without additional cost to the Authority and without compensation for lost salvage value.

Except as specified below, the Contractor shall indemnify the Authority, Metropolitan Transportation Authority (MTA) and its affiliate agencies and the Government against all claims described in subparagraphs B and C above and for all expense incurred by them in the defense, settlement or satisfaction thereof, including expenses of attorneys, except where indemnity would be precluded by New York State General Obligations Law, Section 5-322.1 or by other applicable law. If so directed, the Contractor shall defend against any claim described in subparagraphs B and C above, in which event he shall not without obtaining express advance permission from the General Counsel of the Authority raise any defense involving in any way jurisdiction of the tribunal, immunity of the Authority, governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority. Unless a claim is one which the Contractor is not required to indemnify the Authority against as described in the first sentence of this paragraph, such defense shall be at the Contractor's cost.

The Contractor's obligation to indemnify MTA and its affiliate agencies and the Government shall be limited to damages resulting from acts and omissions of the Contractor and any entity under the control of the Contractor including, but not limited to, subcontractors, materialmen and consultants. In addition, the Contractor shall not be liable for consequential damages or loss of profit and except in the case of the Contractor's gross negligence, third party claims for economic loss.

The provisions of this numbered clause shall also be for the benefit of the Commissioners, officers, agents and employees of the Authority, so that they shall have all the rights which they would have under this numbered clause if they were named at each place above at which the Authority is named, including a direct right of action against the Contractor to enforce the foregoing indemnity, except, however, that the Authority by action of its Board of Commissioners may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this numbered clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the issuance of a Certificate of Completion nor the making of Final Payment shall release the Contractor from his obligations under this numbered clause. Moreover, neither the enumeration in this numbered clause nor the enumeration elsewhere in this Contract of particular risks assumed by the Contractor or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this numbered clause or of any other clause of this Contract relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this numbered clause or in any other clause of this Contract, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

50. NO THIRD PARTY RIGHTS

Nothing contained in this Contract is intended for the benefit of third persons, except to the extent that the Contract specifically provides otherwise by use of the words "benefit" or "direct right of action".

51. INSURANCE PROCURED BY THE AUTHORITY

In order to reduce the cost of this Contract, the Authority will procure and will maintain in force and pay the premiums on:

1. A policy of **primary public liability (Comprehensive - Commercial General Liability, including Contractual) insurance** on which the Contractor and the subcontractors will be insureds issued by an insurance company satisfactory to the Authority, with current coverage limits of \$2 million per occurrence, combined single limit for bodily injury and property damage liability.
2. Policies of **excess public liability insurance** from various insurers, with combined coverage limits of \$998 million per occurrence excess of the primary \$2 million insurance coverage.
3. A policy of **workers' compensation and employer's liability insurance** fulfilling the Contractor's and the subcontractor's obligations under the applicable State Workers'

Compensation Law for those employees of the Contractor and the subcontractors employed pursuant to this Contract in operations conducted at the site of the Work hereunder. Coverage under this policy may, as appropriate, include one or more of the following endorsements:

- a. Longshore and Harbor Workers' Compensation Act Coverage Endorsement. (Applies when performing work on or around navigable waters).
- b. Maritime Coverage Endorsement (Applies to masters or members of the crews of vessels, if vessels are used).
- c. Federal Employer's Liability Act Coverage Endorsement. (May apply to railroad related Work).

Determination in any instance as to the appropriateness of the included coverage described in 3. (a), (b), and (c) above will be made based upon information to be provided by the Contractor relating to the mode of performance of Work to be done under the Contract.

The policy described in 3 above will NOT provide coverage for any workers' compensation for the Contractor and/or subcontractors who perform any asbestos Work. In such cases, the Contractor and/or subcontractors shall procure and maintain, at their own expense, the workers' compensation insurance in accordance with the requirements of law in the state(s) where the work will take place, along with employer's liability insurance (in limits of not less than \$3 million per accident). The Contractor and/or subcontractors may also be required by the Authority to provide insurance coverage for 3 (a) (b) and (c) above with the same limit as the employer's liability insurance as stated above.

Should the Contractor and/or subcontractors be required to procure the workers' compensation insurance, within ten days after the acceptance of his Proposal, the Contractor shall deliver to the General Manager, Risk Management, The Port Authority of New York and New Jersey, Treasury Department, 225 Park Avenue South, 12th Floor, New York, New York 10003. (Attn: Contract Insurance Review), an original certificate, stating the Contract number, from the insurer. A duplicate certificate evidencing the above insurance shall also be delivered to the Resident Engineer. With regard to insurance required to be procured by a subcontractor, the Contractor shall deliver the certificate described above at least ten days before the subcontractor commences Work.

The requirements for insurance procured by the Contractor or subcontractors shall not in any way be construed as a limitation on the nature or extent of the obligations of the Contractor or subcontractors.

4. A policy of **builder's risk insurance**, covering the improvements or other Work to be effectuated by the Contractor and the subcontractors, with a coverage limit up to \$ one billion dollars per occurrence (subject to a \$50 million annual aggregate for flood and earthquake damage and a limit of \$10 million per occurrence for damage to off-site storage, and property in-transit). The deductible is \$10,000 per occurrence for all losses except those caused by flood and earthquake, where a \$50,000 deductible per occurrence with respect to flood, and a \$25,000 deductible per occurrence with respect

to earthquake are in effect. The policy form will contain various exclusions, including but not limited to the following property exclusions: automobiles; aircraft; and Contractors' and subcontractors' machinery, tools, and equipment and property of a similar nature, including forms, shoring, scaffolding, temporary structures, rental property/equipment and similar property, not intended to become a permanent part of a building or structure. When the policies are available, the Contractor and the subcontractors must refer to the policy form to determine all properties and perils included and excluded and to determine their rights and responsibilities as insureds under the policy form. The Contractor and the subcontractors are responsible for payment for all losses within the deductibles and losses not covered by the builder's risk policies.

5. A policy of **Owner Controlled Contractor Pollution Liability Insurance** in which the Contractors, approved subcontractors, and the Government will be included as insureds, covering bodily injury, death, and property damage liability insurance, including environmental damage, pollution legal liability, including any cleanup, on an occurrence basis, including completed operations, caused by any environmental condition, including but not limited to lead, asbestos, or mercury exposures, with a limit up to \$100 million per loss and policy aggregate, with a deductible of \$50,000 that is the responsibility of the Contractor and subcontractor. The policy has limitations and exclusions.

It is anticipated the policies described in (1.), (2.), (3.), (4.), and (5.) of this insurance section will be on file and available for examination, by appointment in the office of the General Manager, Risk Management, The Port Authority of NY and NJ, Treasury Department 225 Park Avenue South, 12th Floor New York, New York 10003. The policies under (1.) and (2.) are subject to certain liability coverage exclusions, which include, but are not limited to, exclusions from liability from claims arising from pollution and exposure to asbestos.

The Port Authority Trans-Hudson Corporation (PATH), the Government (FTA), and the Metropolitan Transportation Authority and its affiliate agencies will be named as additional insureds on the Commercial General Liability Insurance described in paragraphs #1 and #2 above and on the Contractor Pollution Liability Insurance described in paragraph #5 above. In addition, the Government (FTA) will be named as additional insured on the Builders Risk Insurance described in paragraph #4 above, with the Authority as the loss payee.

The Authority will share with the Contractor up to 10% of any dividends returned to the Authority from the liability insurance procured by the Authority for this Contract. The Contractor will receive its portion of the dividends, if any, after the Authority receives such returned dividends.

The Contractor and subcontractors shall comply with all obligations of the insured under or in connection with all of the policies described in clauses (1.) through (5.) above.

The Authority shall have the right at any time and from time to time at its option to procure insurance substituting in whole or in part for any or all of the policies described in (1.) through (5.) above or to require that the Contractor and the subcontractors themselves obtain insurance substituting in whole or part for that above referred to, provided always, however, that the Contractor and the subcontractors shall be afforded coverage as stipulated by the Authority and the Authority shall either pay the premiums on such substitute insurance or reimburse the Contractor and the subcontractors therefore.

Neither the procurement of the above insurance or any substitute insurance nor the extent of the coverage or the limits of liability thereunder shall be construed to be a limitation on the nature or extent of the Contractor's obligations, or to relieve the Contractor of any such obligations, and the procurement of the above insurance is only for the purpose of reducing the cost of the Contract without constituting any representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on them by law (except the applicable State Workers' Compensation Law) or by this or any other Contract.

Notwithstanding any provision of this clause, however, no subcontractor shall be or have the right to be covered under the policies of insurance above referred to until they have been expressly approved in writing by the Engineer, as required under this Contract, and such approval may be withheld, among other reasons, until execution by the subcontractor of agreements affirming his obligations provided in this clause with respect to the above insurance.

The provisions of this insurance section are not intended to create any rights in the Contractor other than rights which may be available to him under said policies themselves, whatever such rights may be. Moreover, the Authority makes no representation or guaranty, either by the provisions of this insurance section or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty, either by the provisions of this insurance section or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty or to offer any interpretation of or information on said policies. The Contractor warrants and represents that it has examined and is familiar with the above stated coverages and that in submitting his Proposal he has relied solely on his own interpretation thereof and not on any representations or statements, oral or written, of the Authority, its Commissioners, officers, agents, employees, consultants or contractors.

All negotiations and adjustments with any insurer concerning payment for any loss, the risk of which is borne by the Contractor under this Contract, shall be the responsibility of and shall be conducted by the Contractor unless the applicable policy provides otherwise. The Contractor shall, however, inform the Engineer of the progress of all such negotiations and notify him sufficiently in advance of all meetings thereon so that he or his representatives may attend said negotiations if they so desire.

The Authority shall be entitled to all returned premiums, dividends and credits which may become payable at any time for any reason whatsoever in connection with the aforementioned insurance. The Contractor hereby assigns to the Authority all such returned premiums, dividends and credits and the subcontractors shall be deemed to have assigned to the Authority all such returned premiums, dividends and credits by becoming subcontractors under this Contract. The Contractor shall execute and cause the subcontractors to execute any instrument necessary or convenient to evidence the Authority's right to such returned premiums, dividends and credits.

Notwithstanding any payment by the Authority of any insurance premiums, the Authority shall not be deemed the employer of any employees hired by the Contractor or any subcontractor covered by such insurance nor shall it be liable for any of the obligations of such employer.

The Contractor and the subcontractors shall cooperate to the fullest extent with the Authority in all matters relating to the aforementioned insurance and shall comply with all requirements of all insurance policies procured by the Authority. They shall also at their own expense furnish the Engineer or his duly authorized representative with paper and electronic copies of all certified payrolls, correspondence, papers, records and other things necessary or convenient for dealing with or defending against any claims and for procuring or administering the aforementioned insurance including furnishing the name of any of their employees, officers, or agents whose presence or testimony is necessary or convenient in any negotiations or proceedings involving such insurance.

52. INSURANCE PROCURED BY CONTRACTOR

In addition to the insurance procured by the Authority pursuant to the clause of this Contract entitled, "Insurance Procured by the Authority," the Contractor, in its own name as assured, shall, where applicable, procure, maintain, and pay the premiums on a policy(ies) of insurance for coverage, as hereinafter described, which shall cover its operations hereunder, shall be effective through the completion of the contract, and shall afford coverage in not less than the amounts set forth below:

1. **Automobile Liability Insurance:** Covering any auto or owned, non-owned, and hired autos (scheduled autos must be listed on the certificate and in the policy) with a minimum of \$3 million combined single limit each accident for bodily injury and property damage liability. The Contractor shall also submit to the Engineer, before any work begins by any subcontractor, original certificates of insurance for automobile liability insurance for all its subcontractors, in all tiers, with the same coverages and limits as the Contractor. The certificate of insurance shall accompany the "subcontractor approval request" for each subcontractor. The Contractor shall keep on file, for inspection by the Authority, up-to date original certificates of insurance of automobile liability insurance for all its subcontractors.
2. **Protection and Indemnity Insurance:** If required by the Authority, Protection and Indemnity Insurance, and Chartered Legal Liability Insurance, where applicable. Prior to commencement of any work using watercraft, the Contractor shall furnish to

the Engineer, evidence of Protection and Indemnity Insurance; and Chartered Legal Liability Insurance, where applicable, relating to the operation, maintenance, or use of any vessel (whether self-propelled or being towed) in connection with work to be performed in this contract, in a limit of liability of not less than \$5 million for any one occurrence.

3. **Railroad Protective Liability Insurance:** If required by the Authority, in the name of the applicable railroad, covering property damage and bodily injury liability, including death, with a minimum limit of \$2 million per occurrence and \$6 million in the aggregate, or with coverages and limits as specifically required by such railroad.
4. **Workers' Compensation Insurance:** The Contractor and any subcontractor who does asbestos work shall procure and maintain, at its own expense, workers' compensation insurance. See paragraph #3 of the insurance requirements, in the clause entitled, "Insurance Procured by the Authority."

The Authority may, at any time during this contract, change or modify the limits and coverages of any the insurance stated in this section. The insurance procured by the Contractor and/or any subcontractor shall be primary and any insurance carried by the Authority and the Government or self-insurance of the Authority and the Government shall not contribute to any of these claims or losses.

The Port Authority will reimburse the Contractor for the policies described in items "2." and "3." Above for such insurance premiums on a cost reimbursement basis as specified in the clause entitled "Cost Reimbursement Work".

The Contractor and/or subcontractor(s) may not self-insure or carry any self-insurance retention (deductible) without written permission from the Authority.

With the exception of the Railroad Protective Insurance Policy, the Authority, the Port Authority Trans-Hudson Corporation (PATH), the Government (FTA), and the Metropolitan Transportation Authority and its affiliate agencies shall be named as an additional insureds on the liability policies set forth above. Moreover, the Commercial General Liability Insurance and the Automobile Liability Insurance Policies shall not contain any provisions for exclusions from liability other than provisions for exclusion forming part of the most up-to-date ISO forms, or their equivalent, of the Commercial General Liability and Automobile Liability Insurance Policies. The liability policy or policies stated above shall contain evidence of coverage for cross-liability/severability of interests, and both the Authority as an additional insured and the coverage for cross-liability/severability of interests shall be stated on the certificate(s) of insurance.

An original certificate(s) of insurance evidencing the existence thereof, shall be delivered to the Resident Engineer, at the job site, and to the General Manager, Risk Management/Treasury, The Port Authority of New York and New Jersey, 225 Park Avenue South, 12th Floor, New York, NY 10003, within thirty (30) days after the execution of this Contract by the Contractor. Such certificate or certificates shall state the contract number and shall contain a valid provision or endorsement that the policy or policies may not be canceled, terminated, changed or modified

without thirty (30) days advance written notice to the Authority at the above address. The liability policy(ies), with the exception of the Railroad Protective Insurance Policy, evidencing the above insurance and the certificate(s) of insurance, shall contain an additional endorsement stating that, **“The insurer shall not, without obtaining express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its commissioners, officers, agents or employees, the governmental nature of The Port Authority, or the provisions of any statutes respecting suits against the Port Authority.”** Renewal original certificates of insurance shall be delivered to the Engineer and the General Manager, Risk Management/Treasury stated above at least ten (10) days prior to the expiration date of each expiring policy. No work may resume until the renewal certificates of insurance are approved by Risk Management/Treasury. At any time any of the certificates or policies shall be or become unsatisfactory to the Authority as to form or substance, or if the carrier issuing any such certificate or policy shall be or become unsatisfactory to the Authority, the Contractor shall promptly obtain a new and satisfactory certificate and policy. The Authority or the Government may request at any time certified copies of the above original policies, including the premiums.

If at any time the above policies should be cancelled, terminated, or modified so that the insurance is not in effect as above required, then, if the Manager shall so direct, the Contractor shall suspend performance of the contract at the premises. If the contract is so suspended, no extension of time shall be due on account thereof. If the contract is not suspended (whether or not because of omission on the Manager to order suspension), then the Authority may, at its option, obtain insurance affording coverage equal to the above required. The cost of such insurance to be payable by the Contractor to the Authority.

Except as provided below in connection with Builder's Risk Insurance, the requirements for insurance procured by the Contractor and/or subcontractor(s) shall not in any way be construed as a limitation on the nature or extent of the contractual obligations assumed by the Contractor under this contract. The insurance requirements are not a representation by the Authority as to the adequacy of the insurance to protect the Contractor and/or subcontractor(s) against the obligations imposed on them by law or by this or any other contract.

Builder's Risk Insurance

If the negotiated GMP plus the amount of construction work performed by the Contractor prior to negotiation of a GMP exceeds the coverage limit of the Builder's Risk Insurance procured by the Authority, either the Contractor or the Authority may procure additional Builder's Risk Insurance to cover the full replacement value of the permanent construction. If the Contractor procures such additional insurance, the Authority will reimburse the Contractor for the reasonable premium on such additional insurance. If such additional insurance is not commercially available to either the Contractor or the Authority, the Contractor's liability for property damage to the permanent construction will be limited to the coverage limit of the Builder's Risk Insurance policy procured by the Authority.

**CHAPTER VI
RIGHTS AND REMEDIES**

53. RIGHTS AND REMEDIES OF AUTHORITY

The Authority shall have the following rights in the event the Director shall deem the Contractor guilty of a breach of any term whatsoever of this Contract:

- A. The right to take over and complete the Work or any part thereof as agent for and at the expense of the Contractor, either directly or through other contractors.
- B. The right to cancel this Contract as to any or all of the Work yet to be performed.
- C. The right to specific performance, an injunction or any other appropriate equitable remedy.
- D. The right to money damages.

For the purpose of this Contract, breach shall include but not be limited to the Contractor's failure to procure insurance satisfactory to the Authority within the time limit specified in the Clause hereof entitled "Insurance Procured By Contractor" and the following, whether or not the time has yet arrived for performance of an obligation under this Contract: a statement by the Contractor to any representative of the Authority indicating that he cannot or will not perform any one or more of his obligations under this Contract; any act or omission of the Contractor or any other occurrence which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract; any suspension of or failure to proceed with any part of the Work by the Contractor which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract; any false certification at any time by the Contractor as to any material item certified pursuant to the clauses of the Information For Proposers entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc; Disclosure of Other Required Information" and "Non-Collusive Proposing and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee", any false certification at any time by the Contractor or a subcontractor pursuant to the clause "Prevailing Rate of Wage Certification" set forth herein, and the clauses of the FTA Construction Attachment entitled "Ineligible Contractors" and "Restrictions on Lobbying", or the willful or fraudulent submission of any signed statement pursuant to such clauses which is false in any material respect; or the Contractor's incomplete or inaccurate representation of its status with respect to the circumstances provided for in such clauses.

The enumeration in this numbered clause or elsewhere in this Contract of specific rights and remedies of the Authority shall not be deemed to limit any other rights or remedies which the Authority would have in the absence of such enumeration; and no exercise by the Authority of any right or remedy shall operate as a waiver of any other of its rights or remedies not inconsistent therewith or to estop it from exercising such other rights or remedies.

Should the Director deem the Contractor guilty of a breach of this Contract, the Director will give the Contractor written notice of such breach.

Should the Contractor's performance be terminated by the Authority due to the Contractor's breach of this Contract, the Contractor's damages for cover shall be limited to \$400 Million.

54. RIGHTS AND REMEDIES OF CONTRACTOR

Inasmuch as the Contractor can be adequately compensated by money damages for any breach of this Contract which may be committed by the Authority, the Contractor expressly agrees that no default, act or omission of the Authority shall constitute a material breach of this Contract, entitling him to cancel or rescind it or (unless the Director shall so direct) to suspend or abandon performance.

55. PERFORMANCE OF WORK AS AGENT FOR CONTRACTOR

In the exercise of its right to take over and complete Work as agent for the Contractor, for which provision is made in the clause hereof entitled "Rights and Remedies of the Authority", the Authority shall have the right to take possession of and use or permit the use of any and all plant, materials, equipment and other facilities provided by the Contractor for the purpose of the Work and the Contractor shall not remove any of the same from the site of the Work without express permission. Unless expressly directed to discontinue the performance of all Work, the Contractor shall continue to perform the remainder thereof in such manner as in no way will hinder or interfere with the portions taken over by the Authority.

In the certificate of total compensation earned, for which provision is made in the clause hereof entitled "Final Payment", the Director shall separately state the amount of Work performed by the Authority as agent for the Contractor, shall credit to the Authority the cost thereof, and shall credit to the Contractor the compensation earned thereby; and the difference between them shall be payable by the Contractor to the Authority, or vice versa as the case may be. If such difference is in its favor, the Authority may deduct it from any moneys due the Contractor, and if such moneys be insufficient, the balance thereof shall be payable to it on demand; if in the Contractor's favor, it shall constitute part of the Final Payment.

The exercise by the Authority of its right to take over the Work shall not release the Contractor from any of its obligations or liabilities under this Contract, the Performance Bond and/or the Payment Bond.

56. NO ESTOPPEL OR WAIVER

The Authority shall not be precluded or estopped by any acceptance, certificate or payment, final or otherwise, issued or made under this Contract or otherwise issued or made by it, the Director, or any officer, agent or employee of the Authority, from showing at any time the true amount and character of Work performed, or from showing that any such acceptance, certificate or payment is incorrect or was improperly issued or made; and the Authority shall not be precluded or estopped, notwithstanding any such acceptance, certificate or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on his part to comply strictly with this Contract, and any moneys which may be paid to him or for his account in excess of those to which he is lawfully entitled.

Neither the acceptance of the Work or any part thereof, nor any payment therefor, nor any order or certificate issued under this Contract or otherwise issued by the Authority, the Director, or any officer, agent or employee of the Authority, nor any permission or direction to continue with the performance of Work, nor any performance by the Authority of any of the Contractor's duties or obligations, nor any aid lent to the Contractor by the Authority in his performance of such duties or obligations, nor any other thing done or omitted to be done by the Authority, its Commissioners, officers, agents or employees shall be deemed to be a waiver of any provision of this Contract or of any rights or remedies to which the Authority may be entitled because of any breach thereof, excepting only a resolution of its Commissioners, providing expressly for such waiver. No cancellation, rescission or annulment hereof, in whole or as to any part of the Work, because of any breach hereof, shall be deemed a waiver of any money damages to which the Authority may be entitled because of such breach. Moreover, no waiver by the Authority of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

CHAPTER VII MISCELLANEOUS

57. SUBMISSION TO JURISDICTION

To the maximum extent permitted by applicable law, any legal suit, action or proceeding against any of the parties hereto arising out of or relating to this agreement shall be instituted in a federal or state court in the County of New York and State of New York, and each party hereby irrevocably submits to the exclusive jurisdiction of any such court in any such suit, action or proceeding. The parties to this Agreement hereby agree to venue in such courts and hereby waive, to the fullest extent permitted by law, any claim that any such action or proceeding was brought in an inconvenient forum.

57A. GOVERNING LAW

This Agreement shall be construed and interpreted in accordance with the laws of the State of New York.

58. PROVISIONS OF LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

59. INVALID CLAUSES

If any provision of this Contract shall be such as to destroy its mutuality or to render it invalid or illegal, then, if it shall not appear to have been so material that without it the Contract would not have been made by the parties, it shall not be deemed to form part thereof but the balance of the Contract shall remain in full force and effect.

60. NON-LIABILITY OF THE AUTHORITY REPRESENTATIVES

Neither the Commissioners of the Authority nor any officer, agent, or employee thereof or of the Government shall be charged personally by the Contractor with any liability or held liable to him under any term or provision of this Contract, or because of its execution or attempted execution, or because of any breach hereof.

61. SERVICE OF NOTICES ON THE CONTRACTOR

Whenever provision is made in this Contract for the giving of any notice to the Contractor, its deposit in any post office or post office box, enclosed in a postpaid wrapper addressed to the

Contractor at his office, or its delivery to his office, shall be sufficient service thereof as of the date of such deposit or delivery, except to the extent, if any, otherwise provided in the clause entitled "Submission to Jurisdiction". Until further notice to the Authority the Contractor's office will be that stated in his Proposal. Notices may also be served personally upon the Contractor; or if a corporation, upon any officer, director, or managing or general agent; or if a partnership upon any partner.

62. MODIFICATION OF CONTRACT

No change in or modification, termination or discharge of this Contract, in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith or his duly authorized representative, provided, however, that any change in or modification, termination or discharge of this Contract expressly provided for in this Contract shall be effective as so provided.

The authority of any person to order Extra Work or to alter the Contract Drawings and Specifications does not include the power to cancel, modify or waive any provision of the Form of Contract, and no officer or other representative of the Authority shall have the power so to do unless and until hereafter so authorized by or pursuant to a resolution of the Commissioners of the Authority or by or pursuant to a resolution of their appropriate Committee.

63. CONTRACTUAL RELATIONSHIP

The Contractor shall act as an independent contractor and not as an agent of the Authority. The Contractor shall maintain complete control over its staff and its Subcontractors at every tier. Persons employed by the Contractor in connection with this Contract shall not be considered employees of the Authority, and nothing contained in this Contract, or any Subcontract, shall create any contractual relationship between any such Subcontractor and the Authority. The Contractor shall perform the Work in Accordance with its own methods, subject to compliance with this Contract.

64. INTERACTION WITH THE MEDIA AND PUBLIC

The Authority reserves the right to review and approve all Authority-related copy prior to publication. The Contractor shall not allow Authority-related copy to be published in the Contractor's advertisements or public relations programs until submitting the Authority-related copy to and receiving prior approval from the Director. The Contractor shall agree that all published information shall be factual and in no way imply that the Authority endorses the Contractor's firm, service, or product.

The Contractor shall not respond to inquiries from the news media, but shall refer all questions to the Director.

The Contractor shall designate a staff person to keep the Director informed of all impacts on the community resulting from construction.

If the Contractor receives a complaint from a citizen or the community, it shall immediately inform the Director and advise what action has been taken to alleviate the situation.

If the Authority plans to conduct a site tour of the construction area, the Director will coordinate the tour with the Contractor.

If the Contractor notifies the community or general public via written notice (e.g., emergency road closures), six (6) copies of such notices shall be provided to the Director.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned¹⁴ Contractor and surety company (or companies), as principal and surety (or sureties), respectively,

Contractor

Surety

are hereby held and firmly bound unto The Port Authority of New York and New Jersey (herein called the "Authority") in the penal sum of \$250 Million Dollars and 00 Cents (\$250,000,000), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, representatives, executors, administrators, successors and assigns. Each surety, however, if there is more than one, shall be jointly and severally liable for said penal sum.

Signed this _____ day of _____ 20

The condition of the above obligation is that

WHEREAS, the above named principal has entered into a Contract in writing with the Authority, a copy of which is hereby made a part of this bond as though herein set forth in full and which is designated Contract WTC-284.458 (GC), "General Contracting Services", and

WHEREAS, the Authority has required this bond for the faithful performance of all obligations imposed by said Contract;

NOW, if the said principal shall well and faithfully do and perform the things agreed by him to be done and performed according to the terms and true intent and meaning of said Contract, then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that, provided the sureties shall comply with the provisions hereof, the aggregate liability of all sureties for any and all claims hereunder shall in no event exceed the penal amount of this obligation as hereinbefore stated.

¹⁴ Insert names of the Contractor and surety company (or companies) in the appropriate columns. If space is insufficient add rider.

If the Contractor is a corporation, give the state of incorporation, using also the phrase "a corporation organized under the laws of _____".

If the Contractor is a partnership, give full names of partners, using the phrase "co-partners doing business under the firm name of _____".

If the Contractor is an individual using a trade name, give individual name, using also the phrase "an individual doing business under the trade name of _____".

This undertaking is for the benefit of the Authority and the Authority shall have a direct right of action upon this bond.

The sureties, for value received, hereby stipulate and agree that the obligations of said sureties and their bond shall be in no way impaired or affected by any extensions of time, modification, omission, addition or change in or to the said Contract or the construction to be performed thereunder, or by any supervision or inspection or omission to supervise or inspect the construction, or by any payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent), or by any assignment, subletting or other transfer thereof or of any part thereof or of any construction to be performed or any moneys due or to become due thereunder; and said sureties do hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to said sureties as though done by or in relation to said principal.

IN WITNESS WHEREOF, the principal and the sureties have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

(Seal)

Principal
By ¹⁵ _____

Surety

By¹⁶ _____

APPROVED AS TO ACCEPTABILITY OF SURETIES:

Credit Manager

_____ 20

¹⁵ If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

¹⁶ Add signatures of additional sureties, if any.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of _____

SS:

County of _____

On this ___ day of _____, 20____, before me personally came and appeared _____, to me known, who being by me duly sworn, did depose and say that he resides at _____; that he is the _____ of _____ the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

(Seal)

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known, and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

(Seal)

AFFIX ACKNOWLEDGMENT AND JUSTIFICATION OF SURETY

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned¹⁷ Contractor and surety company (or companies), as principal and surety (or sureties), respectively,

Contractor

Surety

¹⁷ Insert names of the Contractor and surety company (or companies) in the appropriate columns. If space is insufficient add rider.

If the Contractor is a corporation, give the state of incorporation, using also the phrase "a corporation organized under the laws of _____".

If the Contractor is a partnership, give full names of partners, using the phrase "co-partners doing business under the firm name of _____".

If the Contractor is an individual using a trade name, give individual name, using also the phrase "an individual doing business under the trade name of _____".

are hereby held and firmly bound unto The Port Authority of New York and New Jersey (herein called the "Authority") in the penal sum of \$250 Million Dollars and 00 Cents (\$250,000,000), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, representatives, executors, administrators, successors and assigns. Each surety, however, if there is more than one, shall be jointly and severally liable for said penal sum.

Signed this _____ day of _____ 20

The condition of the above obligation is that

WHEREAS, the above named principal has entered into a Contract in writing with the Authority, a copy of which is hereby made a part of this bond as though herein set forth in full and which is designated Contract WTC-284.458(GC), General Contracting Services; and

WHEREAS, the Authority has required this bond for the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract;

NOW, if all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract are paid, then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that, provided the sureties shall comply with the provisions hereof, the aggregate liability of all sureties for any and all claims hereunder shall in no event exceed the penal amount of this obligation as hereinbefore stated.

This undertaking is for the benefit of the Authority and all subcontractors, materialmen and workmen having lawful claims arising out of the performance of said Contract, and all such subcontractors, materialmen and workmen (as well as the Authority itself) shall have a direct right of action upon this bond; but the rights and equities of such subcontractors, materialmen and workmen shall be subject and subordinate to those of the Authority.

The sureties, for value received, hereby stipulate and agree that the obligations of said sureties and their bond shall be in no way impaired or affected by any extensions of time, modification, omission, addition or change in or to the said Contract or the construction to be performed thereunder, or by any supervision or inspection or omission to supervise or inspect the construction, or by any payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent), or by any assignment, subletting or other transfer thereof or of any part thereof or of any construction to be performed or any moneys due or to become due thereunder; and said sureties do hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to said sureties as though done by or in relation to said principal.

The sureties shall give the General Counsel of the Authority the following notices:

Written notice of an intent to pay any claim of a subcontractor, materialman or workman hereunder;

Written notice within five days of the institution of an action by a subcontractor, materialman or workman hereunder.

The sureties shall not pay the claim of any subcontractor, materialman or workman hereunder until the expiration of thirty days after receipt by said General Counsel of notice under either subparagraph A or B above, describing the claim to be paid.

IN WITNESS WHEREOF, the principal and the sureties have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

(Seal) By ¹⁸ _____ Principal

By ¹⁹ _____ Surety

APPROVED AS TO ACCEPTABILITY OF SURETIES:

Credit Manager
_____ 20

¹⁸ If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

¹⁹ Add signatures of additional sureties, if any.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of _____

SS:

County of _____

On this ____ day of _____, 20____, before me personally came and appeared _____, to me known, who being by me duly sworn, did depose and say that he resides at _____; that he is the _____ of _____ the corporation described in and _____ which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

(Seal)

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known, and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____

SS:

County of _____

On this _____ day of _____, 20____, before me personally came and appeared _____, to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

(Seal)

AFFIX ACKNOWLEDGMENT AND JUSTIFICATION OF SURETY

**SPECIFICATIONS
DIVISION 1
CHAPTER I
GENERAL PROVISIONS**

65. CONSTRUCTION REQUIRED BY THE SPECIFICATIONS

These Specifications relate generally to performing the construction of the World Trade Center Transportation Hub and the performance of related work to provide for a complete transportation center and passenger train station and PATH service for that station and all at the WTC site and other PATH facilities in New York and New Jersey; all as directed by the Director and in accordance with the requirements of Work package(s) which consist of Contract Drawings and Specifications issued by the Director.

These Specifications require the doing of all things necessary or proper for or incidental to the matter referred to in the immediately preceding paragraph.

In the case of a conflict between a requirement of the Contract Drawings and a requirement in Division 1 of the Specifications, the requirement of Division 1 shall control. In a case of a conflict between a requirement contained in other Divisions of the Specifications and a requirement of the Contract Drawings, the requirement of the Contract Drawings shall control.

66. AVAILABLE PROPERTY

Subject to the conditions elsewhere stated herein, those areas to be occupied by the permanent construction will be made available to the Contractor upon the commencement of his first operations at the construction site.

Any additional property, which the Contractor desires for his operations, shall be obtained by him at his own expense.

The Contractor will be permitted to use only so much of the aforesaid areas as is necessary for the performance of the Contract, and he must at all times so conduct his operations as not to encroach upon or block the portions used by others. The Engineer may at any time make joint or exclusive assignments of particular portions thereof, either to the Contractor or to others, and may take over and use for other purposes any portions which, in the opinion of Engineer, are not required for the performance of the Contract.

The Contractor shall on a daily basis clean up all refuse, rubbish, scrap materials, debris and standing water within and adjacent to its construction area to the end that at all times the construction site shall present a neat, orderly and workmanlike appearance. At completion of the Work the Contractor shall remove all surplus materials, false work, temporary fences and other temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from its operations and shall put the construction site in a neat and orderly condition.

The Contractor shall not occupy, and shall not permit Subcontractors to occupy, Port Authority-owned property outside the construction site without obtaining the prior written approval of the Engineer.

67. DAMAGE TO ADJACENT IMPROVEMENTS

The Contractor shall protect, and shall ensure that all Subcontractors protect, from damage: utilities, foundations, walls or other parts of adjacent, abutting or overhead buildings, structures, surface and subsurface structures at or near the construction site, and shall be responsible for ensuring that any damage to such facilities resulting from failure to comply with the requirements of this Contract or the failure to exercise reasonable care in the performance of the Work is repaired and restored at no additional cost or expense to the Port Authority. If the Contractor fails or refuses to cause any such damage to be promptly repaired, the Port Authority may have the necessary work performed by Authority forces or others and the expense of the Work will be charged to the Contractor. The amount of such expense shall be deducted from any moneys due or becoming due to the Contractor.

68. MATERIALS FURNISHED BY THE AUTHORITY

In the event the Authority elects to furnish to the Contractor materials for installation by him in the permanent construction, the following requirements shall apply:

Materials furnished to the Contractor shall be examined by him at the time they are furnished to him, and if there is any shortage, damage or other defect, the Contractor shall at that time bring it specifically in writing to the attention of the Engineer. Any shortage, damage or defect so brought to the Engineer's attention and acknowledged by him will be corrected by the Authority.

If no shortage, damage or other defect is so brought to the attention of and acknowledged by the Engineer at the time said materials are furnished to the Contractor, the materials shall thereafter conclusively be deemed to have been satisfactory in all respects, provided that if the Contractor demonstrates to the satisfaction of the Engineer that there was a shortage, damage or defect at the time the materials were furnished to the Contractor and that such fact could not reasonably have been ascertained at that time, then the shortage, damage or defect will be corrected by the Authority.

From the date the foregoing materials are furnished to the Contractor they shall form part of the materials included in the risks assumed by the Contractor as provided in subparagraph A of the clause of the Form of Contract entitled "Risks Assumed by the Contractor".

All materials or portions thereof in excess of those actually required in the permanent construction and which in the opinion of the Engineer may be suitable for use by the Authority shall be returned to the Authority at a location at the construction site designated by the Engineer upon the completion of the Work or when there is no longer any need for this material, whichever may first occur.

The Contractor at his own expense shall furnish all materials required by the Contract Drawings and Specifications with the exception of those materials expressly provided to be furnished to the Contractor by the Authority in accordance with this numbered Section.

The foregoing materials will be delivered to the construction site tailboard of truck and the Contractor shall unload same and transport to the point of installation.

69. OPERATIONS OF OTHERS

During the time that the Contractor is performing the Contract, other persons will be engaged in other operations on or about the construction site, including other contractors performing work, other Authority tenant and facility operations, PATH and NYCT maintenance and operations, vehicular and pedestrian traffic and public events all of which shall remain uninterrupted. The Contractor's Project Schedule and its regular updates shall reflect the latest information on where and when other contractors are performing or plan to perform their work adjacent to or on the construction site and demonstrate how the Contractor plans to conduct its operations to eliminate and/or minimize conflicts.

The Contractor shall so plan and conduct his operations as to work in harmony with others engaged at the construction site and not to delay, endanger or interfere with the operations of others (whether or not specifically mentioned above), all to the best interests of the Authority and the public and as may be directed by the Engineer.

70. LABOR ACTIONS

Whenever any labor strike, slowdown, work stoppage, picketing or other labor action which might interfere with the performance of the Contract, or of other Authority or PATH contracts or the operation of any Authority or PATH facility occurs at the construction site or at any other Authority or PATH facility as a result of the Contractor's (or its subcontractor's) utilization of particular means, methods or manpower to perform the Work required by the Contract, the Contractor shall pursue all remedies which are appropriate and available to him to avoid such interference.

71. CONTRACTOR'S MEETINGS

The Contractor shall conduct job progress and coordination meetings with subcontractors in his field office every two weeks, or as frequently as job conditions require or the Engineer may request. The Engineer shall be notified and, at his option, may attend these meetings. The Contractor shall prepare and distribute minutes to the Engineer and the subcontractors within forty-eight (48) hours of the day following the meetings.

The Contractor shall attend separate job progress and coordination meetings with the Engineer every two weeks, or at times otherwise requested by the Engineer.

72. CONTRACT DRAWINGS

Contract Drawings will be issued by the Director as part of a Work package.

The Contract Drawings will not show all of the details of the Work and are intended only to illustrate the character and extent of the Work to be performed. Accordingly, they may be supplemented during the performance of the Work by the Director or by the Contractor subject to the approval of the Director, to the extent necessary to further illustrate the Work.

Nothing in the Contract Drawings will be intended as a representation as to the existence, nature or location of any utilities, structures, obstructions, conditions or materials except to the extent that such drawings expressly contain such a representation. An indication on the Contract Drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials will not constitute a representation that no others exist in addition to those shown, even in the same location; nor does the absence of any indication on said drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials constitute a representation that none exist.

73. SPECIFICATIONS

Specifications, if any, will be issued by the Director as part of a Work package.

74. AVAILABLE DOCUMENTS

Available Documents prepared for other purposes are furnished to give such information as may be in the possession of the Authority. Available Documents do not form a part of this Contract. The Authority makes no representation or guarantee as to, and shall not be responsible for their accuracy, completeness or pertinence, and, in addition, shall not be responsible for the conclusions to be drawn there from. They are made available to the Contractor for the purpose of providing such information as is in the possession of the Authority, whether or not such information may be accurate, complete or pertinent, or of any value. The Available Documents are preliminary working documents and are strictly limited to this context. The documents are subject to change during the Final Design of the project; and shall not be utilized to represent any determinations, findings, or conclusions of the Authority.

An indication on the Available Documents of the existence, nature or location of any utilities, structures, obstructions, conditions or materials does not constitute a representation as to the conclusions to be drawn there from, nor a representation that no others exist in addition to those shown, even in the same location; nor does the absence of any indication on said drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials constitute a representation that none exist.

Drawings Bearing the general title "WTC TRANSPORTATION HUB WTC PATH TERMINAL AND PEDESTRIAN CONNECTIONS " and which are separately numbered and entitled as follows:

Exemption (4)

75. SHOP DRAWINGS, CATALOG CUTS AND SAMPLES

The Contractor shall specifically prepare for this Contract all Shop Drawings, which may be required in addition to the Contract Drawings or in addition to any other drawings, which the Director may issue in supplementing the Contract Drawings.

The specific requirements elsewhere set forth in the Specifications for furnishing Shop Drawings, Catalog Cuts and samples for any particular portion of the Contract shall not limit the obligation of the Contractor to furnish Shop Drawings, Catalog Cuts and samples for any other portion when so required by the Engineer.

The Port Authority uses Primavera Expedition software to track the status of Submittals provided by the Contractor. In order to facilitate this electronic tracking, the Contractor shall use the transmittal form that is provided at the pre-construction meeting, and shall forward it to the

Engineer via an MAPI compliant e-mail system (e.g. Microsoft Outlook, CC mail, Lotus notes, etc.).

The Contractor's transmittal of required data shall fully comply with the numbering and naming conventions and other procedures that will be provided by the Engineer to the Contractor at the pre-construction meeting.

The Contractor shall submit a general "Submittal Schedule" for the Engineer's review and approval listing the planned transmittal date and estimated number in each specification section category of Shop Drawings, Catalog Cuts, pages of calculations and samples within 30 days after issuance of the Work package. A more detailed schedule shall be submitted no less than 30 calendar days prior to the actual date of any submittal.

After checking and verifying all field measurements and after complying with applicable procedures specified hereunder, the Contractor shall submit to the Engineer for review and approval, in accordance with the approved schedule of Shop Drawing submissions, or for other action if so indicated by the Engineer, twelve copies and three reproducible, unless otherwise requested, of all Shop Drawings which will bear a specific written indication that the Contractor has reviewed the submission for conformance to the requirements of the Contract Drawings and Specifications.

All submissions shall be identified as the Engineer may require. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, conformance to the specified performance and design criteria, materials, test results and similar information to enable the Engineer to review the submittal as required.

The Contractor shall also submit twelve copies to the Engineer for review and approval pursuant to the approved submittal schedule, of all Catalog Cuts and samples for conformance to the requirements of the Contract Drawings and Specifications. All Catalog Cuts and samples shall have been reviewed by the Contractor and shall be accompanied by a specific written indication that the Contractor has reviewed the submittal for conformance with the Contract Drawings and Specifications and shall be identified clearly as to material, supplier, manufacturer's procedures and pertinent data such as catalog numbers and the use for which intended.

Before submission of each Shop Drawing, Catalog Cut and sample, the Contractor shall have determined and verified all quantities, dimensions, conformance to the specified performance and design criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed and coordinated each Shop Drawing or Catalog Cut with other Shop Drawings and Catalog Cuts and with other requirements of the Work.

At the time of each submission, the Contractor shall give the Engineer specific written notice of each variation in any Shop Drawing, Catalog Cut and sample from the requirements of the Contract Drawings or Specifications and, in addition, shall cause a specific notation of each such variation to be made on each submittal to the Engineer, for review and approval of each such variation.

The Engineer's review and approval of Shop Drawings, Catalog Cuts or samples shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Drawings or Specifications unless the Contractor has in writing called the Engineer's attention to each such variation at the time of submission as required hereunder and the Chief Engineer has

given written approval of each by an express specific written notation thereof incorporated in or accompanying the Shop Drawing, Catalog Cut or sample approval. Approval of Shop Drawings, Catalog Cuts and samples which are inconsistent with the requirements of the Contract Drawings and Specifications shall not be deemed to waive or change such requirements or to relieve the Contractor of his obligations to perform such requirements unless the Chief Engineer shall expressly and specifically state that he is waiving or changing such requirements, as stated above.

Where a Shop Drawing, Catalog Cut or sample is required no related Work shall be performed prior to the Engineer's review and approval of the submission.

In preparing the Shop Drawings, the Contractor may adopt a sheet of any reasonable size which best suits his needs, but having adopted such size, all sheets thereafter of a similar nature shall be of the same size as that adopted. Each drawing shall have a margin on the top, bottom and right-hand side of one-half inch and on the left hand side a margin of one and one-half inches.

Upon receipt of the submittal, the Engineer will review the Shop Drawing, Catalog Cut or sample for conformance to the design information and materials shown on the Contract Drawings and contained in the Specifications. Approval by the Engineer shall not constitute a complete review or approval of the means, methods, techniques, sequences or procedures of construction, except where a specific means, method, technique, sequence or procedure of construction is specifically delineated in or required by the Contract Drawings or Specifications, and the approval shall not constitute a review and approval in regard to safety precautions or programs incident thereto. The review and approval of a separate item will not in itself indicate approval of the assembly in which the item functions. Any design shown on the Shop Drawings and prepared by the Contractor, his subcontractors, their detailers, or their professional engineers is the complete responsibility of the Contractor.

Within the number of working days hereinafter specified after receipt of the Shop Drawing prints, the Engineer shall approve or not approve the same or require corrections or additions to be made thereon. When a shop drawing is not approved or if additions or corrections are required, the Engineer shall return within this period one of the four copies submitted and the Contractor shall make the revisions, corrections or additions shown thereon to be made. He shall resubmit four prints and one brownline (reproducible) showing the drawing corrected as required. The Contractor shall direct specific attention in writing to revisions other than the corrections called for by the Engineer on the previous submittal. Each drawing shall be corrected as required until the approval of the Engineer is obtained. After each resubmission, the Engineer shall have the number of working days hereinafter specified in which to approve revisions or corrections.

The number of working days within which the Engineer shall advise the Contractor as to whether the Shop Drawings are approved, not approved, or require corrections or additions to be made thereto shall be as follows, except that 20 working days shall be required for the Engineer to review shop drawings submitted with design calculations.

No. of Dwgs. Submitted Within 5 Consecutive Working Days for Each Discipline(*)	No. of Working Days for Engineer To Review Shop Drawings
Up to 50	10
51 to 75	15
More than 75	20
* Disciplines shall be defined as follows: Structural, Architectural, Civil, Subsurface, Mechanical, Electrical, Traffic and Environmental.	

Failure of the Contractor to provide 30 calendar days advance notice to the Engineer of any submittal shall result in a five (5) working day extension of the number of working days stated in the chart above. In no event shall an extension of the Engineer's review time provided for in this section relieve the Contractor from its duty to meet all contractual Milestone dates.

As soon as approval has been given to any Shop Drawing or Catalog Cut, the Contractor shall within five days send to the Engineer six prints, except that when the Engineer specifically so directs, nine prints shall be sent. After approval thereof, no change will be permitted thereon unless approved in writing by the Engineer.

Before final payment for the Work is made, the Contractor shall furnish to the Engineer one set of Shop Drawings, which have previously been prepared by the Contractor in accordance with requirements elsewhere specified in these Specifications, all clearly revised, completed and brought up to date showing the permanent construction as actually made. These drawings shall be in the form of Mylar reproducible, from which clear prints can be made.

All drawings, data, calculations and other papers of any type whatsoever, whether in the form of writing, figures or delineations, which are prepared in connection with this Contract and submitted to the Authority shall become the property of the Authority. The Authority shall have the non-exclusive right to use or permit the use of all such drawings, data and other papers and any ideas or methods represented thereby for any purpose and at any time without additional compensation. No such papers shall be deemed to have been given in confidence. Any statement or legend to the contrary in connection with such drawings, data or other papers and in conflict with the provisions of this paragraph shall be void and of no effect.

76. SUBSTITUTION

Where a proprietary item or make is specified or mentioned herein or called for or mentioned on the Contract Drawings and the phrases "similar and equal to" or "approved equal" are used in connection therewith, the utilization of any other item or make will be deemed a substitution. Substitution for the proprietary item or make specifically named may be made only in accordance with the Section hereof entitled "Workmanship and Materials" and in accordance with the following. Whenever materials or equipment are specified or described in the Contract Drawings or Specifications by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or

equipment of another supplier or manufacturer may be accepted by the Engineer if sufficient information and proof is submitted by the Contractor to permit the Engineer to determine that the material or equipment proposed is equivalent or equal to that named and the Engineer approves the substitution. The procedure for review by the Engineer will include the following. Requests for review of substitute items of material and equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall make a timely written application to the Engineer for approval thereof, certifying that the proposed substitution will perform at least the identical functions and achieve at least the identical results called for by the specified product and otherwise be equal to the specified product with regard to, but not limited to, durability, maintenance, strength, energy costs and record of proven performance. The application shall state that the evaluation and approval of the proposed substitution shall not delay the Contractor's completion of the Work as required by the Contract, whether or not approval of the substitution will require a change in the construction and, in no event will the Contractor be granted an extension of time for completion of any portion of the Work for reasons related directly or indirectly to the evaluation of the proposed substitution or to the proposed substitution itself.

Any variations of the proposed substitution from that specified shall be identified in the application, and maintenance, repair and replacement services for the substitution shall be indicated. The Engineer may require the Contractor to furnish at the Contractor's expense additional laboratory test data concerning the proposed substitution. Such submission to the Engineer shall be made only by including the requested substitution in the list of materials required to be submitted to the Engineer in accordance with the Section hereof entitled "Inspections and Rejections" within forty-five calendar days after the receipt of the acceptance of the Contractor's Proposal. After the approval of said list, no substitutions will be permitted, except that a brand or make named in the Specifications may be submitted for approval in lieu of a brand or make on said list. Any such submission shall not imply, or impose on the Engineer, any obligation whatsoever to discuss, disclose or justify the reasons for his opinion, approval, acceptance or rejection.

The Engineer shall be the sole judge of as to whether a proposed substitution will be approved, and no substitution shall be ordered or utilized without the Engineer's prior written approval.

The Engineer may require Contractor to furnish at Contractor's expense a special performance guarantee or other assurance with respect to any approved substitution. Furthermore, the approval of any substitute proprietary item or make shall not in any way entitle the Contractor to additional compensation therefor.

Notwithstanding such approval, however, the Contractor assumes the risk that such approved substitute item or make is not equal to that shown or specified and if at any time the substitution shall appear not to be so equal he shall replace the substitution with that originally shown on the Contract Drawings or called for in the Specifications at his own cost and reimburse the Authority for any loss occurring on account of the substitution failing to be equal, notwithstanding that it had been previously approved for use by the Engineer.

The construction called for by the Contract Drawings and Specifications may be adapted for a particular proprietary item or make of material or equipment. Therefore, if any construction not required by the Contract Drawings or Specifications is necessary or desirable because of the use of substitute item or make of material or equipment (even though such other item or make is approved by the Engineer), such construction shall be furnished or performed by the Contractor at his expense and subject to the approval of the Engineer.

77. WORKMANSHIP AND MATERIALS

Workmanship and materials shall in every respect be free from defects of any kind and shall be in accordance with the best modern practice and whenever the Contract Drawings, Specifications or directions of the Engineer admit of a doubt as to what is permissible or fail to note the quality of any construction the interpretation which calls for the best quality is to be followed.

Workmanship shall conform to applicable Specifications, manufacturer's instructions and recommendations for installation of products for the applications shown on the Contract Drawings, all of which shall be subject to the provisions of the Section of Division 1 GENERAL PROVISIONS entitled "Inspections and Rejections".

All items provided in this contract that use dates in the recording, storing or processing of information shall use such dates correctly at all times including using such dates correctly in the recording, storing or processing of information after January 1, 2000 (Year 2000 Compliant). Materials and Equipment incorporated into the Work shall be new except as may be otherwise herein specifically required, and shall comply with make, size, type and quality specified, or as specifically approved in writing by the Chief Engineer in accordance with the Section of Division 1 GENERAL PROVISIONS entitled "Substitution".

Reference to standards of any society, institution, association, or governmental authority in the Specifications or on the Contract Drawings, whether specific or by implication, shall mean for such standards which are part of the building code in effect for Work of this Contract the edition date published in such code; and such references which are not part of the building code, shall mean the latest edition date in effect at the time of opening of Proposals upon the present Contract unless specifically stated otherwise.

If required by the Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment to be employed by the Contractor in performing the Work. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the approved instructions of the applicable supplier except as otherwise provided in the Contract Drawings or Specifications.

In case of a discrepancy between a description or requirement in the Contract Drawings and Specifications for any material or equipment and a catalog number or other designation for the same material or equipment (even though stated to be acceptable), the description or requirements shall control.

In various paragraphs of these Specifications, references may be made to certain standard or tentative specifications or requirements of various organizations. Unless otherwise stated, these references are to be construed as referring to the specifications and requirements in effect on the date set for opening bids upon the present Contract.

All inventions, ideas, designs and methods contained in the Specifications and Contract Drawings in which the Authority has or may acquire patent, copyright or other property rights are hereby expressly reserved for the exclusive use of the Authority. The Specifications and Contract Drawings contain confidential information, which is disclosed only to enable this Contract to be performed. Said Specifications and Drawings must not be used for any purpose detrimental to the interest of the Authority and must not be produced or copied in whole or in part or used for furnishing information to others without the written consent of the Authority, provided, however, that the Contractor may, when the performance of the Contract so requires, furnish said information to others for the purpose of engaging or informing subcontractors and materialmen.

If, in accordance with this Contract, the Contractor furnishes research, development or consultative services in connection with the performance of the Contract and if in the course of such research, development or consultation patentable subject matter is produced by the Contractor, its officers, agents, employees, subcontractors or materialmen, the Authority shall have, without cost or expense to it, an irrevocable, non-exclusive, royalty-free license to make, have made, and use, either itself or by anyone on its behalf, such subject matter in connection with any activity now or hereafter engaged in or permitted by the Authority. Promptly upon request by the Authority, the Contractor shall furnish or obtain from the appropriate person a form of license satisfactory to the Authority, but as between the Contractor and the Authority the license herein provided for shall nevertheless arise for the benefit of the Authority immediately upon the production of said subject matter and shall not await formal exemplification in a written license agreement as provided for above. Such license may be transferred by the Authority to its successors, immediate or otherwise, in the operation or ownership of any real or personal property now or hereafter owned or operated by the Authority, but such license shall not be otherwise transferable. The FTA shall have the same rights as the Authority under this paragraph.

The right to use all material, software, firmware, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction required in connection with this Contract and to which a patent, copyright or other intellectual property right applies or may apply shall be obtained by the Contractor without separate or additional compensation whether the same is patented, copyrighted or otherwise protected as an intellectual property right before, during or after the performance of the Contract.

The Contractor shall indemnify the Authority and the FTA against and save them harmless from all loss and expense incurred in the defense, settlement or satisfaction of any claims in the nature of patent, copyright or other intellectual property right infringement arising out of or in connection with the Authority use, in accordance with the preceding two paragraphs of this numbered clause, of such subject matter or material, software, firmware, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction to which a patent, copyright or other intellectual property right applies or may apply. If requested by the Authority and if notified promptly in writing of any such claim, the Contractor shall conduct all negotiations with respect to and defend such claim without expense to the Authority. If the

Authority be enjoined from using any of the facilities which form the subject matter of this Contract and as to which the Contractor is to indemnify the Authority against patent, copyright or other intellectual property right claims, the Authority may, at its option and without thereby limiting any other right it may have hereunder or at law or in equity, require the Contractor to supply, temporarily or permanently, facilities not subject to such injunction and not infringing any patent, copyright or other intellectual property right or to remove all such facilities and refund the cost thereof to the Authority or to take such steps as may be necessary to ensure compliance by the Authority with such injunction, all to the satisfaction of the Authority and all without cost or expense to the Authority. The FTA shall have the same rights as the Authority under this paragraph.

78. INSPECTIONS AND REJECTIONS

All Work and all construction, processes of manufacture and methods of construction involved in or related to the performance of the Work shall be at all times and places subject to the inspection of the Engineer, acting personally or through his Inspectors, and the enumeration in these Specifications of particular portions of such Work, construction, processes of manufacture or methods of construction which will or may be inspected by the Engineer or such Inspectors shall not be deemed to imply that only such Work, construction, processes of manufacture and methods of construction will or may be so inspected. The Engineer shall be the judge of the quality and suitability of the Work, construction, processes of manufacture and methods of construction for the purposes for which they are used or to be used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall be removed immediately from the site. The fact that the Inspectors have approved the materials and workmanship shall not relieve the Contractor from his obligation to supply other material and workmanship when so ordered by the Engineer.

The Contractor, at his own expense, shall furnish such facilities and give such assistance for inspection as the Engineer may direct. In the case of materials required by the Specifications to be inspected in the factory or plant, and in the case of any other items which the Engineer may designate, the Contractor shall secure for the Engineer and his Inspectors free access to all parts of such factories or plants and shall furnish to the Engineer three copies of purchase orders, two copies of mill shipping statements and four copies of shipping statements. Moreover, in the case of such materials to be factory or plant inspected, the Contractor shall give at least ten days' notice to the Engineer of his intention to commence the manufacture or preparation of such materials.

Other than the materials and equipment specifically required to be inspected at the manufacturer's factory or plant, all materials will be inspected at the construction site and any portions thereof which are rejected by the Engineer shall be immediately removed from the construction site by the Contractor and shall be replaced with new materials by the Contractor at his own expense.

In the case of materials to be inspected at the construction site, the Contractor shall submit a list of all such materials in triplicate to the Engineer for his approval prior to ordering same. The list shall be submitted within forty-five calendar days after issuance of the Work package and shall contain the following information:

Classification of submittal in accordance with the following:

Class I – A submittal for record of an expressly specified item.

Class II – A submittal of an item, which conforms to an express generic specification or a submittal, which is deemed by the Contractor to be identical to an expressly specified item.

Class III – A submittal, which is deemed by the Contractor to be functionally equivalent but not identical to a specified item.

In the case of Class II and Class III, the Contractor shall supply adequate information to the Engineer to enable the Engineer to compare the specified item and the proposed substitution. Information shall include, but need not be limited to, technical specifications, Catalog Cuts, drawings, references to existing installations and test data, or any other data required by the Engineer.

In the case of fabricated materials for which Shop Drawings are to be prepared, a brief description of the material and the statement “see Shop Drawings”.

In the case of materials or equipment listed in manufacturer’s catalogs, the list shall contain the vendor’s name, the manufacturer’s name, brand name, style designation, catalog number and, where the Specifications require catalog cuts, the statement “see catalog cut”.

In the case of materials or equipment for which Shop Drawings are not to be prepared, and which are not listed in any catalog, the list shall contain a complete description of the material or equipment, which shall be in sufficient detail to describe completely the materials or equipment and quality therefor.

The Engineer shall advise the Contractor whether said list is approved or requires corrections or additions within the number of working days indicated in the chart below:

Type of Submittal	No. of Working Days for Engineer to Approve/Disapprove Items
Class I Material submittals	10
Portland Cement mix designs that require confirmation of the 28-day properties	35
Changes in asphalt mix designs that need to be confirmed with a batch mix at the plant	35
Class II Material submittals	20
Class III Material submittals	30

Failure of the Contractor to provide 30 calendar days advance notice to the Engineer of any submittal shall result in a five (5) working day extension of the number of days stated in the chart above. In no event shall an extension of the Engineer's review time provided for in this section relieve the Contractor from its duty to meet all contractual Milestone dates.

Within ten working days after receipt of said list, the Engineer shall notify the Contractor of which items are approved and which disapproved. Within two working days thereafter, the Contractor shall resubmit a new list covering those items, which were disapproved. After each such re-submission the Engineer shall have a similar period of ten days in which to approve or disapprove.

Should materials or equipment be delivered to the construction site without having been placed on the aforementioned list and approved, it shall be immediately removed from the construction site by the Contractor at his own expense.

79. MANUFACTURERS' CERTIFICATION

Where materials and equipment are required by these Specifications to conform to certain standard or tentative specifications or requirements of any organizations, including American Society for Testing and Materials, American National Standards Institute, Association Rules for Grading Lumber, Federal Specifications, National Electrical Manufacturers Association, American Association of State Highway and Transportation Officials, American Water Works Association and the International Municipal Signal Association, the Contractor shall furnish to the Engineer the manufacturer's written certification that each of the materials or equipment conforms to the foregoing standard or tentative specifications. The certification shall be delivered to the Engineer prior to installation of the materials to which it refers. Such certifications shall not be binding or conclusive on the Authority and may be rejected at any time by the Engineer if incorrect, improper or otherwise unsatisfactory in his opinion.

80. CONTRACTOR'S QUALITY PROGRAM REQUIREMENTS

1.1 SCOPE

This section defines the responsibilities of the Contractor in the management of quality in the construction of the Project to achieve an end product conforming to the level of quality required by the Contract Documents.

1.2 CONTRACTOR'S QUALITY PROGRAM

The Contractor shall establish, implement and maintain an effective quality control program ("QC Program") to manage, control, document and assure that all work complies with the requirements of the Contract Documents. The program shall consist of plans, procedures and establish the organization necessary to assure adequate control and assurance of quality for materials, equipment, workmanship, fabrication and operations covering both onsite and offsite work by the Contractor, including its subcontractors, suppliers, technical laboratories and consultants. The program shall also include training to assure that suitable proficiency is achieved and maintained by personnel performing activities that affect and insure quality.

1.3 SUBMITTAL OF QUALITY PROGRAM.

a. Within 60 days after the acceptance of the Contractor's Proposal, the Contractor shall furnish for the approval of the Authority the QC Program. The QC Program shall be signed by a principal of the firm and his designated Quality Control Manager ("QCM"). If the Contractor fails to submit an acceptable QC Program within the prescribed time the Construction Quality Assurance Manager (CQAM) may not allow the work to continue unless an acceptable interim plan which addresses all of the requirements of the QC Program is provided. The interim plan will only be acceptable for 90 days.

b. Failure to comply with either of these submittal requirements within the prescribed times may result in the Authority issuance of an order to the Contractor to stop all work on this Project.

1.4 ACCEPTANCE OF CONTRACTOR'S QUALITY CONTROL PROGRAM (QCP)

Acceptance of the QCP is conditional, and will be predicated on satisfactory performance during construction. As the work progresses, the Authority may require the Contractor to make changes to the QCP it considers necessary to obtain the quality of construction required in the Contract documents. Implementation of the QCP requirements shall be subject to audit by the Authority.

1.5 PRESENTATION OF THE QCP

The Contractor shall provide the Authority with a presentation of the Contractor's QC Program. The presentation shall outline each QCP element objective, detailing the organizational structure, member roles, responsibilities and working interrelationships. The presentation should be an accurate account of how the Contractor intends to successfully implement the program. The presentation shall commence within 30 days of the program's approval.

1.6 CHANGES TO THE QCP

The Contractor shall notify the Authority in writing of any proposed change to the QCP. All proposed changes are subject to the approval of the Authority. The Contractor shall review the approved QCP on an annual basis for continued adequacy to meet the requirements of the Contract Documents and shall incorporate changes to overcome the deficiencies in the program that affect quality.

2.1 ELEMENTS OF CONTRACTOR'S QUALITY PROGRAM

The QCP shall include the following elements:

ELEMENT	SPECIFICATIONS PARAGRAPH
1. Organization, Staffing and Responsibilities	2.2
2. Submittal Management and Control of Documents and Document Changes	2.3
3. Receiving, Handling, Storage and Control of Materials and Equipment	2.4

4. Subcontractor and Supplier Control	2.5
5. Inspection and Testing Plan	2.6
6. Control of Construction Processes	2.7
7. Control of Measuring and Testing Equipment	2.8
8. Preventive Action and Control of Nonconforming Conditions	2.9
9. Documentation by Quality Records	2.10
10. Contractor Internal Audit	2.11
11. Training	2.12
12. Statistical Analysis	2.13
13. Design Process Control	2.14

2.2 ORGANIZATION, STAFFING AND RESPONSIBILITIES

a. The QCP shall describe the Contractor's project organization (including major subcontractors and suppliers) and include an organization chart showing names, titles and lines of authority, and the interrelationship of those involved in managing and directing the Project. The qualifications, duties, responsibilities and functions of the Construction Management Team shall be provided.

b. The Contractor shall assign a full time Quality Control Manager ("QCM") exclusively to this Project. The QCM's sole function shall be to manage all quality matters for the Project and have the authority to act in all quality matters for the Contractor. The QCM shall not be subordinate to the Contractor's personnel that directly perform, supervise or progress the work. The QCM shall have direct access to the upper management of the Contractor. The QCM shall possess at least five (5) years of related experience and shall be a Certified Quality Engineer (CQE) as recognized by the American Society for Quality (ASQ) or shall be a certified ISO-9000 Lead Auditor as recognized by the Registrar Accreditation Board (RAB). The Authority may accept other relevant certifications or trade experience in lieu of the aforementioned. The QCM shall be a member of ASQC. The resume of the QCM must include a description of the duties, responsibilities and the QA/QC record of assignments for the preceding five-year period, which establishes the candidate's experience as a QCM. The QCM's qualifications shall be submitted to the Authority for approval. The QCM shall participate in developing the QCP for this project and shall sign it prior to submittal.

c. Adequate staff and resources shall be provided to perform all quality control activities to assure contract compliance whether the work is performed by the Contractor's own forces or by subcontractors. The personnel comprising this staff shall be fully qualified by experience and technical training to perform their assigned responsibilities. The Authority may direct the Contractor to provide additional staff and resources to the QCM if, in his sole opinion, there are significant deficiencies in implementing the QCP requirements.

d. The size and composition of the Contractor's quality organization may vary as the project progresses, however, at all times it must be compatible with the level of effort and capability required by the Contract.

e. The QCM shall maintain a legible, hand-written daily diary or activity log indicating all major activities related to the management of quality on this Project that were personally performed by him, and each entry in the diary or log shall be signed and dated by him.

- f. The QCM shall prepare and submit a 6-week look-ahead schedule forecasting her/his quality activities associated with the Contract's progression.
- g. The QCM's office shall be based near the work-site. The QCM shall report to the work-site on daily basis.
- h. If the Contractor's QC Program is not being performed to the satisfaction of the Authority, the Authority may direct the Contractor to assign one or more full-time additional QCM (s) dedicated solely to this project at no additional cost or expense to the Authority, as required to successfully implement the approved QCP.

2.3 SUBMITTAL MANAGEMENT AND CONTROL OF DOCUMENTS AND DOCUMENT CHANGES

- a. The QCP shall provide for establishing and maintaining a submittal management system which schedules, manages and tracks all submittals required by the Contract Documents including those of subcontractors and suppliers. The submittal schedule shall indicate all submittals due far enough in advance of the scheduled dates for installation to allow for the time required for reviews, for securing necessary approvals, for possible revisions and resubmittals and for placing orders and securing delivery. The submittal schedule shall be updated as required and submitted. Before the planned start of work on a system, a listing of all submittals planned for the system and its subsystems shall be submitted. Submittals for a portion of a system will not be accepted for review until the complete list of submittals for the system has been submitted. The Contractor shall review submittals prepared by its subcontractors and suppliers for compliance with the Contract Documents, before submitting it to the Authority.
- b. Shop drawings shall be prepared by the Contractor, subcontractors or suppliers and shall be reviewed by the Contractor to verify all materials and field measurements and checked and coordinated to assure that the information contained on the shop drawings, product data and samples conforms with the requirements of the Contract Documents as required. No portion of the work requiring these shop drawings shall be commenced until this review and coordination has been performed by the Contractor. These shop drawings and any other documentation, which demonstrates the Contractor's compliance with the Contract Documents shall be kept at the Contractor's office, and be available for inspection and audit of the Authority. Where the Authority requires certain shop drawings and other documents required by the specifications be made available to him but which do not require his approval they will be listed in the specifications and noted that they are for information only.
- c. The QCP shall also provide for establishing and maintaining a document control system for control of project documents and data such as drawings, specifications, calculations, calibration records, inspection procedures, test procedures, test results, special work instructions and operational procedures. The document control system shall provide assurance that the work is performed to the latest approved drawings and specifications and that these documents are made available at each work location, prior to the start of the work, to all users who require them. In the case of shop drawings and other documents not requiring approval, provide assurance that they have been reviewed and coordinated and that the work is being performed in accordance with these drawings. Obsolete documents shall be promptly eliminated from each work location. Any superseded documents retained for the record shall be clearly identified as such.
- d. All changes to documents shall be processed in writing and records maintained of changes as they are made. The Project Drawing List shall identify the revised date for each drawing that is revised.

2.4 RECEIVING, HANDLING, STORAGE AND CONTROL OF MATERIALS AND EQUIPMENT

- a. The QCP shall contain provisions for verification that material and equipment meet specified quality and contractual requirements and that they are properly received and handled to ensure that the quality is not degraded. The Contractor shall establish and maintain documented procedures that ensure that all materials and equipment are positively identifiable and traceable to a specified origin point.
- b. Purchased items entering the construction site/warehouse shall be inspected/tested, including their supporting documentation, for verification that subcontractors and suppliers have met the appropriate quality requirements of the Contract Documents. Purchased items shall bear a suitable control device as evidence of subject inspection/test. An identifier containing the inspection/test date, name of inspector, and inspection/test status (Pass/Fail) shall be attached to each inspected/tested item.
- c. Non conforming purchased items shall immediately be removed and segregated to a controlled area.
- d. Certificates of compliance and/or conformance shall be submitted for materials and equipment.
- e. The Contractor shall provide written guidelines to assure that the desired quality of an item is not compromised or degraded as a consequence of inappropriate handling, lifting and rigging methods.
- f. The Contractor shall provide written guidelines for the cleaning, preservation and storage of materials and equipment. Proper records shall be maintained of all required maintenance activities during storage.
- g. Purchased material and equipment shall be clearly marked so that it can easily be identified without excessive handling or opening of crates and boxes.
- h. The materials storage area(s) shall be arranged for ease of retrieval and to prevent damage, deterioration or loss. In general, materials received first shall be used first.
- i. Positive material identification (PMI) shall be implemented so that each item has a unique identifier (PMI serial number) to distinguish apparently identical items made in separate fabrication processes and confirm that the material of construction is indeed the grade of material specified. PMI numbers must appear on all inspection and construction records.

2.5 SUBCONTRACTOR AND SUPPLIER CONTROL

- a. The QC program shall assure that items and services are procured from subcontractors and suppliers capable of meeting all requirements of the Contract Documents. The Contractor shall review his agreements with subcontractors and suppliers to insure inclusion of all applicable quality requirements. All subcontractors and suppliers shall comply with the Contractor's QC Program or their own program. If the subcontractors and suppliers elect to submit their own quality control programs it must be approved as meeting the requirements of this section by the Prime Contractor's QCM. The Contractor shall review the subcontractor's/supplier's agreements to insure the inclusion of applicable quality requirements.

b. Source inspection shall be performed at the subcontractors'/suppliers' plants. Those quality characteristics, which cannot or will not be verified during subsequent processing, shall be subject to source inspection. Source inspection may not be necessary when the quality of the item can be fully and adequately verified by review of inspection and test reports, inspection on receipt or other means.

c. The Contractor shall perform external audits of his suppliers and subcontractors to assess compliance with the requirements of the approved QC Program and Contract Documents. Factors such as the work schedule, volume, complexity, relative importance, past experience, dollar amount, etc. shall be taken into account for the selection of the suppliers and subcontractors for such audits and determining the scope, frequency and schedule of these audits. The scope frequency and schedule of these audits shall be as approved by the Authority. The Contractor shall submit an audit schedule to the Authority within 60 days after the notice to proceed with each Work package. The Contractor shall make appropriate changes to the audit schedule when warranted due to changed conditions or when directed by the Authority. The Contractor shall submit the revised schedule to the Authority within 30 days of the change. The Authority must be notified in writing 6-weeks days in advance of the date, time and location of each audit. The Authority may witness any or all such audits. The audit results shall be documented and used to correct deficiencies and prevent their recurrence. Copies of the audits shall be made available to the Authority, as required.

2.6 INSPECTION AND TESTING PLAN

a. The Contractor's QCP shall include an inspection and testing plan subject to approval by the Authority to verify that items conform to the requirements of the Contract Documents. The Contractor's plan shall contain a list of tests, which the Contractor is to perform. The list shall give the test name, specification paragraph containing the test requirements and identify if the Contractor, subcontractor or supplier is responsible for each type of test. During the life of the contract, the Contractor shall update the plan to reflect changes in inspection and testing procedures. The Contractor's inspection and testing procedures shall be approved by the Authority prior to any such inspection or test and shall include test requirements, acceptance criteria and test conditions. Procedures should, as a minimum:

- identify the characteristics to be inspected, examined, and tested at each activity point;
- specify inspection and test procedures and acceptance criteria to be used;
- include inspection checklists;
- identify hold points as described in paragraph c below.

The detailed inspection or test procedures shall, as applicable, include items such as who is responsible for what, how, when, and where for all steps to be performed; what materials, equipment, and documentation are to be used; and how it is controlled. The procedures must be included in the QCP.

b. The Contractor shall use competent inspection personnel and shall not depend exclusively upon inspections performed by persons performing or directly supervising the work being inspected. Inspection personnel shall not report directly to the immediate foreman or supervisors responsible for constructing or installing the work being inspected. Inspection personnel shall be given the necessary authority and independence to perform their roles effectively.

Personnel performing inspections and tests shall possess a demonstrated competence in the specific area of interest and have an adequate understanding of the requirements. Written guidelines shall be established to assure that suitable education, experience and technical qualifications are maintained for such personnel.

c. The Contractor shall establish a listing of hold points as part of the inspection and testing plan for the approval of the Authority. Hold points are pre-determined inspection points for work in progress, which may become inaccessible as the work progresses, where the Contractor shall "hold" until the Authority verifies that the inspection and testing has been performed. In-process inspection activities shall be planned and performed to ensure the quality of the finished work. Any non-conforming conditions shall be documented and corrected before continuing.

d. The Contractor shall demonstrate the acceptability of the construction activities with objective evidence through suitable inspections and testing records. Inspection and testing records shall be prepared, reviewed, safely stored and maintained by the Contractor.

e. The Contractor shall distinguish between inspected and uninspected items by using suitable control devices. Inspection and test status identification of structures, systems or components should be maintained and controlled from initial receipt through installation to operation of the constructed work.

2.7 CONTROL OF CONSTRUCTION PROCESSES

a. The Contractor shall assure that the work complies with the Contract Documents. Controls shall be adequate to cover all construction operations, including both onsite and offsite fabrication, shall be integrated with the provisions of the clause entitled "Progress Schedule" and shall provide written records indicating that the results obtained for the various phases described below are documented and maintained. The controls shall include at least three phases of control for all definable features of work as follows:

1. **PREPARATORY PHASE** - This phase occurs prior to beginning any work on any definable feature of work.

A definable feature of work is a task, which is separate and distinct from other tasks and has separate control requirements.

It shall include the following:

- a review of the contract requirements;
- a check to assure that all materials and/or equipment have been tested, submitted and approved;
- a check to assure that provisions have been made to provide required control inspection and testing;
- examination of the work areas to ascertain that all preliminary work has been completed;
- a physical examination of materials, equipment and sample work to assure that they conform to approved shop drawings or submitted data and that all materials and/or equipment are on hand.

2. **INITIAL PHASE** - This phase must be accomplished at the beginning of a definable feature of work and shall include the following:

- a check of preliminary work (first item inspection) to
- verify full compliance
- establish acceptable levels of workmanship
- resolve all discrepancies

3. IN-PROCESS PHASE

Daily checks shall be performed to assure continuing compliance with contract requirements and shall include the following:

- control testing until the completion of the particular feature of work;
- suitable maintenance of equipment used in construction to ensure continuing process capability.

b. The Contractor shall assure that the work is performed in accordance with the applicable codes, standards, specifications or other special contractual requirements using qualified personnel and/or equipment. The procedure shall identify equipment to be used as well as any special requirements to be observed.

2.8 CONTROL OF MEASURING AND TESTING EQUIPMENT

a. The QCP shall describe the methods for ensuring that equipment used for measuring and testing is in calibration or condition to provide accurate test or inspection results. At intervals established to ensure continued validity, measuring devices shall be verified or calibrated against certified standards that are traceable to national standards or naturally occurring physical constants.

The Contractor shall use methods to assure proper handling, storage, care and control of measuring and testing equipment in order to maintain the required accuracy of such equipment. Material and testing equipment that are consistently found to be out-of-calibration or have been subjected to possible damage shall be identified as nonconforming and be removed from service, repaired or replaced. The QCP shall also contain a contingency plan in the event inaccurate measurement may have occurred as evidenced by measuring and testing equipment found to be out of calibration at specified interval.

b. The Contractor shall also assure that all measuring and testing equipment selected for measurements, tests, or calibration is of the proper range, type, and is controlled, adjusted, and maintained at specified intervals identified in the QCP or prior to use to assure conformance to the established requirements or predetermined accuracy. The equipment shall have some indication attesting to the current calibration status and show date (or other basis) on which inspection or recalibration is next required and by whom last calibrated.

c. The Contractor's measuring and testing equipment shall be made available for use by the Authority. The Contractor shall make personnel available for operation of the equipment if requested by the Authority.

2.9 PREVENTIVE ACTION AND CONTROL OF NONCONFORMING CONDITIONS

a. The QCP shall contain provisions for implementing preventive and corrective actions and identifying, recording, controlling and correcting nonconforming items, including provisions for the reinspection and retesting of repaired and reworked items to the original requirements.

Any "use as is" determinations shall require approval by the Authority. It is the Contractor's responsibility to promptly identify and segregate items detrimental to quality to prevent inadvertent use.

b. The Contractor shall investigate the cause of nonconformance and take appropriate corrective actions to prevent recurrence. The identification, determination, justification for planned actions and actions taken shall be documented on a nonconformance report.

c. Personnel performing evaluations to determine conformance shall have demonstrated competence in the specific area of interest, have an adequate understanding of the requirements and have access to pertinent background information.

2.10 DOCUMENTATION OF QUALITY RECORDS

a. The QCP shall contain provisions for identification of types of quality records to be maintained, their retrievability and retention periods and shall include a sample or blank copy of all quality records and checklists to be utilized on this Project. The Contractor shall maintain quality records as evidence that all of its activities and those of its subcontractors and suppliers comply with the requirements of the QCP. Additionally, the Contractor shall maintain records as evidence that:

- The item meets the requirements of the Contract Documents;
- Personnel, procedures and equipment for special construction processes are qualified;
- Selection and surveillance of subcontractors and suppliers are performed;
- Corrective action and action taken to prevent recurrence is being taken for nonconforming conditions.

b. Additional Types of Records to be Maintained:

1. Contractor Internal and External Audit records which:

- Provide a schedule of Contractor and subcontractor/supplier audits
- Document quality programs, plans and procedures audited
- Identify items and services for which audit was performed
- Reveal results obtained
- Demonstrate analyses of audit data for use in corrective action

2. Inspection and Test records which:

- Include completed inspection checklists signed by the QCM
- Include nonconformance reports and logs
- Identify inspector or data recorder
- Identify date of inspection or test
- Reference drawing number and specification reference

- Define applicable requirements
- Identify specific inspections or tests performed and results

3. Daily Reports

Under the provisions of the Contract, the Contractor shall prepare reports on a daily basis for each work site and Work package. This report shall also include a brief description of any inspections of the work performed. If an inspection or test was performed a copy of the inspection or test record must accompany the report. The report with the attachment must be forwarded to the Resident Engineer's office by the end of the next business day. The report must be filed for each site including days in which no work was performed. The report must be signed and dated by the QCM.

c. Inspection and test records shall be maintained for both conforming and nonconforming work. Unless otherwise required by the Authority the Contractor shall retain all quality records for a minimum period of three years after substantial completion and make them available to the Authority upon request.

2.11 CONTRACTOR INTERNAL AUDIT

The Contractor shall perform internal audits of his own Quality Management System to assess compliance with the requirements of the approved QC Program and the Contract Documents. The scope of such audits shall be commensurate with factors such as the work schedule, volume, complexity, relative importance of work activities, etc. The audits shall be performed on a minimum semi-annual basis and shall begin within 6 months of the acceptance of the Proposal. An audit schedule shall be submitted to the Authority within 60 days after the acceptance of the Proposal. The Contractor shall change the schedule when warranted due to changed conditions or when directed by the Authority. The Contractor shall submit the revised schedule to the Authority within 30 days of the change. The Authority must be notified in writing 14 days in advance of the date, time and location of each audit. The Authority may witness any or all such audits. The audit results shall be documented and used to correct deficiencies and prevent their recurrence.

2.12 TRAINING

The Contractor shall provide all required training within 90 days after acceptance of the Proposal.

The Contractor shall notify the Authority at least one week in advance of the date, time and location of the above training. The Authority shall have the option of attending the training. Records shall be kept of the above training documenting the date, time, duration, location, attendees, trainer's name and qualifications, and the items discussed. Copies of these records shall be forwarded to the Authority not later than one week after such training occurs.

This requirement for training is in addition to other training requirements contained in this Contract.

2.13 STATISTICAL ANALYSIS

- a. The Contractor shall identify, where appropriate, the need for statistical techniques to verify the acceptability of construction process capabilities and work characteristics. These include, but are not limited to: control charts, sampling plans and trend analyses of nonconformance.
- b. The Contractor may employ, subject to approval of the Authority, sampling inspection in accordance with applicable nationally recognized standards or other statistically valid plans.

2.14 DESIGN PROCESS CONTROL

- a. Procedures shall be established, documented, implemented and maintained to control the preparation, review and approval of design work required by this Contract. Design work includes, but is not limited to, the preparation of Shop Drawings, Record Drawings ("As-Built" drawings), working drawings, design details and engineering analyses/calculations as well as software development.
- b. Persons performing design work shall be identified, their responsibilities defined, their qualifications stated and a description of the resources assigned for their use shall be given within the procedures.
- c. The procedures shall include methods to identify and document input requirements relating to the scope of design work so as to reflect applicable statutory, regulatory and contract requirements as well as industrial codes or Authority standards, if any.
- d. The procedures shall state how design work outputs shall be documented, verified against the design input requirements and validated as part of the approval process.
- e. The procedures shall contain a formal program of in-process design work review(s) that shall identify: the stages of design at which work review(s) shall occur, the representatives of all concerned functions that shall participate in the review(s) and the documentation of the review(s) results.
- f. The procedures shall include methods to identify, document and review any and all changes, revisions or modifications to the original design work prior to resubmittal for approval.

Submittal Approvals

Item No.	Paragraph No.	Submittal	Approval By (CQAM)
1	1.3 & 1.5	Quality Program (QCP)	CQAM
2	1.6	Notice of proposed changes to QCP	CQAM
3	2.2(b)	Resume of Quality Engineer and Quality Staff	CQAM
4	2.5	External Audit Schedule	CQAM
5	2.6	Inspection and Testing Plan, including inspection check lists and hold points	CQAM
6	2.11	Internal Audit Schedule	CQAM

Notés:

1. This table does not include approvals for "or-equal" proposals.
2. This table does not include approvals for Operation and Maintenance Manuals

81. NO RELEASE OF CONTRACTOR

Any provision of this Contract for testing, inspection or approval, and any actual testing, inspection or approval, of any materials, workmanship, plant, equipment, drawings, program, methods of procedure, or of any other thing done or furnished or proposed by the Contractor to be done or furnished in connection with the Contract is for the benefit of the Authority not the Contractor. Any approval of such things shall be construed merely to mean that at that time the Engineer knows of no good reason for objecting thereto. No such provision for testing or inspection, no omission of testing or inspection, and no such approval shall release the Contractor from his full responsibility for the accurate and complete performance of the Contract in accordance with the Contract Drawings and Specifications or from any duty, obligation or liability imposed upon him by the Contract or from responsibility for injuries to persons or damage to property.

82. ERRORS AND DISCREPANCIES

If, in the performance of the Contract, the Contractor discovers any errors or omissions in the Contract Drawings or Specifications, or in the marks, lines and elevations furnished by the Authority in the construction undertaken and executed by him, he shall immediately notify the Engineer and the Engineer shall promptly verify the same.

If with the knowledge of such error or omission and prior to the correction thereof, the Contractor proceeds with any construction affected thereby, he shall do so at his own risk and the construction so done shall not be considered as construction done under and in performance of this Contract unless and until approved and accepted.

83. ACCIDENTS AND FIRST AID PROVISIONS

The Contractor shall promptly report in writing to the Engineer and to the Authority Manager, Claims Administration all accidents whatsoever arising out of or in connection with the performance of the Contract, whether on or adjacent to the construction site, which result in death, injuries or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damage is caused, the accident shall be reported immediately by telephone to both of the said representatives of the Authority.

The Contractor shall provide at the construction site such equipment and medical facilities as are necessary to supply first aid service, in case of accident, to any who may be injured in the progress of the Contract. He shall have standing arrangements for the removal and hospital treatment of any person who may be injured while engaged in the performance of the Contract.

If any claim is made by any third person against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the fact in writing to the aforementioned representatives of the Authority, giving full details of the claim.

84. SAFETY PROVISIONS

In the performance of the Contract, the Contractor shall exercise every precaution to prevent injury to workers and the public or damage to property.

He shall, at his own expense, provide temporary structures, place such watchmen, design and erect such barricades, fences and railings, give such warnings, display such lights, signals and signs, exercise such precaution against fire, adopt and enforce such rules and regulations, and take such other precautions as may be necessary, desirable or proper, or as may be directed.

The temporary structures, other than those shown on the Work package Contract Drawings, will be permitted on PATH or Transit property only after the approval from the Engineer is requested and obtained in writing. This approval from the Engineer shall include, but is not limited to, approval by PATH and NYCT safety personnel of installation/site plans. Temporary structures shall be equipped with all OSHA facilities-washroom, potable water, eating area, first aid kit, eye wash and means of communications. All pertinent telephone numbers must be posted at site.

The Contractor shall employ for Work of the Contract a competent person conforming to the requirements of the Code of Federal Regulations 29 CFR 1926.32(f) who shall be designated by the Contractor as authorized to perform the duties required by 29 CFR 1926 et seq. as applicable for Work of this Contract.

Obtain and submit to the Engineer one copy of material safety data sheet (MSDS) conforming to the requirements of 29 CFR 1910.1200(g) for each hazardous chemical utilized for permanent and consumable materials employed for Work of this Contract. The Contractor is responsible for full compliance with OSHA Hazard Communication Standard and New York State Right to Know Law.

The Contractor shall, in its performance of the Work, comply with all Federal, state and Local environmental statutes and regulations, including but not limited to, the requirements of the Air Pollution Prevention and Control Act (42 U.S.C 7401 et seq.), Section 318 of the Water Pollution Prevention and Control Act (33 U.S.C. 1251 et seq.), and the New York State Environmental Conservation Law, and with all regulations and guidelines issued there under.

Any hazardous waste shall be disposed of in accordance with applicable law and implementing regulations.

A minimum of two (2) days prior to any excavating, the Contractor must notify the Engineer. The Contractor shall notify the NYC One Call Center to allow member agencies to mark locations of underground utilities prior to any excavating and confirm such notification with the Engineer.

In the case of emergency involving danger to life, person, or property, the Engineer may order continuous work with an increased force for such time, as he may deem necessary to eliminate the emergency.

The Contractor is responsible to guard, maintain and protect the wires, cables, ducts, manholes, posts and poles, signals, fire hydrants and alarm boxes of the NYC Fire Department and not cause the interruption of the Fire Department Fire Alarm Telegraph Service. In case any such wires, cables, ducts, manholes, posts and poles, signals, fire hydrants and alarm boxes shall be disturbed, it shall be restored to its original condition.

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss, including but not limited to:

1. All employees performing the Work, the public, and other persons and entities who may be affected thereby;
2. All the Work, materials and equipment to be incorporated therein, whether in storage on or off the site; and
3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.

The Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and the Contractor has removed all workers, material and equipment from the construction site, or the issuance of the Certificate of Final Completion, whichever shall occur last.

Until fire protection needs are supplied by permanent facilities under this Contract, install and maintain temporary fire protection facilities. Comply with requirements of National Fire Protection Association NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alteration and Demolition Operations".

The Contractor shall employ only such workers as are physically fit and are free from contagious or communicable diseases.

He shall use only machinery and equipment adapted to operate with the least possible noise, and shall so conduct his operations that annoyance to occupants of nearby property and the general public will be reduced to a minimum.

The bringing of intoxicating substances onto the construction site and the use or consumption of intoxicating substances at the construction site are prohibited. It shall be the responsibility of the Contractor to insure that all employees of the Contractor and of all subcontractors, materialmen and any other persons under contract to or under the control of the Contractor shall comply with the provisions of this paragraph.

The Contractor shall daily clean up all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the construction site shall present a neat, orderly and workmanlike appearance. Before the Certificate of Final Completion of Work will be issued, the Contractor shall remove all surplus materials, false work, temporary fences and other temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations and shall put the construction site in a neat, orderly condition.

In the event the Contractor encounters at the construction site, material reasonably believed to be asbestos, polychlorinated biphenyl (PCB) or any other hazardous material, the Contractor shall immediately stop Work in the area affected and report the condition in writing to the Engineer. Work in the affected area shall not thereafter be resumed by the Contractor except upon the issuance of a written order to that effect from the Engineer.

15 days prior to the commencement of Work, the Contractor shall submit to the Engineer, for his review and approval, the Contractor's Safety Program which shall comply with all applicable federal, state, municipal and local and departmental laws and shall include, among other things, the designation by the Contractor of a qualified individual to administer such Safety Program.

This safety program shall address the safety requirements for performing work at or about the WTC site as defined in the Authority's WTC Site Safety Program which is attached hereto as Appendix B. This includes the safety requirements for performing work on PATH and NYCT property as set forth in the provisions of the clauses entitled "PATH Operations and Conditions" and "Safety Requirements for Performing Work on Transit Property".

85. SAFETY REQUIREMENTS FOR PERFORMING WORK ON TRANSIT PROPERTY

The safety requirements set forth in the provisions of the clause entitled "Safety Provisions" are also applicable to the Work performed on Transit property under this Contract. In addition, the following Transit-specific requirements are applicable to Work performed on Transit property.

- A. The Contractor's Safety Program shall include an Emergency Preparedness and Response Plan addressing the identification of and potential for environmental accidents and emergencies associated with site-specific construction activities, and addressing the appropriate security, control, response, drill, training and notification measures to be implemented.
- B. The Contractor's Safety Program shall include descriptions of safety hazards at the work site, proposed measures to minimize/eliminate the safety hazards, project-specific safety procedures, and site security measures.
- C. The Contractor's Safety Program shall include a provision for maintenance of safety records and their retention for at least two years beyond Final Completion of the Work.
- D. Regarding requirements for reporting of injuries, accidents and any associated claims, the Contractor shall provide copies of all required documentation to the Engineer, for injuries and accidents on Transit property.

- E. Regarding requirements for submittal of material safety data sheets (MSDS), the Contractor shall provide copies of all required documentation to the Engineer prior to hazardous chemicals/materials being brought onto Transit property.

The Contractor is advised that additional Transit requirements apply to work on or adjacent to Transit subway tracks. Should the need for work on or adjacent to tracks arise, the Contractor shall request and obtain the additional requirements from the Engineer and include them in the Contractor's Safety Program.

86. DAILY PROGRESS, EQUIPMENT AND LABOR REPORTS

The Contractor shall furnish to the Engineer at the end of each day, a memorandum showing for that day (a) the construction performed, (b) the equipment used, (c) a statement of any unusual happening that occurred, and (d) the number of workers in each trade classification that were employed. Such memorandum shall not be deemed to be a substitute for the notices, time slips, memoranda or other data required under the clauses of the Form of Contract relating to compensation.

87. MONTHLY PROGRESS REPORTS

The Contractor shall prepare a monthly progress report and shall publish it no later than the fifteenth calendar day following the month being reported. The monthly report shall include:

- A. A summary of the work accomplished during the reporting period.
- B. A forecast of the work to be accomplished during the following period.
- C. A status of off-site activities including purchasing, fabrication and delivery of long lead items.
- D. A status of submittals in RFI's, problem areas, delays and other relevant factors and issues affecting the progress of the work.
- E. Copies of the MBE/WBE, Affirmative Action and other reports or data required to be submitted separately on a monthly basis under the Contract.

The monthly report shall cover the calendar month period.

88. LAWS AND ORDINANCES

In order to effectuate the policy of the Authority, the Contractor shall comply with all provisions of federal, state, municipal, local and departmental laws, ordinances, rules, regulations and orders which would affect the Contract and the performance thereof and those engaged therein if said Contract were being performed for a private corporation, except where stricter requirements are contained in the Specifications or Contract Drawings, in which event the latter requirements

shall apply. However, the Contractor shall not apply for any permits, licenses or variances in the name of or on behalf of the Authority, but shall do so in his own name where required by law, regulation or order or by the immediately preceding sentence. Nor shall the Contractor apply for any variance in his own name without first obtaining the approval of the Authority.

In addition, the Contractor shall comply with all applicable provisions of the agreement entitled "United States of America Department of Transportation Federal Transit Administration - Master Agreement for 'Lower Manhattan Recovery Grants'", a copy of which is attached hereto and is labeled Appendix C.

89. IDENTIFICATION

No person will be permitted on or about the construction site without a pass, permit or identification badge approved by the Engineer. The Contractor shall provide such passes, permits or identification badges for his employees, subcontractors and materialmen whenever necessary. Identification badges shall be worn in a conspicuous and clearly visible position by all employees of the Contractor whenever they are working at the construction site.

90. SIGNS

No advertisement or sign, other than the name and address of the Contractor, will be permitted on any fences, temporary structures or elsewhere on the construction site and such advertisement will be permitted only upon the condition that it is first approved by the Engineer. In any event, the advertisement shall not exceed six feet by eight feet in overall dimensions.

91. CONTRACTOR'S FIELD OFFICE AND REPRESENTATIVE

At a readily accessible point on or near the construction site, the Contractor shall maintain a field office/offices. Each field office must be positioned in a place of safety. It must be equipped with all OSHA required facilities (e.g. wash rooms, potable water, eating area) and should have a first aid kit, eye wash and telephone. All pertinent phone numbers must be posted at the field office (including PATH, NYCT and emergency notification numbers).

During the performance of any Work at the construction site, the Contractor shall have a representative there at who shall be authorized by the Contractor to receive and put into effect promptly all orders, directions and instructions from the Engineer. The Contractor's representative shall be provided, at all times, with a conformed copy of this Contract and Work package(s) with the associated Contract Drawings and Specifications.

Orders and directions may be given orally by the Engineer and shall be received and promptly obeyed by the Contractor or his representative or any superintendent, foreman or other employee of the Contractor who may have charge of the particular part of the Work in relation to which the orders or directions are given. A confirmation in writing of such orders or directions will be given by the Engineer when so requested by the Contractor.

92. SURVEYS

The Engineer will establish a bench mark and a base line at or adjacent to the location of the Contractor's operations. The Contractor shall perform all surveys, which may be required for the performance of the Contract. He shall carefully preserve any base line and benchmark, which may be established by the Engineer.

The Contractor shall, in addition, furnish to the Engineer, without additional compensation therefor, any or all information and data regarding points, lines, grades, elevations and other survey information established by the Contractor during the performance of the Contract.

Surveys and measurements of quantities for purposes of computing Contractor's compensation shall be made by the Contractor as directed by and in the presence of, or jointly with, the Engineer, at the Engineer's option. Computations of quantities for payment shall be made by the Contractor and shall be subject to the approval of the Engineer.

The Contractor shall carefully preserve all monuments, benchmarks, reference points, and stakes. The Contractor will be responsible for the expense of replacement of any such items destroyed by it, and for any associated problems, including loss of time.

Permanent monuments or benchmarks, which must be removed or disturbed, shall be protected until they can be properly referenced for relocation. The Contractor shall furnish materials and labor for the relocation of such monuments or benchmarks.

All Contractor lines, elevations and grades will be tied into the primary control system established by the Engineer. Field notes or drawings generated in establishing the primary control system will be available to the Contractor for review. All lines, elevations and grades for Work under the Contract shall be carefully and accurately laid out by the Contractor by using equipment and persons satisfactory to the Engineer. The Contractor shall compare carefully all lines and elevations given on Drawings with existing lines, elevations and grades and shall review discrepancies, if any, with the Engineer prior to their use.

Under no circumstances will any power equipment be allowed to excavate, compact or in any other way disturb these areas within one yard of the monument's center. All activities within one yard of the monument must be performed manually.

The Contractor shall perform all surveys with a Land surveyor registered in the State of New York who shall:

- Prior to the commencing the Work, field-verify the location of all utility facilities, which may be affected by the Work.
- Establish and provide all required survey control points necessary for the execution of the work.
- Perform all survey work as may be required to take field measurements of the existing track, to ensure that the minimum required clearances are maintained.

- Locate control points prior to starting site work, and preserve all permanent reference of points during construction.
- Make no changes or relocations to existing survey control data without prior written notice to the Engineer.
- Notify the Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in location.
- Replace control points, which may be lost or destroyed. Establish replacement based on original survey control.
- Immediately reported to the Engineer, the detection of any movement of a structure by the surveyor.
- Maintain a complete, accurate log of all control and survey work as it progresses, and transmit two (2) copies of this log to the Engineer on a daily basis.

93. TEMPORARY STRUCTURES

Unless otherwise provided in this Contract, the Contractor shall determine the need for and shall design, furnish and construct all barricades, fences, staging, false work, formwork, shoring, scaffolding and other temporary structures required in the performance of the Contract, whether or not of the type enumerated in the Specifications or on the Contract Drawings, including those which would be required by law or regulation if this Contract were being performed for a private corporation. All such temporary structures shall be of adequate strength for the purposes for which they are constructed and shall be provided with graphics, warning signs and warning lights as required to inform personnel and the public of the hazards being protected against, and the Contractor shall maintain them in satisfactory condition. The design and drawings for such structures are to be prepared by the Contractor, and when requested by the Engineer they shall be submitted for his review before being used. Neither such approval, however, nor any requirements of the Engineer, the Specifications or the Contract Drawings shall relieve the Contractor of his responsibility for the design, construction and use of the temporary structures or from any obligations and risks imposed on him under this Contract, and any such approval or requirements shall be deemed merely to relate to minimum standards and not to indicate that the temporary structures are adequate or that they meet the Contractor's obligations under this Contract.

All temporary walking surfaces shall be treated to provide a coefficient of friction of 0.6, except ramps (as defined in the Americans With Disabilities Act Accessibility Guidelines), which shall have a coefficient of friction of 0.8; all as tested in accordance with ASTM C1028.

Temporary structures including construction barricades shall be painted with appropriate custom colors as approved by the Engineer and shall be repainted every three months unless directed otherwise by the Engineer during the period that the Contract is being performed. Upon completion of all Work under this Contract, the temporary structures shall be removed from the construction site.

94. PERMIT AND REQUIREMENTS FOR WELDING

Prior to the commencement of any cutting or welding operations at the construction site, the Contractor shall notify the Engineer and obtain an Authority cutting and welding permit. The Authority will issue this permit without payment of a fee, and application forms may be obtained from any Resident Engineer of the Authority, at his office at the facility. Unless otherwise approved by the Engineer, all cutting and welding operations shall be performed in accordance with the conditions, which form a part of said permit. The permit application must be filled out and submitted in duplicate to the Engineer at least forty-eight hours prior to commencing welding or cutting operations at the construction site.

95. FINAL INSPECTION

When, in the opinion of the Contractor, the construction required by a Work package(s) is completed and ready for final inspection, he shall so notify the Engineer in writing and the Engineer will give said construction (including any portions with respect to which Certificates of Partial Completion have been issued) a minute and thorough inspection. Before any Certificate of Final Completion will be issued, any defects or omissions noted on this inspection must be corrected by the Contractor.

96. WARRANTIES

The Specifications may provide for certain warranties of portions of the permanent construction. These warranties are intended for the greater assurance of the Authority and not as a substitute for rights, which the Authority might otherwise have. Although such warranties shall be enforceable as provided, neither any requirement of this Contract with respect to warranties by the Contractor nor any guarantee or warranty given to the Contractor or the Authority by any manufacturer shall be deemed to be a limitation upon any rights which the Authority would have, either expressed or implied, in the absence of such guarantees or warranties.

The Contractor will, in the first instance, have the option of repairing or replacing any portion of the permanent construction which becomes defective during the period of any warranty or guarantee.

97. UTILITY RECORD DRAWINGS

Prepare, on Mylar sheets 22" x 34" or other size approved by the Engineer, drawings showing the exact locations and elevations of underground utility construction including manholes, catch basins, inlets, pipe lines and structures for carrying gases (including air) and fluids including water, storm drainage, sewage, oil, chemicals, electrical duct runs, cables and conduits, for new construction or extension of existing utilities installed underground under this Contract.

Submit to the Engineer, for verification and approval, tabulation of the data to be used in the preparation of the utility record drawings. Do not build-in, backfill or fill over or around or in any way cover underground structures, piping, conduit, cable or duct banks until such submitted data has been verified and approved by the Engineer.

Indicate the exact locations, including changes of direction and curves, by the use of offset distances from nearby permanent structures and, in addition, by the use of coordinates, which shall be based on the system of coordinates used at the construction site, the origin of which is shown on the Contract Drawings. Base elevations on the datum used at the construction site as is shown on the Contract Drawings.

Submit prints of these drawings to the Engineer for verification, check of the accuracy, and for approval. Make indicated corrections and additions to the drawings, until the approval of the Engineer has been obtained. After these drawings have been approved by the Engineer, the original corrected Mylar sheets shall be turned over to the Engineer before issuance of the Certificate of Final Completion, and such original drawings shall become the property of the Authority.

98. TEMPORARY UTILITY SERVICES

Operate and maintain temporary services and facilities in a safe and efficient manner. Modify as required throughout progress of the Contract, and remove from Authority property when no longer required, or replaced by the use of completed permanent facilities as approved by the Engineer.

Make arrangements for securing, and pay all costs for heat, light, power, water, and other services, which may be required for the performance of the Contract.

99. TEMPORARY SANITARY FACILITIES

Make arrangements for securing and pay all costs for temporary toilets, wash facilities and drinking water including toilet tissue, paper towels, paper cups and similar disposable materials for use by the Contractor, subcontractors, materialmen or other persons over whom the Contractor has control. Comply with regulations and health codes, which would be applicable if the Authority were a private corporation, for the type, number, location, operation and maintenance of fixtures and facilities. Install facilities where directed by the Engineer, and remove from Authority property when no longer required.

Contractor is prohibited from using PATH and Transit toilets and wash facilities.

100. PROGRESS SCHEDULE

The Contractor shall at its own expense prepare, maintain and update detailed progress schedules for the approval of the Director, all as described in this Section. The schedules shall be prepared in such a manner as to permit the orderly planning, organization, and execution of the Work and

shall be sufficiently detailed to accurately depict all of the activities required to perform all of the Work required by the Contract. The activities in the schedule shall identify the scope of work and the area involved, as well as whether a track outage or flagging is required, so as to be able to avoid track outage conflicts. The activities shall be cost loaded in escalated dollars to: (1) establish the Budgeted Value for Work Scheduled (Planned Progress); (2) allow for determination of the Budgeted Value for Work Performed (Actual Progress or Earned Value); (3) allow for calculation of Schedule Variance in terms of dollars; (4) allow for calculation of Cost Variance in terms of dollars; and (5) serve as a basis for Progress Payments. The dollar cost distribution shall reflect the true value of the work being performed.

Progress schedule updates shall include the depiction and reporting of the actual performance and progress of the Work and actual costs incurred, as specified in the fourth paragraph of this Section. Each progress schedule submittal shall include a Network Diagram and all supporting data, all of which shall be developed using the Precedence Diagramming Method (PDM) and shall, among other things, identify a critical path through the network for each milestone. If the Float or Slack value for the critical path ever becomes negative, a "Negative Slack Recovery Plan" for not exceeding the relevant contractual dates must be submitted within seven (7) calendar days to the Engineer. Each progress schedule submittal shall bear the signature of the Contractor's authorized representative.

The progress schedules/graphics required by this Contract shall be produced using Primavera Project Planner (P3) Version 3.1.

Progress schedules shall graphically represent in the Network Diagrams the logical sequence and duration of each of the activities necessary to complete this Contract in accordance with the requirements of this Contract. Progress schedules shall include activities involving the procurement and delivery of construction materials and equipment, whether such materials and equipment are furnished by the Authority, the Contractor or by others. The information provided in progress schedules shall also include, but not be limited to, the interdependencies between the Contractors' activities and all other activities required for the successful completion of the Contract, e.g., those to be performed by utility companies, by the Authority's forces, and/or PATH's and Transit's forces (including but not limited to reviews and approvals of requests, documents and submittals by the Contractor), or by other entities. Moreover, each progress schedule shall include time allowances and costs for, among other things, obtaining permits; preparing shop drawings, designs, samples, mock ups and other submittals; and obtaining approvals by the Engineer. Milestones as well as other significant dates provided for in the Work packages, and amended Contract, shall be identified.

As changes, if any, to the Work are authorized, by the Director, the changes shall be incorporated into the Progress Schedule within 30 days and thereafter reported upon in all updates.

As part of the P3 Progress Schedule data base, the Contractor shall prepare a master construction schedule, track outage schedules, platform outage schedules, work train schedules, pilot schedules for hi-rail equipment, schedules for activities which require flagging (track fouling) and street/road closure schedules. These schedules shall cover the following time periods:

- a. Project to Completion
- b. Six (6) Month Look Ahead Schedule

c. Eight (8) Week Rolling Schedule (6 Weeks Forward, 2 Weeks Back)

A. PROGRESS SCHEDULE TERMINOLOGY

In addition to the P3 data base files, four specific types of progress schedule reports shall be submitted, as follows:

1. Original Progress Schedule

The detailed progress schedule containing the Contractor's projected plan, budget and schedule to complete all Work required by the Contract within the time(s) for completion required by the Contract, first approved by the Director as provided for in B4 hereof. This schedule shall indicate the planned daytime/nighttime/weekend platform and track outages and planned street/road closures. The Original Progress Schedule shall be referred to as "Revision 0 – the Schedule Baseline". Each time a different Current Progress Schedule is developed, the revision number must be increased by 1, and the old schedule must be archived, so as to permit an audit trail.

2. Six (6) Month Look Ahead Schedule

A detailed progress schedule for work to be performed within the next six months starting with the month following the data date. Specific daytime/nighttime/weekend track outages and platform outages, work train requirements, hi-rail pilot requirements, and flagging requirements and street road closures for the planned activities shall be identified with this schedule.

3. Eight (8) Week Rolling Schedule

A detailed progress schedule showing daily, including Saturday and Sunday, activities and events. Shift work shall be clearly identified on this schedule. Specific daytime/nighttime/weekend track outages and platform outages, work train locomotive requirements, hi-rail pilot requirements, and flagging requirements and street/road closures for the planned activities during the forward six-week period shall be committed to ("locked down") by the Contractor with this schedule. Path and NYCT will confirm to the Engineer the acceptability of the requested track and platform outages within 7 calendar days of the Contractor's submittal of the 8-week rolling schedule to the Engineer.

4. Target Schedule

The Original Progress Schedule becomes the first Target Schedule prior to the first progress update. This target is the Schedule Baseline and does not change unless approved by the Director. The Target Schedule is used in comparison to the current progressed schedule to highlight changes in activity sequencing. Target Schedule Reports must be provided using a multi-bar format comparing the current schedule to the established target.

Each progress schedule shall utilize the following terms, as described below:

1. Activity

A discrete item of Work with a Duration, which can be clearly defined. Unless otherwise permitted in writing by the Engineer, an Activity's Duration shall be not more than 30 calendar days.

1A. Activity Code

An alphanumeric code to be inserted into a separate field to allow sorting on specific activity characteristics. Other codes may be defined during the course of the Contract.

2. Activity Description

A unique textual explanation of an Activity. The Activity Description shall be limited to 48 characters.

3. Activity Number

An alphanumeric code, as defined by the Engineer, which uniquely identifies an Activity. Each activity ID shall follow a structured coding scheme, containing at a minimum, intelligence such as: (1) work location and general type of work; (2) outage type (track outage, flagging, etc.) required; or (3) track numbers and platforms involved. The Activity Number shall consist of 8 characters or fewer and be comprised only of numbers and letters. Two additional characters (total 10) are reserved for the use of the Program Manager in order to integrate the schedule with other project schedules.

4. Actual Finish Date

The date upon which an Activity is actually completed.

5. Actual Start Date

The date upon which an Activity actually begins.

6. Alternative Solutions

An analysis of the various options for dealing with encountered or anticipated Contract problems. It is developed to assist in determining the best method(s) of preventing or correcting any impediments to the progress of the work. Alternative Solutions shall indicate impacts on scheduling, resources and budget.

7. Analysis Report

A report which displays the impacts of all variances reported in the Current Progress Schedule. The Analysis Report focuses attention on the impacts of variances between planned and actual performance and between budgeted and actual costs, so as to support an assessment of such impacts. The Analysis Report shall include Alternative Solutions.

8. Bar Chart

A schedule display designed to complement the Network Diagram. The Bar Chart is a traditional Gantt chart, to which the Early Start Dates, Early Finish Dates, Late Start Dates, Late Finish Dates, and Critical Path have been added.

9. Calendar

An integral part of the database for developing the progress schedule, the Calendar incorporates into the database each of the days which fall within the period during which Work is to be performed and indicates whether each such day is a working or non-working day. The base time unit used in the Calendar shall be one calendar day.

10. Constraint

A manually imposed date impacting early and/or late date calculations. There are five types of constraints:

- Early
- Late
- Start on
- Mandatory
- Float Constraint

11. Critical Path

The longest path through the network in estimated total elapsed time from the start of the first Activity through the completion of the last Activity. The Critical Path consists of a series of Activities which must be completed on their early completion dates in order for the Contract to be completed on schedule.

12. Critical Path Designation

A red bar or line should be used in Bar Charts and Network Diagrams to indicate which Activities are on the Critical Path.

13. Current Progress Schedule

The most recent progress schedule which has been approved by the Director.

14. Duration

The estimated and/or actual length of time required to fully perform a specific Activity. The Duration is expressed in calendar days.

15. Early Finish Date

The Early Finish date is calculated in one of two ways:

- the Early Start Date plus the activity duration; or

- the Data Date plus the remaining duration.

16. Early Start Date

The earliest date upon which an Activity can begin.

17. Estimate to Complete

An estimate of the number of days, person Hours, dollars or physical asset units which will be required to complete all Work under the Contract.

18. Estimate at Completion

An estimate of the total number of days, person hours, dollars or physical asset units which will have been expended at the completion of all Work under the Contract. During performance of the Contract, the Estimate at Completion is equal to the number of days, hours, dollars or physical asset units expended to date, plus the Estimate to Complete.

19. Free Float

The amount of time by which an Activity may be delayed without affecting the Early Start of succeeding Activities.

20. Hammock

A designation, inserted between at least two Activities in a network, which summarizes the total Durations of and interval between such Activities. Hammock Activities shall be designated "HAM" in a code field.

21. Lag

The interval between a Predecessor Activity and a Successor Activity. For example, ten days of positive Lag on a Finish to Start relationship will cause the Successor Activity to begin ten days after the Predecessor Activity has been completed. Start-to-start or finish-to-finish relationships will cause the Activities to overlap. The amount of Lag between each Activity shall be clearly represented on the Network Diagram.

22. Late Finish Date

The latest date by which an Activity must be completed in order not to delay the completion of the Project. If an Early Date is calculated to occur after a Late Date negative float will be generated—indicating that the Work is behind schedule.

23. Late Start Date

The Late Finish Date minus the activity duration.

24. Milestone

A significant point in the performance of the Work. A milestone has no Duration, and represents the start of a portion of the Work or the completion of a portion of the Work. A milestone may also represent either the beginning or the completion of a task or action being performed by entities other than the Contractor (e.g., obtaining a permit, notification to proceed with certain Work, etc.).

25. Negative Float or Negative Slack

A negative amount of time between the Early Finish Date and Late Finish Date of an Activity that is behind schedule. An Activity with Negative Float or Slack must be completed no later than the Late Finish Date if the Work is to be completed on time. Negative Float or Slack usually indicates the need for corrective and/or preventive action to complete the Work on schedule.

26. Network Diagram

A logic diagram prepared according to the Precedence Diagramming Method, which displays each Activity required for the performance of the Contract in the sequence in which it is to be performed.

27. Percent Complete

The percent of actual work completed. This value is used to calculate earned value. Both percent complete and remaining duration must be reported separately for each in-progress activity (not linked).

28. Precedence Diagramming Method (PDM)

A particular type of graphic representation of all Activities and Relationships. The Activities are represented by nodes; the Relationships are represented by lines between nodes.

29. Predecessor Activity

An Activity which is a prerequisite to commencement of another Activity.

30. Relationship

A link between two Activities representing restrictions on the start or completion of subsequent Activities. Relationships do not represent Work. There are four basic types of Constraints:

- Finish-to-Start
- Start-to-Start
- Finish-to-Finish
- Start-to-Finish

31. Remaining Duration

The number of work units (days, hours) estimated to be required to complete an activity.

32. Successor Activity

An. Activity which cannot be started or completed without the prior completion or partial completion of a Predecessor Activity.

33. Total Float

The amount of time by which an Activity or series of Activities may be delayed without affecting the date of completion of the Work.

B. SUBMITTAL, REVIEW & APPROVAL

1. Within 60 calendar days of the acceptance of the Contractor's Proposal, the Contractor shall submit to the Engineer for the Director's approval 6 (six) computer printout copies and one computer diskette of a proposed Original Progress Schedule containing the Contractor's projected plan and schedule to complete all Work required by the Contract within the time(s) for completion required by the Contract. The Original Progress Schedule shall include Hammock Activities to indicate compliance with the Contract time(s) for completion. A schedule showing time(s) for completion other than those required by the Contract will not be approved. Along with the submission of his proposed Original Progress Schedule the Contractor shall also submit one copy of all of the following supporting data which shall form part of the progress schedule:
 - a. A listing of all Activities, Activity Descriptions, and Activity Codes, Durations and Dates sorted by Activity number.
 - b. Tabular and bar chart schedules sequenced by Total Float, and Early Start Dates.
 - c. Tabular and plotted network logic reports and diagrams which indicate for each Activity, by number and description:
 - All Predecessor and Successor Activities by number and description
 - Duration
 - Constraint type
 - Lag
 - d. Target Schedule Reports
 - e. Earned Value Reports

2. The Engineer will review the proposed Original Progress Schedule and return it to the Contractor with comments, or approval as the Original Progress Schedule, within fifteen calendar days. If the proposed schedule is not approved, the Contractor shall revise it in accordance with the Engineer's comments and resubmit six computer printout copies and one computer diskette of it for the Engineer's recommendation for the Director's approval, within fifteen calendar days of the receipt by the Contractor of the Engineer's comments. Until such time as the Director approves it, the Contractor shall resubmit his proposed Original Progress Schedule as requested by the Engineer by the same time and in the same format as required by this paragraph for the initial resubmission.
3. Within 7 calendar days of the date on which the proposed Original Progress Schedule is first approved by the Director, the Contractor shall furnish to the Engineer 6 additional computer printout copies and one computer diskette of the Original Progress Schedule as well as all supporting data referred to in paragraph 1 above.
4. All copies of the Network Diagrams shall be submitted on Primavera E-size or equivalent sheets. Each sheet shall have match lines indicating the interface between sheets.
5. After the approval of any progress schedule required by this Section no changes shall be made therein without the approval of the Director. Moreover any approval required by this Section shall be effectuated only by a writing over the signature of the Director. No other act or omission on the part of the Authority shall be deemed to constitute such approval. The Contractor shall not be entitled to any damages by reason of the failure of the Director to give timely approval or comments on any progress schedule submitted hereunder.
6. Within 30 calendar days of the acceptance of the Contractor's Proposal, the Contractor shall submit to the Engineer for the Director's approval three computer printout copies and one computer diskette of the Six-Month Look Ahead Schedule. The Engineer will review this submittal and return it to the Contractor with comments, or Director's approval, within ten calendar days. If the submitted schedule is not approved, the Contractor shall revise it in accordance with the Engineer's comments and resubmit three computer printouts and one computer diskette of it for the Engineer's review and the Director's approval within five calendar days of receipt by the Contractor of the Engineer's comments. Until such time as the Director approves it, the Contractor shall resubmit the schedule as requested by the Engineer by the same time and in the same format as required by this paragraph for the initial resubmission.
7. Within 30 calendar days of the acceptance of the Contractor's Proposal, the Contractor shall submit to the Director for approval three computer printout copies and one computer diskette of the Eight-Week Rolling Schedule. The Engineer will review this submittal during the weekly progress meeting and return it to the Contractor with comments, or Director's approval, at the meeting. If the submitted schedule is not approved, the Contractor shall revise it in accordance with the Engineer's comments and resubmit three computer printouts and one computer diskette of it for the Engineer's review and Director's approval within one calendar

day of receipt by the Contractor of the Engineer's comments. Until such time as the Director approves it, the Contractor shall resubmit the schedule as requested by the Engineer by the same time and in the same format as required in this paragraph for the initial resubmission.

C. SCHEDULE UPDATING

1. The Contractor shall submit to the Engineer updates of the respective schedules as follows:

Progress Schedule

The Progress Schedule shall be updated monthly and submitted to the Engineer on the first Monday of every month. This schedule update shall reflect the actual progress and costs at the end of the month as well as the other requirements herein. Project cost variance and the schedule variance for each milestone shall be reported.

Six (6) Month Look Ahead Schedule

The Six Month Look Ahead Schedule shall be updated monthly and submitted to the Engineer on the third Monday of every month. This schedule update shall reflect the actual progress at the end of the month preceding the submittal as well as the other requirements herein.

Eight (8) Week Rolling Schedule (6 Weeks Forward, 2 Weeks Back)

The Eight Week Rolling Schedule shall be updated every Monday and submitted to the Engineer by noon of that day. This schedule update shall reflect the actual progress and events for the two weeks preceding from midnight of the day before submittal, and the planned progress and events for the period six weeks forward.

The updated schedules shall include at least the following:

- a. A revised Network Diagram indicating completed Activities, Activities in progress, revised Durations of Activities, revised logical sequence of Activities, the revised Critical Path, and extensions of time, if any.
 - b. An indication of Activities and/or Milestones which are behind schedule by at least 30 calendar days (evidenced by Negative Float). All such Activities or Milestones shall be addressed in an Analysis Report.
 - c. Revised supporting data, which shall include all information required by B3 of this Section for the Original Progress Schedule submitted. It shall also describe the means and methods to be used when platform or track outages or fouling is planned.
2. Within seven calendar days after receipt by the Engineer of an updated progress schedule, the Contractor shall meet with the Engineer for the purpose of reviewing and obtaining the Director's approval of it.

3. The Engineer may require the Contractor to furnish a revised update which shall include any other information he may request to assist him in evaluating the Contractor's progress, including but not limited to the following: manpower loading charts and equipment schedules; multiple shifts or overtime to maintain approved schedules; a Bar Chart; Estimates to Complete; Estimates at Completion; Hammock Activities.

In the event that the Engineer requests the Contractor to revise the updated schedule submitted, and/or to submit such additional information, the Contractor shall make the requested revisions and/or submit the updated schedule to the Director for approval along with the additional information requested within 7 calendar days of the Engineer's request.

4. The Contractor acknowledges and agrees that if an Activity with Free Float is delayed for any reason, he will not thereby become entitled to an extension of time.

D. GENERAL

The Contractor shall employ for the duration of this Contract a full time scheduling specialist who shall have a degree in Engineering from a four year accredited college and at least 10 years of experience in the formulation, development and maintenance of CPM schedule networks. The scheduling specialist shall also be proficient in the use of PC operating systems and basic software applications such as Primavera and Microsoft Excel. Technical knowledge of engineering, procurement and construction management techniques and experience in current industry and technical developments are requirements of this position.

The scheduling specialist shall be in residence at the Construction site within 30 days from Contract Award and remain at the site for the duration of the Contract. All scheduling and planning work shall be performed at the construction site by the Contractor.

Should the Contractor fail to comply with any provision of this Section, the Authority shall have the right in its discretion to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as it deems necessary or desirable, all as more fully provided in the clause of the Form of Contract entitled "Withholding of Payments".

Neither the acceptance, review or approval of any progress schedule or other data submitted by the Contractor pursuant to this Section, nor any other action on the part of the Authority under this Section shall in any way be deemed as a representation by the Authority that the Contractor can or will be permitted to follow a particular schedule or sequence of operations or that by following any such schedule or sequence he can or will complete the Work by the time(s) required by the Contract or by any other time(s). Nor shall the approval of any progress schedule or other such data relieve the Contractor of his obligation to complete the Contract by the time(s) required in the Form of Contract, even though the schedule approved may be inconsistent with such completion.

Any approval under this Section shall be construed merely to mean that the Director knew of no good reason at that time to object thereto. No acceptance, review or approval or any other action under this Section shall limit, affect or impair the Contractor's obligation to perform all Work by time(s) required by the Contract and in accordance with all other provisions of the Contract.

The performance of the work by the time(s) required in the Form of Contract after taking into account extensions to which the Contractor may be entitled under the clause "Extensions of Time", may require the use by the Contractor of overtime labor, additional shifts or additional plant and equipment and/or other measures. In any event, the Contractor shall anticipate, avoid and mitigate the effects of all delays, whether or not such delays involve Activities with Free Float. The Director shall have the right at any time when in his judgment the Work is not proceeding in accordance with the approved progress schedule or at any time when it is likely that the Work might not be completed by the time(s) required in the Form of Contract even though the Contractor is proceeding in accordance with the approved progress schedule, to order the Contractor without additional compensation, to employ additional shifts to increase the number of men employed, to use additional plant or equipment, or to take such other steps as may be necessary or required to assure the completion of the various operations within the time(s) allotted therefor in the approved schedule or by the aforesaid completion time(s).

No action on the part of the Contractor pursuant to this Section shall be construed as a request by him for an extension of the time(s) for completion required by the Contract. A request for an extension of time shall be deemed made only if it complies with the requirements of the clause of the Form of Contract entitled "Extensions of Time". No extension of the time(s) for completion shall be inferred because of any action, omission to act, or statement on behalf of the Authority pursuant to this Section. Extension of time, if any, shall be granted only pursuant to the clause of the Form of Contract entitled "Extensions of Time".

101. OPERATIONS AND MAINTENANCE MANUALS

As part of the Work of this Contract, the Contractor is required to furnish Operations and Maintenance Manuals for the specific equipment items and system components provided by the Contractor as listed in the technical specifications. All such Operations and Maintenance Manuals shall be designed to conform to a standard format and organization and shall be similarly bound as a series of volumes, each item or system having its own separate volume or volumes. An Index Volume, containing a master list of the volumes included and a summary sheet for each of the volumes, shall be compiled and furnished.

Within 120 days of issuance of each Work package, the Contractor shall submit a complete listing of all Operations and Maintenance Manuals to be furnished. The list shall be arranged in specification section order and the volumes numbered in series accordingly. The Contractor shall also submit for the Engineer's review and approval a sample Operations and Maintenance Manual demonstrating standard format and organization. The sample shall include typical internal divisions and arrangement, sample information to be furnished and a table of contents. Upon approval by the Engineer, the sample shall become the standard to be followed for all Operations and Maintenance Manuals.

As the work progresses, the Contractor shall submit to the Engineer for review and approval the Operations and Maintenance Manuals for the items and systems listed in the technical sections of the Specifications.

Upon completion of those parts of the Work for which Operations and Maintenance Manuals are required, or when requested by the Engineer, the Contractor shall furnish twelve copies of the approved Operations and Maintenance Manuals to the Engineer.

Certificates of Partial Completion will not be issued by the Engineer for any item, system or area until the required Operations and Maintenance Manuals have been delivered to the Engineer.

A Certificate of Final Completion will not be issued by the Engineer until all required Operations and Maintenance Manuals including the Index Volume have been delivered to the Engineer.

102. CLEANING

Prior to the issuance of Certificates of Partial or Final Completion by the Engineer, the Contractor shall perform a thorough final cleaning of the areas, items, elements or structures to be certified including accessible spaces normally concealed from view. Such final cleaning is in addition to periodic site cleanup, cleaning and protection specified in the technical specification sections. Final cleaning shall remove all dust, dirt, debris, markings, residues, stains, and any and all non-permanent materials and equipment whatsoever, leaving the location completely clean and spotless and in a new-appearing condition.

Areas or elements used by the public during construction, such as platforms, elevators, escalators, etc. shall nevertheless be cleaned by the Contractor, prior to certification by the Engineer, in the same manner and to the same degree as if the area or element had never been in use by the public.

103. SUBSURFACE CONDITIONS

If during the performance of Work, the Contractor becomes aware of any unanticipated subsurface conditions or has cause to suspect the presence of such condition, then the Contractor shall immediately notify the Director, or designee thereof verbally, to be followed immediately by written notification. The Contractor shall specify the nature, location, and impact on Work of such conditions. The Contractor shall immediately stop Work in and secure the area against injury to persons or damage to property pending further instructions from the Director.

The Contractor shall be responsible to then conduct all necessary investigations and testing of the subsurface condition required by the technical specifications or by applicable Federal, State and local laws, codes, and ordinances and regulations and notify the Director accordingly.

- A. In the event the Contractor discovers such subsurface condition during the performance of a Work package issued after the execution of the GMP Amendment and (i) the special handling of such condition is necessary and required for the performance of the Work as determined by the Director; (ii) such special handling cannot be avoided or mitigated by the exercise of reasonable measures by the Contractor; and (iii) the Contractor actually incurs increased costs caused by such condition that could not have been reasonably anticipated from the Contract Drawings and Specifications issued with the Work package and inspection of the construction site; then in such event, as approved by the

Director, the Contractor shall be compensated for such costs for special handling in accordance with the provisions of the clause entitled "Construction Contingency".

- B. In addition, if any salaried and hourly workers or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day due to unanticipated subsurface conditions on which they would otherwise be engaged in the performance of Work issued after the execution of the GMP Amendment, but for causes solely due to acts or omissions of the Port Authority or Director occurring after the amendment of the Contract, and if such idleness is not due to any cause within the control of the Contractor or any of its subcontractors or material suppliers or its or their employees, then the Port Authority will pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Port Authority or the Director) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Director deems reasonable. The rental for idle equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such idle equipment, shall be computed by the Director in accordance with the provisions of the clause of the Form of Contract entitled "Computation of Rental for Construction Equipment"; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Director within twenty-four hours of the occurrence of such idleness (whether or not the Port Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered Clause), specifically stating that salaried workers or equipment have been kept idle under circumstances which might result in payment under this numbered Clause; and the Contractor shall furnish with such notice for all the days that have occurred, and shall in addition furnish with such notice, at the end of each additional day of such idleness, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried workers claimed to have been kept idle at the construction site, and the rates and amounts of Workers' Compensation Insurance premiums, if any, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Director to verify the Contractor's claim at the time and of enabling the Director to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered Clause.

Any amounts payable under items A or B above, shall be charged against the NTE Construction Allowance as set forth in the clause entitled, "Construction Contingency".

104. MONITORING AND MITIGATION OF VIBRATION, SETTLEMENT, AIR QUALITY & NOISE

Vibration, settlement, air quality and noise levels generated by the Contractor's activities shall not exceed the allowable levels specified by applicable Federal, State and local laws, codes, and ordinances and regulations including the criteria set forth in the provisions of the clause entitled "Environmental Performance Commitments (EPCs)", the Agreement entitled, "Memorandum of Agreement Among the Federal Transit Administration the New York State Historic Preservation Office Advisory Council on Historic Preservation and The Port Authority of New York and New Jersey Regarding the World Trade Center Transportation Hub (WTC PATH Terminal and Pedestrian Connections in New York City, New York)" and the requirements of the Contract Drawings and Specifications of the Work package. Where any of the requirements specified or referenced herein conflict, the most stringent shall apply.

- A. In the event the Contractor is required to provide monitoring and mitigation of vibration, settlement, air quality and noise beyond the criteria specified by applicable Federal, State and local laws, codes; and ordinances and regulations including the provisions of the clause entitled "Environmental Performance Commitments (EPCs)" and the Agreement entitled, "Memorandum of Agreement Among the Federal Transit Administration the New York State Historic Preservation Office Advisory Council on Historic Preservation and The Port Authority of New York and New Jersey Regarding the World Trade Center Transportation Hub (WTC PATH Terminal and Pedestrian Connections in New York City, New York)", attached hereto as Appendix E, during the performance of a Work package issued after the execution of the GMP Amendment and (i) special monitoring and mitigation is necessary and required for the performance of the Work as determined by the Director; (ii) such special monitoring and mitigation cannot be avoided or mitigated by the exercise of reasonable measures by the Contractor; and (iii) the Contractor actually incurs increased costs caused by such monitoring and mitigation that could not have been reasonably anticipated from the Contract Drawings and Specifications issued with the Work package and inspection of the construction site; then in such event, as approved by the Director, the Contractor shall be compensated for such costs for special monitoring and mitigation of vibration, settlement, air quality and noise in accordance with the provisions of the clause entitled "Construction Contingency".
- B. In addition, if any salaried and hourly workers or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day due to unanticipated vibration, settlement, air quality and noise conditions on which they would be otherwise engaged in the performance of Work issued after the execution of the GMP Amendment, but for causes solely due to acts or omissions of the Port Authority or Director occurring after the amendment of the Contract, and if such idleness is not due to any cause within the control of the Contractor or any of its subcontractors or material suppliers or its or their employees, then the Port Authority will pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Port Authority or the Director) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the

basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Director deems reasonable. The rental for idle equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such idle equipment, shall be computed by the Director in accordance with the provisions of the clause of the Form of Contract entitled "Computation of Rental for Construction Equipment"; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Director within twenty-four hours of the occurrence of such idleness (whether or not the Port Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered Clause), specifically stating that salaried workers or equipment have been kept idle under circumstances which might result in payment under this numbered Clause; and the Contractor shall furnish with such notice for all the days that have occurred, and shall in addition furnish with such notice, at the end of each additional day of such idleness, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried workers claimed to have been kept idle at the construction site, and the rates and amounts of Workers' Compensation Insurance premiums, if any, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Director to verify the Contractor's claim at the time and of enabling the Director to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered Clause.

Any amounts payable under items A or B above, shall be charged against the NTE Construction Allowance as set forth in the clause entitled, "Construction Contingency".

105. ASBESTOS AND OTHER HAZARDOUS MATERIALS

If during the performance of Work, the Contractor becomes aware of any unanticipated asbestos or other hazardous material or has cause to suspect the presence of such materials, then the Contractor shall immediately notify the Director, or designee thereof verbally, to be followed immediately by written notification. The Contractor shall specify the nature, location, and impact on Work of such materials. The Contractor shall immediately stop Work in and secure the area against injury to persons or damage to property pending further instructions from the Director.

The Contractor shall be responsible to then conduct all necessary investigations and testing for Asbestos or other hazardous material required by the technical specifications or by applicable Federal, State and local laws, codes, and ordinances and regulations and notify the Director accordingly.

- A. In the event the Contractor discovers Asbestos or other hazardous material during the performance of a Work package issued after the execution of the GMP Amendment and (i) the special abatement of such material is necessary and required for the performance of the Work as determined by the Director; (ii) such special abatement cannot be avoided or mitigated by the exercise of reasonable measures by the Contractor; and (iii) the Contractor actually incurs increased costs caused by such abatement of material that could not have been reasonably anticipated from the Contract Drawings and Specifications issued with the Work package and inspection of the construction site; then in such event, as approved by the Director, the Contractor shall be compensated for such costs for special abatement of Asbestos or other hazardous material in accordance with the provisions of the clause entitled "Construction Contingency".
- B. In addition, if any salaried and hourly workers or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day due to unanticipated asbestos or other hazardous materials conditions on which they would be otherwise engaged in the performance of Work issued after the execution of the GMP Amendment, but for causes solely due to acts or omissions of the Port Authority or Director occurring after the amendment of the Contract, and if such idleness is not due to any cause within the control of the Contractor or any of its subcontractors or material suppliers or its or their employees, then the Port Authority will pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Port Authority or the Director) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Director deems reasonable. The rental for idle equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such idle equipment, shall be computed by the Director in accordance with the provisions of the clause of the Form of Contract entitled "Computation of Rental for Construction Equipment"; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Director within twenty-four hours of the occurrence of such idleness (whether or not the Port Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered Clause), specifically stating that salaried workers or equipment have been kept idle under circumstances which might result in payment under this numbered Clause; and the Contractor shall furnish with such notice for all the days that have occurred, and shall in addition furnish with such notice, at the end of each additional day of such idleness, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried workers claimed to have been kept idle at the construction site, and the rates and amounts of Workers' Compensation Insurance premiums, if any, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with

the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Director to verify the Contractor's claim at the time and of enabling the Director to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered Clause.

Any amounts payable under items A or B above, shall be charged against the NTE Construction Allowance as set forth in the clause entitled, "Construction Contingency".

106. CONSTRUCTION SITE SUPPORT

The Contractor's construction site support activities shall adhere to the requirements set forth in the provisions of the clauses entitled "Maintenance of Traffic and Work Area Protection", "Notification of Security Requirements", and "Site Access and Staging Restrictions" and the requirements of the Contract Drawings and Specifications issued with the Work package.

- A. In the event the Contractor is required to provide construction site support in addition to the Work set forth in the provisions of the clauses entitled "Maintenance of Traffic and Work Area Protection", "Notification of Security Requirements", and "Site Access and Staging Restrictions" during the performance of a Work package issued after the execution of the GMP Amendment and (i) special construction site support is necessary and required for the performance of the Work as determined by the Director; (ii) such special construction site support cannot be avoided or mitigated by the exercise of reasonable measures by the Contractor; and (iii) the Contractor actually incurs increased costs caused by such construction site support that could not have been reasonably anticipated from the Contract Drawings and Specifications issued with the Work package and inspection of the construction site; then in such event, as approved by the Director. The Contractor shall be compensated for such costs for special construction site support in accordance with the provisions of the clause entitled "Construction Contingency".
- B. In addition; if any salaried and hourly workers or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day due to unanticipated required site support on which they would be otherwise engaged in the performance of Work issued after the execution of the GMP Amendment, but for causes solely due to acts or omissions of the Port Authority or Director occurring after the amendment of the Contract, and if such idleness is not due to any cause within the control of the Contractor or any of its subcontractors or material suppliers or its or their employees, then the Port Authority will pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Port Authority or the Director) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Director deems reasonable. The rental for idle equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or

actual costs associated with such idle equipment, shall be computed by the Director in accordance with the provisions of the clause of the Form of Contract entitled "Computation of Rental for Construction Equipment"; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Director within twenty-four hours of the occurrence of such idleness (whether or not the Port Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered Clause), specifically stating that salaried workers or equipment have been kept idle under circumstances which might result in payment under this numbered Clause; and the Contractor shall furnish with such notice for all the days that have occurred, and shall in addition furnish with such notice, at the end of each additional day of such idleness, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried workers claimed to have been kept idle at the construction site, and the rates and amounts of Workers' Compensation Insurance premiums, if any, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Director to verify the Contractor's claim at the time and of enabling the Director to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered Clause.

Any amounts payable under items A or B above, shall be charged against the NTE Construction Allowance as set forth in the clause entitled, "Construction Contingency".

107. REQUIREMENTS TO ACCOMMODATE PATH AND NYCT OPERATIONS

The Contractor shall accommodate PATH and NYCT operations by adhering to the requirements set forth in the provisions of the clauses entitled "Conditions and Precautions for Work Performed Outside of PATH", "PATH Operations and Conditions" and "Transit Operations".

- A. In the event the Contractor is required to perform work to accommodate PATH and NYCT operations in addition to the Work set forth in the provisions of the clauses entitled "Conditions and Precautions for Work Performed Outside of PATH", "PATH Operations and Conditions" and "Transit Operations during the performance of a Work package issued after the execution of the GMP Amendment and (i) special requirements to accommodate PATH and NYCT operations are necessary and required for the performance of the Work as determined by the Director; (ii) such special requirements to accommodate PATH and NYCT operations cannot be avoided or mitigated by the exercise of reasonable measures by the Contractor; and (iii) the Contractor actually incurs increased costs caused by such conditions to accommodate PATH and NYCT operations that could not have been reasonably anticipated from the Contract Drawings and Specifications issued with the Work package and inspection of the construction site; then in such event, as approved by the Director, the Contractor shall be compensated for such additional costs to accommodate PATH and NYCT

operations in accordance with the provisions of the clause entitled "Construction Contingency".

- B. If any salaried and hourly workers or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day due to special requirements to accommodate PATH and NYCT operations on which they would be otherwise engaged in the performance of Work issued after the execution of the GMP Amendment, but for causes solely due to acts or omissions of the Port Authority or Director occurring after the amendment of the Contract, and if such idleness is not due to any cause within the control of the Contractor or any of its subcontractors or material suppliers or its or their employees, then the Port Authority will pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Port Authority or the Director) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Director deems reasonable. The rental for idle equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such idle equipment, shall be computed by the Director in accordance with the provisions of the clause of the Form of Contract entitled "Computation of Rental for Construction Equipment"; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Director within twenty-four hours of the occurrence of such idleness (whether or not the Port Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered Clause), specifically stating that salaried workers or equipment have been kept idle under circumstances which might result in payment under this numbered Clause; and the Contractor shall furnish with such notice for all the days that have occurred, and shall in addition furnish with such notice, at the end of each additional day of such idleness, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried workers claimed to have been kept idle at the construction site, and the rates and amounts of Workers' Compensation Insurance premiums, if any, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Director to verify the Contractor's claim at the time and of enabling the Director to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered Clause.

Any amounts payable under A or B above, shall be charged against the NTE Construction as set forth in the clause entitled, "Construction Contingency".

108. PRESERVATION OF ELEMENTS OF HISTORICAL SIGNIFICANCE

The Contractor shall be required to preserve elements of historical significance or archeological interest as specified in the attachment entitled "Memorandum of Agreement Among the Federal Transit Administration the New York State Historic Preservation Office Advisory Council on Historic Preservation and The Port Authority of New York and New Jersey Regarding the World Trade Center Transportation Hub (WTC PATH Terminal and Pedestrian Connections in New York City, New York)", attached hereto as Appendix E, and the requirements of the Contract Drawings and Specifications issued with the Work package.

If during the performance of Work, the Contractor becomes aware of any elements of historical significance or archeological interest or has cause to suspect the presence of such elements, then the Contractor shall immediately notify the Director, or his designee thereof verbally, to be followed immediately by written notification. The Contractor shall specify the nature, location, and impact on Work of such elements of historical significance or archeological interest. The Contractor shall immediately stop Work in and secure the area against injury to persons or damage to property pending further instructions from the Director.

- A. In the event the Contractor discovers elements of historical significance or archeological interest and is required to perform preservation Work beyond the criteria set forth in Appendix E, entitled "Memorandum of Agreement Among the Federal Transit Administration the New York State Historic Preservation Office Advisory Council on Historic Preservation and The Port Authority of New York and New Jersey Regarding the World Trade Center Transportation Hub (WTC PATH Terminal and Pedestrian Connections in New York City, New York)" during the performance of a Work package issued after the execution of the GMP Amendment and (i) the special requirements to preserve such elements of historical significance or archeological interest is necessary and required for the performance of the Work as determined by the Director; (ii) such special requirements to preserve such elements cannot be avoided or mitigated by the exercise of reasonable measures by the Contractor; and (iii) the Contractor actually incurs increased costs caused by such requirements to preserve such elements that could not have been reasonably anticipated from the Contract Drawings and Specifications issued with the Work package and inspection of the construction site; then in such event, as approved by the Director, the Contractor shall be compensated for such costs for special requirements to preserve such elements of historical significance or archeological interest in accordance with the provisions of the clause entitled "Construction Contingency".

B. If any salaried and hourly workers or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day or more due to the discovery of unanticipated preservation of elements of historical significance or archeological interests on which they would be otherwise engaged in the performance of Work issued after the execution of the GMP Amendment, but for causes solely due to acts or omissions of the Port Authority or Director occurring after the amendment of the Contract, and if such idleness is not due to any cause within the control of the Contractor or any of its subcontractors or material suppliers or its or their employees, then the Port Authority will pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Port Authority or the Director) an amount equal to that which the employer actually pays such salaried employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Director deems reasonable. The rental for idle equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such idle equipment, shall be computed by the Director in accordance with the provisions of the clause of the Form of Contract entitled "Computation of Rental for Construction Equipment"; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Director within twenty-four hours of the occurrence of such idleness (whether or not the Port Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered Clause), specifically stating that salaried workers or equipment have been kept idle under circumstances which might result in payment under this numbered Clause; and the Contractor shall furnish with such notice for all the days that have occurred, and shall in addition furnish with such notice, at the end of each additional day of such idleness; (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried workers claimed to have been kept idle at the construction site, and the rates and amounts of Workers' Compensation Insurance premiums, if any, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Director to verify the Contractor's claim at the time and of enabling the Director to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered Clause.

Any amounts payable under items A or B above, shall be charged against the NTE Construction as set forth in the clause entitled, "Construction Contingency".

109. ADJUSTMENT OF STEEL MATERIAL PRICES

A price adjustment clause is included in this Contract to provide additional compensation to the Contractor or a credit to the Authority for fluctuations in steel material prices. This price adjustment is dependent upon either: an increase or decrease in the price of steel used in the production of products utilized for this Contract or an increase or decrease in the ratio of the Bureau of Labor Statistics – Producer Price Index listed below. Payment or credit for steel price adjustments will be evaluated under the following conditions. For material purchased during the performance of a Work package issued after the execution of the GMP Amendment, payment or credit will be made in accordance with the provisions of the clause entitled “Construction Contingency”.

The conditions of this provision are as follows:

- A. This provision shall only apply to material cost changes that occur between the date of the award of the Work Package and the date of certified invoice for that particular Work Package. The Contractor is expected to order materials promptly upon Notice to Proceed (or upon shop drawing approval) and take possession of materials as quickly as reasonably possible.
- B. A price adjustment to provide additional compensation to Contractor will be considered and paid only where the price increase in steel is due to market conditions beyond the control of Contractor and its suppliers or vendors. No adjustment is allowed under this provision for increases due to any other cause or peril (including, but not limited to, strike, weather, vendor backlog, delay in fabrication, etc.). If a price adjustment is sought under this provision, Contractor shall certify to the Authority that the price increase was due solely to market conditions beyond its control or that of its suppliers and that Contractor exercised its best efforts to mitigate any price increase. The Authority reserves the right to verify the accuracy of such certification as a condition of payment.
- C. This price adjustment clause only applies to structural steel, reinforcing steel, rail and steel excavation support elements. To be considered, the invoice of material must have a total dollar value of \$100,000 or greater.
- D. The Contractor shall submit within 5 days of Award of the Work Package, the fabricator’s or supplier’s material price quotes for the items listed above. The Contractor must certify that they are the actual quoted prices incorporated into the Contractor’s or Subcontractor’s proposal amount submitted to the Authority for the represented pay item. The Authority has the right to inspect the Contractor’s or Subcontractor’s proposal preparation documents to verify the accuracy of such certification. Assuming such certification is accurate, these certified quotes will constitute the baseline steel material price. The quote must clearly identify the pay item(s) by number and description, describe the weights of the steel material, how the steel material will be utilized in the final project, and a breakdown of all costs including material, labor, equipment, overhead, and profit. This steel price escalation provision shall only apply to the steel component of the material quote. It shall not apply to any other materials used in the fabrication of an item supplied to the Contractor.

- E. For the items listed above, the increase or decrease in the steel materials unit cost must be in excess of 5 percent of the original quoted prices or the PPI as described below, for a price adjustment to the Contractor to be allowed.
- F. If there is an increase or decrease in steel materials cost in excess of 5 percent from the original quoted unit prices (or the PPI as described in below), the Authority will evaluate and determine an increased or decreased payment(s) under this Contract as follows:
1. The adjustment will be determined by computing the mathematical difference between the unit price that is 5 percent above (or below for decreases in price) the base unit price (bid quote) and the actual invoice unit price of the steel component. The final dollar value will be determined by multiplying this adjustment by the represented quantity of steel.
 2. The Contractor shall submit to the Authority certified invoices as soon as steel material is purchased. The invoices shall be listed in chronological order and contain a tabulation of quantity, the order date, the date shipped from the steel manufacturer, and the price per unit weight (reflecting all deductions for quantity shipments) with a detailed breakdown as stipulated above. Freight charges shall be listed separately and are not included in this price adjustment. These invoices shall be subject to audit verification.
 3. The Authority will verify the increased or decreased percentage between certified original quote and the actual invoice payment.
 4. This change shall be supported by the U.S. Department of Labor – Bureau of Labor Statistics index entitled “Producers Price Index” (PPI). The values contained in the PPI are subject to revision 4 months after original publication. The price adjustment for steel shall be a function of the percentage of change of the price index for “Carbon Steel Scrap” Series ID WPU101211. Do not use seasonally adjusted indices. This index is available on the internet at:
<http://data.bls.gov/labjava/outside.jsp?survey=wp>.
 5. The Producers Price Index (PPI) listed above must meet increase or decrease by at least 5 percent over the same time period to be valid.
 6. For price increases, if the invoiced price increase, expressed as a percentage, exceeds the PPI increase, expressed as a percentage, for the same period, the adjustment will be based on the PPI percent increase; if the invoiced price increase, expressed as a percentage, is less than the PPI increase, expressed as a percentage, for the same period, the adjustment will be based on the invoiced price increase.
 7. For price decreases, if the value of the invoiced price decrease expressed as a percentage is greater than the calculated value of the PPI decrease, expressed as a percentage, for the same period, the adjustment will be based on the value of the invoiced percent decrease. If the value of the invoiced price decrease, expressed as a percentage, is less than the value of the PPI decrease expressed as a percentage for the same period, the adjustment will be based on the PPI percent decrease.

8. If the PPI controls in determining the price adjustment, the Authority will review the PPI 4 months after initial publication to ensure that the data have not been revised. Final payments will be adjusted accordingly.

9. If Invoice Price Controls:

a. Price Increase:

$$(1) \text{ Factor} = (\text{PC}/\text{PB}) - 1.05$$

If Factor is equal to or less than 0.0, no adjustment will be made.

If Factor is greater than 0.0, continue: $\text{PA} = \text{Factor} * \text{Q} * \text{PB}$

b. Price Decrease:

$$(1) \text{ Factor} = (\text{PC}/\text{PB} - 0.95)$$

If Factor is equal to or greater than 0.0, no adjustment is made.

If Factor is greater than 0.0, continue: $\text{PA} = \text{Factor} * \text{Q} * \text{PB}$

Where: PA = Steel manufacturing price adjustment, in lump sum dollars
PB = Fabricator / supplier quoted price in bid (converted to dollars per pound)
PC = Current certified invoice price (converted to dollars per pound)
Q = Quantity of manufactured steel, in pounds

10. If PPI Controls:

a. Price Increase:

$$(1) \text{ Factor} = (\text{IC}/\text{IB}) - 1.05$$

If Factor is equal to or less than 0.0, no adjustment is made.

If Factor is greater than 0.0, continue: $\text{PA} = \text{Factor} * \text{Q} * \text{PB}$

b. Price Decrease:

$$(1) \text{ Factor} = (\text{IC}/\text{IB} - 0.95)$$

If Factor is equal to or greater than 0.0, no adjustment is made.

If Factor is greater than 0.0, continue: $\text{PA} = \text{Factor} * \text{Q} * \text{PB}$

Where: PA = Steel manufacturing price adjustment, in lump sum dollars
PB = Fabricator / supplier quoted price in bid (converted to dollars per pound)
IB = BLS PPI index at the time of bid
IC = BLS PPI index at the time material is purchased from mill (invoice date; after final US DOL BLS adjustments)
Q = Quantity of manufactured steel, in pounds

110. MAINTENANCE OF TRAFFIC AND WORK AREA PROTECTION

A. DEFINITIONS

As used in this numbered Section, and this Section only, the terms used herein shall have the following meaning:

1. The terms "Traffic Lane", "Lane", "Active Roadway", "Street", and "Roadway" shall mean, in addition to the normally traveled pavement areas, other areas including but not limited to roadway shoulders, and all other areas that may foreseeably be occupied by moving vehicles.
2. "Flashing Arrow Sign Unit" (FASU) shall mean an engine/generator-, solar-, or battery-powered flashing light sign with lights displayed in the shape of an arrow.
3. "Variable Message Sign Unit" (VMSU) shall mean an engine/generator-, solar-, or battery-powered variable text sign using a matrix composed of elements such as fluorescent flip-disc, fiberoptic, light-emitting diode (LED), or incandescent bulb elements.
4. "Nighttime Hours" shall mean the local time period between 1/2 hour after sunset to 1/2 hour before sunrise.
5. "Slow-Moving Vehicles" shall mean vehicles or equipment that travel at or under a speed corresponding to 15 mph less than the posted speed limit.
6. "Work Area" shall mean the area immediately surrounding the Work in progress, typically where workers are afoot, and/or the space within a Roadway where Work on the Roadway is being done by the Contractor.

B. GENERAL REQUIREMENTS

Conform to requirements of this numbered Section, other Specification Sections, the Contract Drawings issued with the Work package and the following:

1. Portions of the latest editions, including all amendments thereto, of the Federal Highway Administration (FHWA): "Manual on Uniform Traffic Control Devices" (MUTCD) Part VI as hereinafter specified and applicable portions of the companion "Traffic Control Devices Handbook" (TCDH); "Standard Highway Signs"; "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects"; and, the "Standard Color Tolerance Charts".

2. American Association of State Highway and Transportation Officials (AASHTO): "Roadside Design Guide", Chapter 9: Safety Appurtenances for Work Zones; and "Standard Specifications for Highway Bridges", as hereinafter specified.
3. The requirements of the Americans with Disabilities Act (ADA) laws in all respects as specified in the "ADA Accessibility Guidelines for Buildings and Facilities" (ADAAG).
4. American Traffic Safety Service Associations (ATSSA): "Guidelines for the Use of Portable Changeable Message Signs".
5. Maintenance of traffic and Work area protection features included herein.
6. In the event of a technical conflict between a requirement in the publications referenced herein and the Contract documents, the more stringent requirements shall control.
7. There may be more than one Work Area within the confines of a closed Roadway or Traffic lane. Each Work Area shall be individually protected as specified herein.

The Contractor is also responsible for complying with all applicable requirements of the New York City Department of Transportation (NYCDOT) Office of Construction Mitigation and Coordination-Streets regarding maintenance and protection of traffic, including adherence to NYCDOT MPT Plans and NYCDOT Holiday Embargo regulations. NYCDOT requirements include, but are not limited to, the following:

- The Contractor must maintain a five (5) foot walkway in the roadway during work periods when a sidewalk is made inaccessible.
- In general, the Contractor must maintain at least one lane of traffic in each direction during work periods when the number of roadway lanes available for traffic is reduced. The required width of open traffic lanes varies depending on the specific street affected, and is typically between 12 to 17 feet.
- Where roadway closures are required, NYCDOT approvals must be obtained and appropriate road closure and detour requirements must be implemented.
- The Contractor must maintain a five (5) foot clear sidewalk for pedestrian access to any sidewalk connections (e.g., hydrants, house connections) at all times.

The Contractor is also responsible for complying with all applicable requirements of the NYCDOT, Division of Traffic Operations, regarding adherence to designated trucking routes for transportation of construction materials and equipment.

The Contractor is also responsible for applying for, and obtaining, all NYCDOT permits required to ensure that road work impacts on businesses, the traveling public, residents and roadways are minimized.

C. CONTRACTOR-FURNISHED MATERIALS AND EQUIPMENT

1. Provide and maintain in good working order all materials, equipment, temporary construction signs and facilities required for proper maintenance of traffic and Work Area protection, as specified herein and/or shown on the Contract Drawings issued with the Work package. All said equipment/devices shall remain the property of the Contractor unless otherwise shown on the Contract Drawings issued with the Work package.
2. All items provided under paragraph C.1 shall be new or undamaged previously used materials in serviceable condition conforming to requirements specified herein.
3. Provide and maintain in serviceable condition the following:
 - a. Portable changeable message signs: Trailer mounted flashing arrow sign unit (FASU) or variable message sign unit (VMSU); per Traffic Standard Detail TD-82.5 and/or as specified on the Contract Drawings issued with the Work package;
 - b. Plastic Delineator Drums: per Traffic Standard Details TD-72.1;
 - c. Type III Barricades: per Traffic Standard Details TD-71.1;
 - d. Vehicle-strong barriers:
 - (1) Precast Concrete Barrier Type 4 (per Traffic Standard Details TD-76);
 - e. Temporary Signs: Conform to requirements of Specification Section 02850 "Plywood Sign Panels and Wood Sign Posts" and/or Specification Section, 02851 "Aluminum Sign Panels and Aluminum Sign Posts" hereof. Plywood signs shall be Type 1 unless otherwise shown on the Contract Drawings.
 - (1) Temporary sign supports: Wood conforming to requirements of Specification Section 02850.
 - (2) Portable sign supports: "Windmaster" as manufactured by Marketing Displays, Inc., Farmington Hills, MI.; or approved equal;
 - e. Portable Impact Attenuator, Structural Type: 'G-R-E-A-T System' as manufactured by Energy Absorption Systems, Inc., Chicago, IL; or approved equal;
 - f. Portable Impact Attenuator, Inertial Sand Barrel Type: "Energite" System as manufactured by Energy Absorption Systems, Inc., Chicago, IL; or approved equal;

- g. Warning Lights: Units as listed below conforming to the requirements of Part VI of the MUTCD as certified product catalog cuts, and/or by independent testing laboratory reports, copies of which, upon request, shall be submitted to the Engineer for approval.
- (1) Nighttime: Type A Low Intensity Flashing Warning lights using 12 volt circuit and lamp units with vandal resistant off/on switch and mounting hardware, photocell, and new bulbs and batteries.
 - (2) Daylight and Nighttime: Type B High Intensity Flashing Warning lights with vandal resistant off/on switch and mounting hardware, and new bulbs and batteries. Type B Flashing Light battery cases shall be set on the ground/pavement and equipped with a neatly routed electrical cord to the detachable, remote mounted light head.
 - (3) Nighttime: Type C Low Intensity Steady-Burn lights with vandal resistant off/on switch and mounting hardware, photocell, and new bulbs and batteries.
- i. Back-Up Trucks: Nominal actual weight of 15,000 lbs. with nominal 24,000 lbs. gross vehicle weight registration and rear-most wheels situated close to rear of truck body. Standard "ICC" type rear bumpers are not an acceptable substitute for the required rear wheel location. Actual vehicle weight may vary depending on the recommendations of the manufacturer of the vehicle-mounted Impact attenuator selected. In addition, equipment truck(s) with:
- (1) Standard 4 lamp flashing hazard signal lights (parking and tail lights);
 - (2) 4 lamp sealed beam rotating yellow warning light providing 35,000 candle power per lamp with an apparent flash rate of 120 flashes per minute. Truck mount such lights 7 to 10 feet above the Roadway and located so as to be visually unobstructed by any part of truck body, load, or equipment.
 - (3) Vehicle-mounted impact attenuator: "TMA" units as manufactured by Energy Absorption Systems, Inc., Chicago, IL; or approved equal;
- j. Temporary Roadway Plates: Steel Plates, sized to cover roadway excavations with thickness and edge support adequate to accommodate HS-20-44 loading per Figure 3.7.6B and 3.7.7A in the AASHTO "Standard Specifications for Highway Bridges".
- k. Temporary Reflectorized Pavement Marking:
- (1) On finished wearing surfaces: New, un-used removable temporary marking tape conforming to the requirements of Specifications Section 02582; "Preformed Removable Retro-Reflective Pavement Marking Tape" shall be furnished, applied and maintained. For removal see paragraph E.3.d.

- (2) On Roadway surfaces to be subsequently resurfaced or replaced under this Contract: An approved traffic paint with glass beads applied at the rate of 1.5 pounds per 100 linear feet per 4" wide line unless otherwise shown on the Contract Drawings issued with the Work package. For removal see paragraph E.3.d.
1. When required by paragraph E.6 or utilized by the Contractor in paragraph E.7, herein, provide bituminous premixed asphalt concrete cold patch material.
4. Submit the following to the Engineer in accordance with Division 1 - GENERAL PROVISIONS entitled "Shop Drawings, Catalog Cuts and Samples":
 - a. Catalog Cuts and Data Sheets: Complete manufacturer's data for all equipment and materials.

D. SPARE MATERIALS AND EQUIPMENT

1. Initially furnish and subsequently maintain the quantities of spare materials and equipment, as scheduled on the Contract Drawings issued with the Work package, at the construction site or at another nearby location approved by the Engineer.
2. In addition to the required number of spare flashing and steady-burn lights, maintain an adequate quantity of appropriate spare batteries and light bulbs at the construction site. Replace batteries and light bulbs in the in-use warning lights as follows:
 - a. For nighttime Type A Low Intensity Flashing Warning lights, after 30 consecutive days of operation, or sooner as needed.
 - b. For Type B High Intensity Flashing Warning lights, after 30 consecutive days of operation, or sooner as needed.
 - c. For nighttime Type C Low Intensity Steady-burn lights after 15 consecutive nights of operation, or sooner if needed.
3. Totally relamp Flashing Arrow Sign Unit after each single bulb failure.

E. GENERAL WORK AREA PROTECTION

1. The Contractor shall establish a Traffic Maintenance Crew, properly trained, supplied, staffed and equipped to deploy and remove the Maintenance of Traffic and Work Area Protection elements required for each of the Contractor's construction activities, as described on the Contract Drawings issued with the Work package, and/or paragraph E.3 herein. The Contractor shall identify and maintain one individual, per work shift, as the central or key contact for the Traffic Maintenance Crew and their associated activities.

2. The Contractor's Traffic Maintenance training shall be specifically developed from this section. The contents of Contractor's Training programs shall specifically include the Contract Drawings Traffic Standard Details and all other requirements included on the Contract Drawings issued with the Work package.
3. Prior to commencement of each day's Work, furnish and install, and periodically inspect, maintain, relocate, replace, cover, remove, or reconstruct, the traffic control delineations, guiding devices, signals, signs, and pedestrian protection, Roadway plates, barricades, and barriers, if any, as required throughout the progress of construction operations. Maintain safe control of traffic flow and demarcate areas of Work at all times.
 - a. Ensure that construction material and equipment not removed from areas of Work during non-working periods are protected in such a manner that they shall not constitute a traffic hazard.
 - b. Do not park any vehicles other than construction vehicles required for construction operations within the demarcated protected areas of Work.
 - c. Promptly remove traffic control delineations, guiding devices, signals, signs, pedestrian protection, Roadway plates, barricades, and barriers and whenever operations under this Contract no longer require said Work area protection.
 - d. All existing permanent and temporary pavement markings and traffic guides that conflict with markings and traffic guides to be installed shall be concurrently removed prior to placement of new pavement markings and traffic guides as follows:
 - (1) On wearing surfaces that will be subsequently replaced, resurfaced or abandoned during the Work of this Contract, remove obsolete temporary marking tape and remove or obliterate obsolete thermoplastic or paint markings in a manner approved by the Engineer so as to completely obscure all obsolete markings for the duration of the Work.
 - (2) On finished wearing surfaces, completely remove temporary marking tape and completely remove obsolete permanent markings in a manner approved by the Engineer. Use of blackout paint or other coating material on any finished wearing surface is prohibited.
 - (3) Grind or chip off all adhesive residue resulting from removed or relocated traffic guides.
 - e. Prior to the end of each work shift and not less than twice a day on non-work days, the Contractor's Traffic Maintenance crew shall visually inspect and maintain all elements of the Maintenance of Traffic and Work Area Protection installations.
4. Throughout progress of Work of this numbered Section:

- a. Maintain visual and physical accessibility to fire hydrants. Obtain the approval of the Engineer and provide 24 hour advance notice to the Engineer in the event of hydrant obstruction.
 - b. Conduct Work area protection operations so that Traffic Lane ingress and egress to intersecting Roadways, adjacent structures or property, and bus and taxi stops, if any, can be maintained. Obtain the approval of the Engineer and provide 24 hours advance notice to the Engineer in the event that Work area protection operations obstruct access to work areas.
5. Placement and Removal of Temporary Signs and Traffic Control Devices:
- a. Do not locate signs or other traffic delineations, guiding devices and signs in a manner that would: obstruct or interfere with motorists view of approaching, merging or intersecting traffic; obstruct other permanent signs or route markers; or mislead or misdirect the motorist.
 - b. Do not place traffic control signs under an overpass or elevated building, or within overpass or building shadow areas, unless otherwise shown on the Contract Drawings issued with the Work package, or as directed by the Engineer.
 - c. On Roadways passing below an overpass or elevated building, do not begin or end traffic cone or other delineation and guiding devices under or less than 100 feet from an overpass or building. Extend delineation and guiding devices as required to comply with this requirement.
 - d. Unless otherwise shown on the Contract Drawings issued with the Work package, or otherwise directed by the Engineer, the Work of installing and removing temporary signs, traffic control devices and pavement marking shall be protected, as a minimum, in accord with Contract Drawing Standard Traffic Details, as applicable.
6. At excavations within Traffic Lanes which will be open to Roadway traffic prior to completion of construction, provide, install and maintain temporary Roadway plates supported on all edges, and maintain the surface condition of the active Roadway and Roadway plates so that it is consistent with the posted speed limit. Secure plates against displacement by use of suitable steel pins or as directed by the Engineer.
- a. Secure plate against displacement and bed in well-tamped pre-mixed cold patch material ramped 1:24 at exposed edges, or
 - b. Cut a recess in the Roadway surface sized to snugly fit the plate and evenly support the plate around its perimeter. Locate the top of the plate flush with or less than one inch below the adjacent Roadway surface. Secure the plate in the recess in a manner approved by the Engineer.
7. At excavations within pedestrian walkways including Traffic Lane Crosswalks which will be open to walkway pedestrian traffic prior to completion of construction, provide

appropriate pedestrian railings and steel plate, wood plank or plywood covers surfaced walkway covers over excavations shall be a minimum of 4 ft. wide, designed and constructed to carry a minimum of 150 psf. Railings shall be approximately 3'-6" above the walkway cover and consist of a 2" x 4" wood top rail, 1" x 4" intermediate rail and a toeboard 5-1/2 inches high all securely fastened to 2" x 4" wood posts spaced not more than 8 feet apart. Securely fasten wood walkway covers and posts to wood sleepers spanning excavation trench. Chamfer or asphalt ramp exposed edges and secure against displacement. Contractor's installations shall meet the requirements of the Americans with Disabilities Act (ADA) laws in all respects.

8. Use temporary Vehicle-strong barriers at all times when the Work Area contains open excavations or when materials and/or equipment are left in the Work Area without the presence of workers, unless otherwise shown on the Contract Drawings issued with the Work package, or when otherwise directed by the Engineer. Flare exposed ends of the barriers away from the active Roadway by extending the barriers beyond the roadside recovery area and terminate the barriers with a tapered end section. Where proper flaring of the barriers cannot be obtained, protect the barrier end with Inertial Sand-Filled Barriers or Portable Impact Attenuators. Where Inertial Sand-Filled Barriers or Portable Impact Attenuators are used do not install tapered barrier end section.
 9. Each Work Area not protected by Vehicle-strong Barriers shall be protected by a back-up truck when workers are present, unless otherwise shown on the Contact Drawings issued with the Work package.
 10. Vehicles used by the Contractor during performance of Work shall be considered as equipment vehicles and when not protected by a Vehicle-strong barrier, said vehicle shall be protected by a back-up truck, unless otherwise shown on the Contact Drawings issued with the Work package.
 11. Slow-moving Vehicles traveling on a Roadway outside of demarcated protected Work Areas shall be followed (approximately 50 feet behind) by a vehicle displaying the same flashing hazard signal lights and sealed beam rotating yellow warning light as required for back-up trucks.
- F. Notwithstanding provisions herein requiring or permitting the Authority to approve or disapprove of any traffic control or delineation and guiding device provided by the Contractor, the Contractor shall be responsible for the suitability and performance of all such traffic control devices such that inconvenience to the traveling public is held to an absolute minimum.

111. SITE ACCESS AND STAGING RESTRICTIONS

General

1. The Contractor shall progress the work in an orderly manner in accordance with the conditions of the Contract Work packages and applicable codes.

2. The Contractor shall isolate the work areas in a safe manner in accordance with the limits set forth in the Contract Work packages to maintain PATH and Transit Operations, other WTC site contractor activities and pedestrian and vehicle traffic flows.
3. The Contractor shall submit detailed construction execution plans showing and describing actual sequences of the various activities and the means and methods by which the work is to be performed. The submittals shall be sufficiently detailed and comprehensive and shall include as a minimum barricades, temporary supports and shoring, shielding, equipment locations, and sphere of action, pedestrian and vehicle flows, construction personnel, materials and equipment delivery and routing, and interface with other temporary and permanent construction in the area. The Engineer's review and approval of these submittals shall merely be to verify that the requirements set forth in the Contract drawings associated with the Work can be satisfied and shall not release the Contractor from any of his obligations under this Contract.
4. Activities on or over platforms, or tracks shall not proceed unless the Engineer has approved the respective outages.
5. Street and lane closures and any work related to delivery, movement and handing of materials and equipment on the streets, roads and public ways around the site shall conform to requirements specified in the Contract Work packages.
6. The Contractor shall stage work at the WTC site to accommodate PATH and Transit patrons. The Work packages may contain requirements for the Authority's right to recover liquidated damages if the Contractor does not return to service any portions of Work required for PATH and Transit operations as specified in such Work packages.
7. The Contractor shall also stage its work to accommodate other contractors performing work at the WTC site.
8. The Contractor shall stage work at the WTC site to allow weather tight pedestrian access (including ADA access) from street to platforms and vice versa to be maintained at all times. The Contractor's material, equipment and personnel shall be confined within barricaded areas.
9. Demolition shall proceed in a systematic and orderly manner to support the reconstruction. Storage of materials and equipment demolished will not be allowed on site. Debris must be removed on a continuous basis. The Contractor shall submit a demolition plan for the Engineer's review and approval.

112. CONDITIONS AND PRECAUTIONS FOR WORK PERFORMED OUTSIDE OF PATH OPERATIONS AREA

A. Construction Site Conditions:

1. At least 7 days but not more than 10 days prior to performing excavation, call 1-800-272-4480 and provide the information required for excavation(s) in New York and call 1-800-

272-1000 and provide the information required for excavation(s) in New Jersey.

2. No vehicles of the Contractor, employees of the Contractor, subcontractors, materialmen or others over whom the Contractor has control will be permitted to park in or on Authority property, except for construction vehicles which will be permitted to park at the area of Work during the times when the Work is being performed. All vehicles, including construction vehicles and company vehicles will be required to pay the appropriate tolls for each passage or crossing of Authority facilities, or parking at Authority lots.
3. Securely fasten material or construction which must be left in place between working periods in a manner approved by the Engineer so as not to be a hazard.
4. Take all precautions necessary for protection of persons, traffic and property during dust or fragment generating operations, concrete mixing or placing, or other operations which may stain, soil or damage property or injure persons. Provide and erect waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less, or other protective enclosures as approved by the Engineer.
5. Restrict smoking to areas designated by the Engineer for this purpose.
6. Do not burn or bury debris of any type on Authority property, or wash waste materials down sewers or into waterways.
7. Provide sound suppression devices on gasoline and diesel powered construction equipment and pneumatic tools as required to maintain noise exposures below the limits specified in the Code of Federal Regulations (CFR) 29 CFR 1926 Occupational Safety and Health Regulations for Construction (OSHA). Maintain such sound suppression devices in proper operating condition throughout the time of their use, and adjust and repair as required to maintain noise within exposure levels stipulated in 29 CFR 1926.52, Table D-2.

B. Hours Of Work:

1. Perform work only during the times specified by the Engineer in the Work package.
2. Do not perform Work outside these time periods.

C. No requirement of or omission to require any precautions under this Contract shall be deemed to limit or impair any responsibility or obligation assumed by the Contractor under or in connection with this Contract and the Contractor shall at all times maintain adequate protection to safeguard the public and all persons engaged in the Work and shall take such precautions as will accomplish such end, without undue interference with the public or the operations of the Authority.

D. Security Plan

The Contractor shall implement and maintain a security plan for the work site in accordance with the requirements in the Authority's WTC Site Security Plan. The Security Plan includes the standards and requirements for, but not limited to, fencing, guards, access control, lock and key controls, Contractor supplied guards to monitor the construction site after hours and other security requirements, which support overall WTC Site security, the separation of public and

non-public areas, and site safety. The Authority will monitor conformance to the plan and may require modifications to the plan throughout the construction period.

E. Traffic Management Plan

The Contractor shall implement and maintain a traffic management plan while performing work at the WTC site in accordance with the requirements in the Authority's Traffic Management Plan. The Traffic Management Plan will include the standards and requirements for primary and secondary access points, direction of traffic flow, and procedures for access for the Contractor, subcontractors, construction and company vehicles, deliveries, materials being transported, and pedestrian access through the Work site as required to keep the NYCT and PATH Station operational. The Authority will monitor conformance to the plan and may require modifications to the plan throughout the construction period.

F. WTC Site Rules & Regulations

The Contractor, its subcontractors, and all employees supporting the construction activity are required to comply with the Rules and Regulations of the WTC Site, and any updates as required by the Authority. A copy of the WTC Site Rules and Regulations will be provided to each employee upon his or her eligibility to receive a WTC Site Identification Badge and/or Vehicle Pass. Any person not complying with the WTC Site Rules and Regulations shall have their access privileges to the WTC Site and any WTC Site Identification Badge and/or Vehicle Pass revoked.

113. PATH OPERATIONS AND CONDITIONS

A. Construction Site Conditions:

1. Schedule and perform the Work in the sequence shown on the Contract Drawings, if any, in such a manner as not to delay, endanger, or interfere with PATH operations. To the extent feasible the scheduled sequence, if any, and the times of the Contractor's operations, once approved, will be adhered to and operations of PATH and others will be scheduled so as to cause the least interference with the Contractor's operations. However, should the Engineer deem that any portion of the area in which the Contractor is working is required by PATH, the Contractor will be required to suspend operations and remove personnel, and obstructing plant, equipment and materials from such areas, within 1/2 hour of notice to suspend operations and stand by, if necessary, until directed by the Engineer to resume operations in such areas.
2. To enable the Contractor to plan Work of the Contract, and to enable PATH to plan train service operations, maintenance operations, and operations of others, prepare and submit for approval in accordance with section H, "Coordination" hereof, a weekly schedule of operations for Work of the Contract.
3. At least 7 days but not more than 10 days prior to performing excavation, call 1-800-272-4480 and provide the information required for excavation(s) in New York and call 1-800-272-1000 and provide the information required for excavation(s) in New Jersey.

4. Take all precautions necessary for protection of persons and property during dust or fragment generating operations, concrete mixing or placing, painting or other operations which may stain, soil or damage property, or injure persons. Provide and erect waterproof, fire-resistant, UL labeled tarpaulins with flame spread rating of 15 or less or other protective enclosures as approved by the Engineer.
5. The Contractor, employees of the Contractor, subcontractors, materialmen or other persons over whom the Contractor has control (hereinafter in this Section "Contractor's Personnel") shall conform to the following:
 - a. Do not park any vehicles, including construction vehicles, company vehicles or personal vehicles within any area of PATH property without prior approval of the Engineer, and no representation is made that parking, if approved, will be available throughout the Work of the Contract. Company vehicles are to be clearly marked.
 - b. Do not enter upon PATH right-of-way unless a Port Authority Construction Management Engineer In Charge (EIC) and PATH flaggers assigned to the Contractor are present.
 - c. Do not permit material, equipment or other objects to lie within or project into the PATH right-of-way.
 - d. Do not permit the use of the PATH employee facilities in the station.
 - e. Do not permit access to the station for or during the performance of the work without prior approval of the Engineer.
6. Provide sound suppression devices on gasoline and diesel powered construction equipment and pneumatic tools as required to maintain noise exposure below the limits specified in the Code of Federal Regulations (CFR) 29 CFR 1926 Occupational Safety and Health Regulations for Construction (OSHA). Maintain such sound suppression devices in proper operating condition throughout the time of their use and make adjustments and repair as required to maintain noise within exposure levels stipulated in 29 CFR 1926.52, Table D-2.
7. Do not store combustible products or flammable materials at areas of Work.
8. Restrict smoking to areas designated by the Engineer for this purpose.
9. At all times while performing Work, require workers to wear tear away reflective safety vests, eye protection, hard hats and boots with non-slip type soles. Reflective safety vests shall have a visible reflective surface of not less than 100 square inches on front and back.
10. Do not burn or bury debris of any type on PATH property, or wash waste materials down sewers or into waterways.
11. In the event of damage to or disruption of existing construction, the Contractor shall repair, replace or reinstall such construction to the satisfaction of the Engineer. Should the Contractor fail to perform such repair or replacement, PATH reserves the right to perform such Work and deduct from the Contractor's compensation an amount representing the cost of such Work, as determined by the Engineer.
12. In addition to the requirements of the Section of Division I GENERAL PROVISIONS

entitled "Safety Provisions", provide and maintain at areas of Work, two "Pyrene 95-P20M" extinguishers as manufactured by RC Industries, Inc., Linden, N.J., or approved equal UL rated 20A-80BC 20 pound dry chemical multi-purpose fire extinguishers.

B. Construction Site Conditions in Tunnels and Stations:

1. The use of propane heaters and gasoline or diesel powered construction equipment within tunnels or at underground stations is prohibited.
2. Use of liquids having a flashpoint below 73 degrees F and boiling point below 100 degrees F is prohibited, unless specifically approved by the Engineer.
3. Provide and operate air moving equipment when fume generating operations are in progress. During such operations provide air monitoring and test for toxicity (PPM), oxygen deficiency and combustible gas (% LEL).
4. Work will be permitted in only one tunnel at any one time unless otherwise shown on the Contract Drawings or specifically approved by the Engineer.
5. The Contractor shall take all necessary precautions to protect the existing traction, utility, signal, communication services and station finishes.

C. Access To Areas of Work:

Work of this Contract is at areas that are accessible by road. Transportation for personnel, material, equipment or debris removal shall be via road transportation provided by the Contractor. The Contractor shall not transport materials or equipment through an operational station without prior approval of the Engineer.

D. Hours of Work:

1. PATH System operates service 24 hours per day 7 days a week. Work is to be scheduled and performed in a sequence that will not delay, endanger or interfere with PATH operations.
2. Perform work only during the times specified by the Engineer in the Work package.
3. Do not perform Work outside these time periods.

E. PATH Rail Transportation:

1. Under no circumstances will the Contractor be permitted to use PATH passenger trains for transporting Contractor's personnel, material or equipment of any kind in connection with performance of the Work.
2. Work trains are not permitted.

F. PATH Flagger Service:

1. PATH will provide flaggers without charge to the Contractor and their use is required for the following operations in connection with performance of the Work:

- a. Work within or closer than ten (10) feet to the right-of way and within 4 feet of the edge of the platform adjacent to an in service or energized track.
 - b. Work that requires crossing or obstruction of tracks.
 - c. Work that in any way interferes with or interrupts PATH train service operations.
 - d. Work which, in the sole discretion of the Engineer, requires flaggers for safety purposes.
2. Make arrangements for PATH flagger service in accordance with section H, "Coordination" hereof.

G. Traction Power and Existing Utilities:

1. The Contractor's attention is called to the fact that there will be high voltage electric lines and rails for PATH traction power at or adjacent to the areas of Work and no representation is made that such lines and rails will be de-energized during performance of the Work of the Contract. The Contractor shall take all necessary precautions to protect its personnel and others affected by its operations from injury from such high voltage electric lines and rails. Such lines and rails will remain energized for PATH operations except where shut-off is approved by the Engineer.
2. Maintain operation of existing utility services such as compressed air, water, sewers, electricity, ventilation or fire protection and PATH surveillance cameras, signal and communication systems during performance of Work of the Contract, except as absolutely necessary for cutoff, cutover or other change of the affected systems, as approved by the Engineer. Coordinate with the Engineer prior to interrupting or otherwise affecting any operating system, utility or service.
3. Removal and restoration of traction power or existing utility, signal or communication service will be performed by PATH.
4. The Contractor shall not connect to, tie into or use the existing compressed air, stand pipe or traction power.
5. Notify the Engineer of such removal or restoration requirements in accordance with "Coordination" hereof.
6. The Contractor shall not cut the PATH contact (third) rail to furnish a gap for the construction. Any damage to the track or contact rail structures due to the Contractor's activities will be repaired by PATH at the expense of the Contractor.

H. Coordination:

1. The progress schedule required under the Section of Division 1 GENERAL PROVISIONS entitled "Progress Schedule" shall contain, but not be limited to, the following items:

- a. Description of operations, location of Work per track and/or in tunnels, if any
 - b. Start and completion dates of each operation
 - c. Dates and times of Work that:
 - (i) Require closing of PATH tracks, station areas, or tunnels
 - (ii) Require crossing or obstruction of tracks
 - (iii) Is within or closer than ten (10) feet to right-of-way and within 4 feet of the edge of the platform adjacent to an in service or energized track
 - (iv) Interferes with or interrupts PATH train service operations
2. Submit written notification to the Engineer not later than 4:00 P.M. Monday of the week preceding each day that the following services are required:
- a. PATH flagger services
 - b. Work to be performed within PATH tracks, tunnels and station.
 - c. Power Railman
3. Written notification shall include, but not be limited to, the following items:
- a. For PATH flagger and Power Railman services:
 - (i) The dates, times and locations of areas of Work
 - (ii) Description of operations to be performed at areas of Work
4. Where specific shut-off services of PATH traction power or other utility or service are permitted, notify the Engineer not less than 3 Work days prior to the anticipated need for such services. Each notification shall be written and shall include:
- a. The dates, times and locations of areas of Work involved.
 - b. Description of what utility or service shut-off or turn on is required.
 - c. Duration of shut-off times.
- I. Coordination Rescheduling or Cancellation:
1. When the Contractor obtains approval under section H, "Coordination" hereof for the use of PATH services, Work in PATH tunnels, or the closing of an area of the PATH station for a particular day or days, and should the Contractor thereafter require a rescheduling or cancellation of such services for the approved days, submit written notification of such rescheduling or cancellation to the Engineer not less than 48 hours in advance of each day for which approval was given.

2. Notification not less than two weeks prior to erection or installation of permanent construction, temporary construction, scaffolding, platforms or other construction aids within PATH tunnels or at locations above or adjacent to the right-of-way, construct frangible mock-up which duplicates edge and end profiles of such proposed erection or installation. The mock-up shall be structurally adequate to resist without displacement the positive and negative wind loads imposed by passing PATH train operations but not cause damage to or create a hazard for PATH trains in the event that such end and edge profiles obstruct required PATH railway clearances.
 3. When directed by the Engineer, dismantle mock-up and remove from PATH property.
- J. No requirement of or omission to require any precautions under this Contract shall be deemed to limit or impair any responsibility or obligation assumed by the Contractor under or in connection with this Contract and the Contractor shall at all times maintain adequate protection to safeguard the public and all persons engaged in Work and shall take such precautions as will accomplish such end, without undue interference with the public or the operations of PATH.
- K. PATH requires that all Contractor personnel who may enter the track area at any time be certified by successfully completing the "PATH ON-TRACK SAFETY PROGRAM", in compliance with the Rules and Regulations set forth in Federal Railroad Administration (FRA) Regulation 49 CFR PART 214, Subpart C, entitled "RAILROAD WORKER PROTECTION". Contractor personnel not certified under this program will not be permitted to enter the PATH track area. On a monthly basis, PATH will provide a four-hour certification class, which includes a certification test for supervisory staff representing the Contractor. The Contractor's supervisory staff will then be required to train and certify all additional Contractor personnel that may be performing Work of the Contract. A letter certifying that the listed Contractor personnel have been trained on the "PATH ON-TRACK SAFETY PROGRAM" and, that they fully understand and will comply with all requirements of FRA rules, shall be filed with PATH's Manager, System Safety and Security Division, at One PATH Plaza, Jersey City, NJ 07306, Tenth Floor, within 48 hours of such training. Only the persons specified in such letter will be permitted to enter the track area.

113A. TRANSIT OPERATIONS

The Contractor shall perform Work in accordance with the following Transit requirements:

- A. If any portion of the subway structure or finish is damaged, it shall be repaired or replaced with the same materials in place, subject to the approval of the Engineer, at the expense of the Contractor.
- B. Subway emergency exits must be kept clear at all times except as permitted by explicit written directive of the Engineer.
- C. In working over or near the subway structure, special care shall be exercised so that the thin concrete protection of the subway waterproofing is not damaged.

- D. Welding to or drilling through existing Transit steel structures will not be permitted unless specifically shown on the structural Contract Drawings.
- E. There shall be no machine excavation within 3 feet of power duct lines or any other Transit facilities until they have been carefully exposed by hand excavation. Any interference with duct lines shall be identified by the Contractor to the Engineer. The Engineer will verify any interference with Transit. When a duct line containing cables is to be broken out, or when masonry adjacent thereto is to be removed, penetrated, or drilled, the work shall be done with hand labor entirely, using hammer and chisel. Jackhammers, bull points or other power equipment shall not be used.
- F. Construction work done near vent gratings, hatches and manholes shall include the following additional requirements:
1. Protective shields must be provided over vent gratings. Shields shall not restrain the flow of air.
 2. No building material, vehicles or construction equipment is to be stored or run over vent gratings, hatches or emergency exits.
 3. Details of associated reconstruction around vent gratings, hatches and emergency exits are to be submitted to the Engineer for approval.
 4. Manholes shall be protected and raised or lowered as required, to match the new street grade.
 5. If manhole covers are raised or lowered, cables in manhole shall be protected by wood sheeting of 2" nominal thickness.
 6. Prior to the start of construction operations affecting manholes and duct lines, seven days notice must be given to the Engineer, for the Engineer's transmittal of such notice to Transit.
- G. Before the start of any work, the Contractor shall make an examination, in the presence of Transit and the Engineer, of the interior and exterior of the Transit subway or other structure adjacent to the proposed work. The person or persons authorized by the Contractor to make these examinations shall be approved by the Engineer. The Contractor shall take all photographs as may be necessary or ordered to indicate the existing condition of the Transit structure. One copy of each photograph, eight inches by ten inches in size, and the negative is to be submitted to the Engineer before the start of construction.
- H. At least seven working days prior to the start of construction operations (within 25 feet of Transit facilities), notification must be given in writing by the Contractor to the Engineer, for the Engineer's transmittal of such notification to Transit. The Contractor shall give notice in writing to the Engineer at least 40 calendar days in advance of the times of any planned work which may directly or indirectly in any manner interfere with or affect the safe, convenient, unobstructed and free use or access to any concession or appurtenance thereof by any concessionaire and employees, passengers, the public, Transit or its employees or any and all other persons. Such concession or appurtenance includes, but is not limited to stores, shops, newsstands, vending stands, booths, advertising panels, telephone, and dispensing equipment.

- I. Excavation embankments are to be shored and braced in accordance with shop drawings submitted by the Contractor to the Engineer for approval.
- J. Construction such as underpinning, shoring, bracing and erection of suitable barricades and/or canopies and shields shall be in accordance with the following requirements:
 - 1. When construction is to be performed adjacent to the subway structure, boring data, layouts and specifications are to be submitted by the Contractor to the Engineer for approval. Vibration monitoring is to be in accordance with Contract Documents.
- K. All dewatering operations within the vicinity of the subway structures must be in accordance with shop drawings to be submitted by the Contractor to the Engineer for approval.
- L. Protection of Subway Facilities
 - 1. The Engineer, at his discretion, reserves the right to require the Contractor to close or maintain and protect existing subway entrances, ventilators, etc. adjacent to the project during construction. Such construction may include underpinning, shoring, bracing and erection of suitable barricades and/or canopies and shields. Such protection shall be in accordance with shop drawings submitted by the Contractor to the Engineer for approval.
 - 2. If shields are to be installed to protect Transit facilities and/or the public, then plans showing the location, type and method of attachment to the Transit structure must be submitted by the Contractor to the Engineer for approval.
 - 3. All lumber and plywood used for protection of subway facilities at street level must be fire retardant; below street level, use fireproof material.
- M. Horizontal and vertical control survey data by a Licensed Surveyor is to be taken of the existing Transit structure to monitor that there is no horizontal and vertical movement of the tunnel box.
- N. Tractors, cranes, excavators, etc. used in the vicinity of Transit structures shall be isolated from the ground. Since Transit structure is used as a negative return path, with a consequent potential between it and the ground, any contact between the structure and grounded equipment could result in burning of the steel.
- O. Temporary construction sheds, barricades or plywood partitions must be a minimum of 5'-0" from the edge of finished platform.
- P. Stairway/Entrance Closings: The general requirements for Stairway/Entrance closings are as follows:
 - 1. Only one stairway at each station will be permitted to be closed at the same time unless otherwise directed by the Engineer. Also, the Contractor must not close or barricade any area unless manpower and materials are immediately available to commence work.
 - 2. The Contractor must notify the Engineer one week prior to the closing and reopening of any stairway entrance. The Engineer, in turn, shall notify Transit of such closings and re openings.

3. Ample signage must be supplied and posted in advance, to advise the riding public of the proposed subway stair closing as required by the Engineer.
 4. Contractor's name, contact number and 24 hour telephone number must be posted on all barricades. Barricades are to be painted and kept graffiti free at all times. In addition, requirements specified in Division 1 Section 111 entitled "Signs" and Section 114 entitled, "Temporary Structures" shall be adhered to by the Contractor.
 5. All materials are to be properly stored and secured away from passenger traffic.
 6. The Contractor must remove all waste material and barricades from all station areas when construction is completed.
 7. Inspection of the area under construction by authorized Transit employees shall not be inhibited.
- Q. If new concrete construction is joined to existing concrete, dowels and keyways are to be used in accordance with the Contract Documents.
- R. Wherever a new sidewalk is being placed adjacent to Transit structures, the following is required:
1. The top of the new sidewalk shall be flush with the subway vent gratings, hatches and emergency exits.
 2. The slope of the new sidewalk shall be such that the drainage be away from these structures.
 3. A 1/2" premolded filler shall be installed between the new sidewalk and Transit structure.
 4. Where sidewalk elevations are being changed, details of proposed work around Transit structures are to be submitted by the Contractor to the Engineer for approval.
- S. Subway entrances (ventilators, etc.) are to be underpinned, or shored and braced, if directed by the Engineer.
- T. At the close of the work involving construction or alterations to Transit facilities, one set of vellums not sepias, three sets of 35mm microfilm and three copies of all approved shop drawings must be forwarded by the Contractor to the Engineer

114. ENVIRONMENTAL PERFORMANCE COMMITMENTS (EPCS)

1. AIR QUALITY: DIESEL EMISSION MITIGATION

The Contractor shall minimize all air-borne pollutants generated by diesel-powered equipment and vehicles at all times during the performance of Work under this Contract.

All Non-Road diesel-powered equipment (e.g., backhoes, bull dozers, cranes, excavation machines, loaders, etc.), including stationary equipment (e.g., generators, compressors,

etc.), shall incorporate diesel emission reduction strategies that include the use of ultra low sulfur diesel fuel. For equipment with a rated horsepower of 50 (50HP) or greater, best available technology for emission controls shall be applied. In addition, all such equipment and engines shall comply with all Federal, State and Local regulations applicable to exhaust emission controls and safety.

a. Ultra Low Sulfur Diesel (ULSD) Fuel

All diesel-powered Non-Road equipment to be used in the performance of Work under this Contract shall use Ultra Low Sulfur Diesel (ULSD) fuel that is certified to contain an average sulfur content of no more than 15 parts per million (ppm) as determined over a six month period. In the event that the Contractor can clearly demonstrate that ULSD fuel with an average sulfur content of not more than 15 ppm is not available, a written waiver may be granted by the Engineer until such time that the ULSD fuel has become available, or an approved equal is determined by the Engineer to satisfy the intent of this Section. The Engineer shall collect monthly samples of the ULSD fuel used during the period directly from the fuel tanks of the Non-Road diesel-powered equipment used on the construction site. The Testing Standards shall include, but are not limited to: ASTM D6920 – 03 “Total Sulfur in Naphthas, Distillates, Reformulated Gasolines, Diesels, Biodiesels, and Motor Fuels by Oxidative Combustion and Electrochemical Detection” or ASTM D6428-99 “Test Method for Total Sulfur in Liquid Aromatic Hydrocarbons and Their Derivatives by Oxidative Combustion and Electrochemical Detection.”

The ULSD fuel shall be obtained from any distributor capable of meeting the requirements of this Section. All ULSD fuel shall be dispensed directly on the construction site from either a dedicated on-site fuel storage facility or segregated truck delivery. In the case of on-site storage, all such facilities shall comply with all applicable jurisdictional Codes pertaining to the storage and dispensing of fuel. The details of which must be submitted and approved by the Engineer prior to implementation.

A listing of ULSD fuel suppliers is included on the following Web page.
ULSD fuel Suppliers:

http://www.epa.gov/otaq/retrofit/cont_fuels.htm

b. Diesel Emissions Control Technologies

All Non-Road diesel-powered equipment with a rated horsepower of 50 HP or greater shall be retrofitted with Emissions Control Devices (devices) utilizing the best available technology. The retrofit devices shall consist of Diesel Particulate Filters (DPFs) or other measures with equivalent particulate matter (PM) removal efficiency wherever the implementation of such a device is feasible. In cases where DPFs are not feasible for safety considerations, mechanical reasons, or where the technology would not function properly, the Contractor shall submit a request for a waiver to the Engineer for review and approval prior to the use of such equipment. If the Engineer grants a waiver, Diesel Oxidation Catalysts (DOCs) shall be used. Only in the following cases will the use of diesel engines greater than 50 HP without tailpipe reduction measures be permitted by the Engineer.

Where for technical reasons neither DPFs or DOCs can be used effectively, and the operation cannot be performed by another engine or other means;

To immediately remedy safety and health hazards;

In response to emergencies.

Such reductions are to be targeted primarily toward the reduction of PM and secondarily on the reduction of nitrogen oxides (NOX), and shall in no event result in an increase in the emissions of either pollutant. The devices shall be contained in the U.S. Environmental Protection Agency (EPA) Verified Retrofit Technology List, the list of California Air Resources Board (CARB) Verifications, Europe's Verified Technology List (VERT), or as otherwise approved by the Engineer to provide the maximal level of pollutant reductions intended under this Section. For more information, refer to the following websites: _

U.S. Environmental Protection Agency Verified Technology List:
<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>

California Air Resources Board Verified Technology List:
<http://www.arb.ca.gov/diesel/verdev/level3/level3.htm>

Europe' Verified Technology List:
<http://www.akpf.org/pub/vertfilterliste.pdf>

Vendors of such technologies include: Cleaire, DCL International, Engelhard, Johnson-Matthey, Fleetguard Emission Solutions, Donaldson, Engine Control Systems, or other approved equal.

c. Diesel Construction Equipment Age Requirements

In order to facilitate the application of verified emission control devices as well as provide lower baseline emissions, all equipment used for the performance of Work under this Contract must use post-1995 fuel injection engines which meet Tier II engine emissions standards, as defined in 40 CFR Section 89.112. Exceptions will be made only for specific engines that are not yet commercially available as Tier II, and where the task cannot be reasonably accomplished using alternative engines or means which do comply with these demands. In such cases, the Contractor shall submit a request for a waiver to the Engineer for review and approval prior to the use of such equipment.

d. Contractor Diesel Emissions Mitigation Plan for Non-Road and On-Road Engines/Equipment

A Diesel Emission Mitigation Plan (the "DEM Plan") shall be prepared by the Contractor and submitted to the Engineer for review and approval prior to the use of any diesel-powered engines, including all Non-Road equipment and On-Road vehicles (i.e., diesel-powered trucks). The DEM Plan shall identify all diesel-powered equipment and vehicles to be utilized in the performance of Work under this

Contract, whether owned by, operated by or on the behalf of the Contractor, including that rented by the Authority as the rental agency of the Contractor. No Work shall proceed under this Contract until a DEM Plan is submitted and approved by the Engineer. Once approved, no changes in or deviations from the DEM Plan will be permitted unless approved by the Engineer. The DEM Plan shall address the control of emissions from all diesel-powered equipment and vehicles including equipment and vehicles not retrofitted with devices. The contents of this plan shall specifically address the following requirements:

1. Work Zone Creation

The Contractor shall establish On-Road vehicle (i.e., diesel-powered trucks) staging zones for the off-loading and loading of materials to and from the construction site. Such zones shall be located to minimize the impact of pollutants from diesel engines and vehicles on sensitive receptors and the general public. In addition, the Contractor shall ensure that all diesel-powered engines and vehicles are located away from the fresh air intakes of sensitive receptors as determined by the Engineer.

2. Diesel Engine Idling Policy

The idling time of Non-Road and On-Road Vehicles shall be limited to three (3) consecutive minutes as determined by the Engineer except as follows:

- When an On-Road Vehicle is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control;
- When it is necessary to operate heating, cooling or auxiliary equipment installed on the vehicle when such equipment is necessary to accomplish its intended use;
- To bring the vehicle to the manufacturer's recommended operating temperature. In this event, the temperature requirements must be indicated in the DEM Plan as an exception;
- When the outdoor ambient temperature is below twenty (20) degrees Fahrenheit;
- When the vehicle is being actively worked on for repairs or maintenance.

3. Electrification

The Contractor shall develop and implement a plan to distribute temporary electrical power throughout the construction site. The plan shall identify all diesel-powered equipment intended to be used for the performance of construction, and indicate the availability of alternate electrically powered versions. In cases where electrically powered versions are available, only the electrically powered version shall be used. At a minimum, all stationary equipment (e.g., air compressors, grout plants, mixers, pumps, welding machines, etc.) required for the performance of work that can be practically replaced with an

electrically powered version shall be powered electrically in lieu of diesel engines.

e. Limited Work Zone

Adjacent to the Route 9A walkway/bikeway in the vicinity of the east-west pedestrian concourse, the modeled concentration of particulate matter (PM 2.5) over a 24-hour period could exceed the National Ambient Air Quality Standards. Therefore, to ensure that such potential exceedances are mitigated, the Contractor shall not operate Non-Road diesel-powered equipment in this "Limited Work Zone" during periods of extreme meteorological conditions without the approval of the Engineer.

f. Submittals

The submittals required under this Section are as follows:

1. Inventory List: Non-Road Diesel Equipment and Engines, and Verified Emission Control Devices

No Work shall commence utilizing diesel-powered Non-Road equipment rated at 50 HP or greater until the Contractor submits a comprehensive and complete inventory list inclusive of all such equipment and vehicles including the specifics of each as detailed in the following subparagraph, and same is approved by the Engineer:

In the event that the Contractor clearly demonstrates to the Engineer that no emission control device is available for a particular engine or vehicle, or the retrofit of such a device may endanger the operator or those working nearby, the Engineer may grant a waiver to permit the use of such an engine or vehicle. Nonetheless, the equipment or vehicle must be included on the inventory list, and the Contractor must continue to demonstrate a reasonable effort to determine the availability of a substitute of equivalent performance.

The inventory list shall be provided in an electronic format (e.g., Microsoft Word, Access or Excel), and shall include the following:

- a. The owner whether the Contractor, subcontractor, or rental firm. The firm name, address, telephone number and contact person familiar with the operation and maintenance of the equipment and the emission control technologies;
- b. The number, type, make, year of manufacture, manufacturer and serial number;
- c. The engine type, make, horsepower rating, year of manufacture, and serial number;
- d. The approximate fuel consumption rate per shift;

- e. The anticipated function, duration of use, and days and hours of operation;
- f. Retrofit type, make, model, manufacturer, installation date, EPA, VERT or CARB verification number or supporting documentation related to emission control devices.

2. On-Going Equipment Updates and ULSD Fuel Deliveries:

The Contractor shall submit a weekly update to the Engineer of the inventory list of all diesel-powered Non-Road equipment. This update shall include the baseline inventory list, and a compilation of all ULSD fuel deliveries during the week, including delivery tickets.

3. Ultra Low Sulfur Diesel Fueling Plan

The Contractor shall submit his fueling plan, identifying the proposed ULSD fuel supplier, independent test results of sulfur content of the proposed supplier's fuel as determined by the Testing Standards referenced in the preceding Section entitled "Ultra Low Sulfur Diesel (ULSD) Fuel", and a description of segregated truck delivery or on-site fuel distribution plans.

2. AIR QUALITY: DUST CONTROL

The Contractor shall control fugitive dust at all times including non-working days, weekends and holidays. The requirements for controlling fugitive dust emissions within the construction site during the performance of Work under this Contract, such as earth moving and demolition activities, shall include the following:

- The spraying of a (non-hazardous, biodegradable) dust suppressing agent;
- The physical containment of fugitive dust particles through the use of tarps or other wind protection devices;
- The adjustment for meteorological conditions, as appropriate;
- Wheel washing of all Non-Road and On-Road vehicles leaving the site including the containment and treatment of wash water;
- The wetting and covering of all trucks loads containing materials delivered to or removed from the site that may generate fugitive dust;
- The routine wetting and cleaning of streets and access roads within the construction site.

a. Submittals:

The Contractor shall comply with all Federal, State and Local regulations applicable to the control and mitigation of fugitive dust dispersion. The Contractor shall submit a Dust Control Plan ("DC Plan") to the Engineer for review and approval to address the specific measures contained in this Section. A copy of this DC Plan shall also be provided to each subcontractor who shall be obliged to comply in the provisions of his subcontract with the Contractor. The DC Plan shall include contact information for responsible individual(s) from the Contractor with 24 hour, 7 days per week availability, and who have been vested with the authority to implement all controls

and mitigation measures identified in the DC Plan. The DC Plan must detail all dust control procedures for all such controls and measures as approved by the Engineer, and be job specific to address all anticipated Work activities that may generate fugitive dust dispersions (e.g., demolition, saw-cutting, pavement milling, haul roads, etc.).

3. NOISE ABATEMENT

The Contractor shall control and mitigate noise during all hours of construction. All construction activities shall be controlled to comply with the following noise levels.

Table 1: Noise Limitation Thresholds For Sensitive Receptor Sites – Resultant noise at sensitive receptor sites shall not exceed to the following levels:

TIME	8-hour Leq (dBA) Limit
Weekdays, 7AM to 6 PM	80
All Other Times	70

The Contractor shall use equipment that ensures that the noise generated during all construction activities does not exceed the threshold levels indicated in Table 1. In addition, the following specific noise mitigation measures indicated in Table 2 shall be implemented during the use of impact wrenches, pavement breakers and pneumatic grout drills, to ensure that the noise threshold limits of Table 1 are not exceeded:

Table 2: Noise Criteria For Specific Equipment

Equipment	Noise Mitigation Measure
Impact wrenches	Use impact wrenches with a noise emission level of 82 dBA at 50 feet
Pavement breakers	Install mufflers on pavement breaker cylinders
Pneumatic grout drills	Place drills inside acoustic enclosures

Other than the specific equipment and mitigation measures listed in Table 2, and in the event that the Engineer determines that the Contractor has exceeded the noise thresholds specified in Table 1, the Engineer may direct the Contractor to implement, at his own cost, abatement measures deemed appropriate by the Engineer and/or as specified and approved in the Contractor's Noise Control And Abatement Plan (the "NCA" Plan):

Where practicable, the Contractor shall schedule all construction activities to avoid and minimize any adverse acoustic noise that could impact sensitive receptors as determined by the Engineer. Acoustical sensitive receptors presently include the Millennium Hotel on Church Street, Embassy Suites on Vesey Street, Multi Family Residential Structure on

the corner of Park Place and West Broadway, 114 Liberty Street and the World Financial Center. Sensitive receptors may be added as deemed appropriate by the Engineer.

a. Contractor Noise Control And Abatement Plan

The Contractor shall comply with all appropriate Federal, State and Local regulations applicable to noise control and mitigation. The Contractor shall develop and submit to the Engineer for review and approval an NCA Plan that describes his intended mitigation procedures and methods to control and mitigate noise generated during the performance of Work under this Contract. The NCA Plan shall specifically address the following:

1. Means and methods for the implementation of all control and mitigation measures including all calculations and supporting documentation;
2. Design drawings of noise abatement enclosures and barriers, signed and sealed by a Licensed Professional Engineer in the State of New York;
3. Description of physical noise mitigation materials, including the name of manufacturer and its specifications. All such materials shall be fire resistant;
4. Catalog cuts and technical data sheets of construction equipment to be employed during Work of this Contract;
5. Baseline background noise measurements taken prior to the start of construction;
6. Construction noise assessment. The method for predicting the construction noise impact shall be the FHWA prediction method, or similar.

b. Construction Noise Monitoring

To ensure compliance with this Section, the Contractor shall identify and submit to the Engineer for review and approval the qualifications of an acoustical firm to provide assistance in the development and implementation of the NCA Plan. The acoustical firm shall also provide noise monitoring services on the Site. The qualifications of the firm shall be as follows:

1. The firm shall have within the preceding five years provided noise measurement, monitoring and analysis consulting services on at least three projects of similar size and complexity that included specific noise control and abatement initiatives, preferably in the City Of New York;
2. The entity designing the noise mitigation measures and performing the noise assessment shall be a member in good standing with the National Council of Acoustical Consultants;

3. The firm shall have a Noise Control Engineer (NCE) on staff or under Contract either certified by the Institute of Noise Control Engineers (INCE), or have earned a baccalaureate or higher degree from an accredited college or university in engineering, physics, acoustics or architecture which devoted courses to the principles of acoustics. The NCE shall be fully familiar with the means, methods, materials, equipment and designs associated to noise control and abatement;
4. Each employee of the firm who will actually perform measurements or monitoring in the field shall be a Noise Control Officer (NCO). The NCO shall have been trained in the review and mitigation of community noise issues, and the standard methods for noise measurement and monitoring, including the use of all associated equipment and data collection. Training shall have been from a certified NCE certified by the Institute of Noise Control Engineers (INCE) or by other NCO(s) with a minimum of three (3) years experience. The NCO shall possess a working knowledge of all applicable standards.

Upon the approval by the Engineer of an acoustical firm, the Contractor shall immediately procure the services of the firm to perform baseline background noise measurements at the site and near the sensitive receptors identified above. The background noise monitoring shall be performed to determine the "noise signature" or "noise level trend" for the site and the immediate vicinity.

A complete construction noise assessment for the project shall be conducted. The method for predicting the construction noise impact shall be the FHWA prediction method, or similar approved by the Engineer. The NCA shall be submitted to the Engineer for review a minimum of one month prior to the commencement of work unless otherwise directed by the Engineer.

The Contractor shall measure the noise levels and submit a written report to verify compliance with the allowable noise thresholds on a weekly basis, or as otherwise deemed necessary by the Engineer, throughout the duration of construction activities to ensure compliance. Readings shall be taken on a continuous basis during any construction activity, including but not limited to, the delivery of materials and movement of construction equipment. The Authority may monitor noise levels at known sensitive receptors or other locations as deemed appropriate by the Engineer to verify compliance. When noise level measurements exceed the allowable thresholds, the Contractor shall cease all construction activities, and immediately implement the mitigation procedures indicated in the approved NCA Plan. If applicable procedures are not included in the NCA Plan, revised procedures are to be developed and implemented. Such revised work procedures are to be incorporated in the NCA Plan as a revision, and submitted to the Engineer for review and approval. In the event of a conflict between the Contractor's noise level measurements and those taken by the Authority, the of Authority's noise level measurements shall prevail.

c. Submittals:

1. A NCA Plan shall be submitted for the review and approval by the Engineer prior to the commencement of any construction work. The submittal shall include all revisions, and a copy of the approved NCA Plan revisions shall be provided to each subcontractor prior to the commencement of his work. The subcontractor

shall be specifically obliged to comply with the requirements of the approved NCA Plan in the provisions of his subcontract.

2. The name and qualifications of the acoustical firm, the name and qualifications of the firms NCE's and NCO's.
3. A weekly report summarizing the noise measurement readings taken at the site. All events that exceed the limits indicated in Tables 1 or 2 shall be clearly indicated and the corrective action taken to address the cause.

4. VIBRATION ABATEMENT

The Contractor shall control and mitigate vibration during all hours of construction. The Contractor shall develop and implement specific construction vibration mitigation measures to protect historic properties from increased vibration levels associated with construction activities at the site (see Section 5 Historic Resource Protection). In conjunction with the protection of historic properties, overall construction vibration abatement and monitoring shall be addressed as follows:

a. Contractor Vibration Control And Abatement Plan

The Contractor shall comply with all appropriate Federal, State and Local regulations applicable to vibration control and mitigation. The Contractor shall develop and submit to the Engineer for review and approval a Vibration Control And Abatement Plan (the "VCA Plan") that describes his intended mitigation procedures and methods to control and mitigate vibration during the performance of Work under this Contract. The VCA Plan shall specifically address the following:

1. Means and methods for the implementation of all control and mitigation measures including all calculations and supporting documentation;
2. Baseline background vibration measurements taken prior to the start of construction;
3. Construction vibration assessment. The method for predicting the construction vibration levels to be approved by the Engineer.

b. Construction Vibration Monitoring:

To ensure compliance with this Section, the Contractor shall identify and submit to the Engineer for approval the qualifications of a firm to provide assistance in the development and implementation of a VCA Plan, and to provide vibration monitoring on the Site. The qualifications of the firm shall be as follows:

1. The firm shall have within the preceding five years provided vibration measurement and analysis consulting services on at least three projects of similar size and complexity that included specific noise control and abatement initiatives, preferably in the City Of New York.

2. Each employee of the firm who will actually perform measurements or monitoring in the field shall possess appropriate training, and have demonstrated experience in the measurement and implementation of mitigation techniques for similar types of construction projects.

Upon the approval by the Engineer of a vibration control firm, the Contractor shall immediately procure the services of the firm to perform baseline vibration measurements at the site and near the Historic properties identified above, and submit a report to the Engineer including a review and assessment of the existing vibration levels relative to the allowable threshold.

On a weekly basis, or at other intervals deemed appropriate by the Engineer, the Contractor shall submit a written report to verify compliance with the allowable vibration threshold based on vibration measurements taken continuously at site and near the Historic properties for the duration of construction activities. The Authority may also monitor vibration levels at locations deemed appropriate by the Engineer to verify compliance. When vibration level measurements exceed the allowable threshold, the Contractor shall immediately cease all construction activities, notify the Engineer and implement the mitigation procedures described in the approved VCA Plan. If applicable procedures are not included in the VCA Plan, revised procedures are to be developed and implemented only with the approval of the Engineer. Such revised work procedures are to be incorporated in the VCA Plan as a revision, and resubmitted to the Engineer for review and approval. In the event of a conflict between the Contractor's vibration level measurements and those taken by the Authority, the Authority's measurements shall prevail.

c. Submittals:

A VCA Plan shall be submitted for the review and approval by the Engineer prior to the commencement of any construction work. The submittal shall include all revisions, and a copy of the approved VCA Plan and all revisions shall be provided to each subcontractor prior to the commencement of the subcontractor's work. The subcontractor shall be specifically obliged by the Contractor to comply with the requirements of the approved VCA Plan in the provisions of its subcontract.

5. CULTURAL AND HISTORIC RESOURCE PROTECTION

Consistent with the Stipulations of the executed Memorandum of Agreement (MOA) pursuant to Section 106 of the National Historic Preservation Act, a Resource Protection Plan (RPP) was developed by the Port Authority of New York and New Jersey's (PANYNJ) Priority Capital Programs Department (PCP) in consultation with its Project Historical Architect (PHA). The purpose of which is to protect historically significant elements of the WTC Site that are to remain in situ during construction from inadvertent damage. The elements designated to be protected are presently as follows:

- Tower perimeter column base remnants outlining the North and South Tower footprints and the footprint areas within the Towers' perimeters,
- E subway entrance,

- East and west slurry walls.
- Steel beams in cross form.

The Contractor shall be responsible for compliance with all the requirements specified in the RPP for protection of the above historic WTC Site elements to remain undamaged and in situ during construction. The Contractor shall also require that each subcontractor be in compliance with the requirements of the RPP, and include appropriate provisions in each subcontract. The Contractor shall cooperate fully in implementing any Contract specific procedures and guidelines regarding the protection the above historic WTC Site elements, and shall identify his respective staff responsible for the implementation and maintenance of all such protection.

The Engineer shall notify the Contractor when a non-compliance with WTC Site historic element protection requirements is discovered. Conversely, if the Contractor discovers any non-compliance with site element protection requirements, the Engineer is to be notified immediately. In all cases, the Contractor shall implement appropriate corrective actions immediately to restore the required protection.

a. Inspection of Existing Conditions of Historic Elements

The Contractor shall inspect and record the existing conditions of the above historic elements on the WTC Site, including but not limited to: 1) the historic tower perimeter column base remnants outlining the North and South Tower footprints and the footprint areas within the outlines, 2) the E subway entrance, 3) the east and west slurry walls and 4) the steel beams in cross form.

b. Protection Considerations in All Contractor Submittals

The Contractor shall consider the protection of the historic WTC site elements in all submittals, especially those regarding means and methods, made to the Engineer for review and approval. The Contractor shall design, furnish and install all protective measures specified in the Contract Documents, and is responsible for the preservation of all existing protection measures in place that may be damaged or affected by his construction activities. The Contractor shall not locate any equipment, deliver any materials or commence any work whatsoever that may impact historic elements on the WTC Site unless approved by the Engineer.

Each Contractor Submittal shall include the following information:

1. A general location map of the WTC Site showing where the work shall be performed, including a notation on the map of location of the historic element(s) relative to the work;

2. A listing of materials or construction equipment to be used in the performance of work that shall or may come in contact with any of the WTC Site's historic elements, and the proposed methods to be employed to prevent any damage to said historic elements.

c. Protection Requirements

If during the review of a Contractor submittal, the Engineer determines that the potential exists for damage, the Engineer may direct the Contractor to preserve or implement or restore the following protective measures in accordance with the Authority's Resource Protection Plan (RPP). In the event that the Contractor identifies a more effective and/or efficient methods of protection as construction proceeds, the Contractor shall propose said measures for further consideration by the Engineer. Under no conditions, however, shall the Contractor proceed with such an alternate method without the approval of the Engineer.

- 1. Protective Measures for the Historic Tower Perimeter Column Base Remnants and Areas within the Tower Footprints**

If Work is required by Contract on or in the vicinity of the historic tower perimeter column base remnants and areas within the tower footprints, and the Engineer determines that the construction activities of the Contractor may damage or disturb the existing protective measures, the Contractor shall maintain and/or supplement the existing measures as deemed necessary by the Engineer to preserve their integrity. No construction activities within the historic tower perimeter column base remnants and areas within the tower footprints will be permitted without this protection in place. Such activities include, but are not limited to, locations where vehicles, equipment, materials and/or construction debris may be stored, or where scaffolding or hoisting equipment may be placed.

For the purpose of maintenance and supplemental Work, the existing protective measures were designed and constructed as described below.

This system was specifically designed to prevent damage to the concrete slabs within the tower footprint areas or the historic column base remnants due to vehicular tires, rollers and tracks, and chemical releases or fuel or lubricant spillages of any type emanating from construction vehicles or equipment; to provide a smooth, drivable transition at the base of the existing access ramp to prevent bumping, ground vibration or shifting under vehicle loads; to shed rainwater and melting snow toward the sides of the protection;

The existing protective measure consists of a 45 mil EPDM geomembrane pond liner not affixed to the concrete surface, and covered entirely with clean dense grade aggregate base course (DGABC) with a minimum depth of twelve inches (12").

2. Requirements for the Temporary or Permanent Removal of Historic Column Base Remnants

If the temporary or permanent removal of historic base column remnants is required by Contract, the Authority will develop a detailed plan for use by the Contractor to safely and carefully remove, store and subsequently reinstall the historic column base remnants. The plan will describe acceptable approaches and techniques to be deployed for the protection, safe transport and storage of the removed historic column base remnants. The plan will also address concrete removal limits and procedures including the use of saw-cutting and pneumatic tools, steel removal and lifting procedures including the use of drills, slings and wedges, and the protection of the excavated removal areas including use of temporary liners and fill, etc.

Consistent with this plan, the Contractor shall develop and submit to the Engineer for review and approval his proposed means and methods respectful of the following:

- a. The in-place protection of the concrete slabs and the historic column base remnants shall remain in place until immediately prior to the removal of any individual historic column base remnant. Only those historic column base remnants actually in the process of being removed shall be exposed at any given time;
- b. Only the minimum amount of protection shall be removed around the actual historic column base remnant during the removal process. The surrounding concrete slab areas shall remain completely protected.

The return and reinstallation to the WTC Site of any historic column base remnant shall also be based on the plan provided by the Authority.

3. Requirements for the Protection of the E Subway Entrance

If Work is required by Contract at or in the vicinity of the existing E subway entrance on the PATH Concourse Level, and the Engineer determines that a potential exists for the existing E Subway entrance doors to be damaged, the Contractor shall remove, package and temporarily store the doors prior to the commencement of any construction activities as described below.

The Contractor will exercise great care in conducting any work in the vicinity of the new pedestrian connection between the Terminal and E subway, and shall proceed as follows:

- a. Existing finishes (including ceilings, walls, handrails and floors) shall be protected by the installation of a protective system, such as a membrane sheet covered with an impervious board such as CDX grade plywood or masonite with taped joints. The Contractor shall not fasten or apply any materials that may cause damage to these historic finishes, rather, the Contractor shall use carefully trimmed framing elements, wedges and shims at the floor and ceiling levels. The Contractor shall also box out the locations of all protruding elements such as baseboards and handrails;
- b. As directed by the Engineer, the Contractor shall carefully remove and disassemble the E subway entrance doors and related hardware, and construct a custom sized plywood enclosures for each door. Prior to the placement of a door into an enclosure, the Contractor shall wrap the door and its aforementioned appurtenances in a heavy blanket, covering all sides and surfaces of the door. The custom enclosure shall then be secured and labeled on all sides. The Contractor shall transport and temporarily store the doors at John F. Kennedy International Airport Hanger 17, or other location designated by the Engineer;
- c. Should the Engineer require temporary doors at the locations to replace the historic doors temporarily removed, the Contractor shall construct protective plywood frames around the existing doorframes and use heavy blankets against the historic materials to prevent damage from the plywood. The Contractor shall not install any anchorages, nails, screws or other types of fasteners into the historic wall surfaces or the historic doorframes, and shall secure new doorframes soundly into the openings using carefully trimmed wood framing elements, wedges and shims;
- d. The Contractor shall carefully disassemble all protection measures at the completion of the work after receiving approval from the Engineer.

4. Requirements for the Protection East and West Slurry Walls

If Work is required by Contract on or adjacent to the existing east and west slurry walls of the West Bathtub, and the Engineer determines that a potential exists for the existing slurry walls to be damaged, the Contractor shall furnish and install appropriate protective measures approved by the Engineer that provide a clear, unobstructed, recognizable and respectful view of the walls.

5. Steel Beams in Cross Form

If Work is required by Contract at or in the vicinity of the existing cross constructed of steel beams mounted on a pedestal, and currently located within the WTC Site on Street Level near Church Street, the Contractor shall relocate the cross to Hangar # 17 at John F. Kennedy International Airport, or an alternate location determined by the Engineer to remain in the custody and control of the Authority until its final disposition.

Prior to the relocation of this historic element, the Contractor shall submit for review and approval by the Engineer a protection plan for the steel beams in cross form which describes the proposed means and methods for the following:

- a. The release of its pedestal from the surrounding ground surface;
- b. The rigging and hoisting of the element, including the concrete pedestal, and secure placement onto the bed of a truck for transport;
- c. The fastening of the this element and protection during transport;
- d. The rigging and hoisting the element and placement at the designated storage location.

6. Protection of Historic Resources from Construction Vibration

The Contractor shall develop and implement specific mitigation measures (as discussed in Section 4 Vibration Abatement) to protect the following Historic properties from increased vibration levels associated with construction activities at the site. Such measures shall reduce vibration to a level below the threshold criterion of 0.12 in/sec (approximately 95 VdB):

- a. Barclay-Vesey Building, 140 West Street
- b. Beard Building, 125 Cedar Street
- c. 114-118 Liberty Street
- d. St Paul's Chapel and Graveyard
- e. Former East Street Savings Bank, 26 Cortlandt Street

d. Monitoring Program

1. Periodic Monitoring:

Prior to construction, the Contractor shall meet with the Engineer to establish a program to periodically inspect and examine all protection measures in place to verify compliance with the applicable provisions of the RPP. The Contractor shall develop and submit a written monitoring program for the review and approval of the Engineer. The program shall include an Emergency Remediation Plan (the "ERP") identifying the emergency contacts and outlining the procedures to be followed should an unforeseen condition or unanticipated damage arise that compromises or places at risk any historic elements on the WTC Site. Once approved the Engineer, the Contractor shall set aside the materials, products and equipment in a safe and accessible location on the WTC site to ensure an immediate response to any such occurrence.

2. Routine Monitoring

During the progress of construction, the Engineer will routinely review (inspect) all protection measures in place to verify compliance with the applicable

provisions of the RPP. Upon the completion of the Engineer's review, a meeting will be conducted with the Contractor to discuss and document the following:

- a. The progress achieved since the previous inspection;
- b. An assessment of the performance of the protection measures in place, and a determination of the adjustments or modifications required to correct non-compliances with the requirements of the RPP;
- c. A review of the upcoming scheduled work activities, a determination of the required protection measures, and a verification that the existing protective measures are adequate for such activities. If necessary, there will be a determination of supplemental measures to be implemented for compliance with the requirements of the RPP.

3. Emergency Remediation

Should any condition arise or damage occur during construction that compromises the integrity of the in-place protection measures, or adversely affects any historic elements on the WTC Site, the Contractor shall stop all work in the affected area immediately, notify the Engineer and implement the relevant measures outlined in the approved ERP. At a minimum, the notification to the Engineer shall include a description of the following:

- a. The situation that arose;
- b. Its cause, if known;
- c. Response measures implemented;
- d. Recommendations for further intervention, if any.

At the time of notification, the Engineer, will determine whether or not the Contractor may resume work in the affected area. If not, the Contractor shall repair and/or furnish and install all supplemental remediation and mitigation measures deemed appropriate by the Engineer. All repair work shall be done in such a manner as to minimize the adverse impact to the affected historic elements. The Contractor shall not remove any damaged, marred or otherwise unsalvageable historic elements from the WTC Site unless otherwise approved by the Engineer.

6. ARCHAEOLOGICAL RESOURCES

Consistent with the Stipulations of the executed Memorandum of Agreement (MOA) pursuant to Section 106 of the National Historic Preservation Act, the following areas within the WTC site have been determined to be sensitive historic archaeological resources:

- Former Lots 8 – 17 on former Block 85 (the south side of Vesey Street between Greenwich and Church Streets);
- Former Lots 5, 6 and 10 on former Block 60 (the north side of Liberty Street between Greenwich and Church Streets);

Unless specifically required by Contract, under no conditions shall the Contractor perform any construction activities that may cause a subsurface disturbance at or in the vicinity of the above areas without the approval of the Engineer.

7. DISCOVERIES OF ARCHAEOLOGICAL RESOURCES AND EFFECTS ON HISTORICAL RESOURCES

In the event that archaeological deposits or features are encountered during the performance of construction activities, the Contractor shall stop all work immediately, flag or fence off the archaeological discovery location, provide site security and immediately notify the Engineer. The Contractor shall not recommence Work until so directed by the Engineer.

8. CONSTRUCTION PROTECTION PLAN

The Contractor shall develop and submit to the Engineer for review and approval a comprehensive Construction Protection Plan (CPP) to address the implementation, enforcement and monitoring of the Environmental Performance Commitments (EPCs) as outlined in the previous Sections of this Specification in the previous Sections of this Specification for Air Quality: Diesel Emission Mitigation and Dust Control, Noise and Vibration Abatement, Cultural and Historic Resource Protection, Archaeological Resources and Discoveries, the mitigation of diesel emissions and dust, noise and vibration, Cultural and historic resources, traffic and pedestrian access, and Economic Effects. The CPP shall be submitted to the Engineer for review and approval within thirty (30) calendar days of acceptance by the Authority of the Contractor's proposal. No Work shall commence until the all sections of the CPP must be approved by the Engineer prior to the commencement of any Work. The CPP will be organized to address each EPC, by each of the Environmental EPCs and shall include the following plans associated plans as follows:

Air Quality:

1. **Diesel Emission Mitigation (DEM) Plan** (as per Section 1, above discussed above);
2. **Dust Control (DC) Plan** (as per Section 2, discussed above);
3. **Noise Control and Abatement (NCA) Plan** (as per Section 3, above);
4. **Vibration Control And Abatement (VCA) Plan** (as per Section 4, above);
5. **Emergency Remediation (ERP) Plan** (as per Section 5, above);

6. **Maintenance and Protection of Traffic (MPT) Plan** - A plan for the management of traffic and truck/vehicle delivery routes to and from the site for each major construction phase. Included in the MPT plan are to be specific measures to minimize impacts to the intersection of Route 9A and Liberty Street for the maintenance of an acceptable Level of Service (LOS "B"). The plan shall also include the mapping of all existing businesses in the area to determine conflicts between construction activities and access for customers and deliveries, and specific measures to minimize such impacts including but not limited to the furnishing and installation of temporary signage to enhance way finding.
7. **Health & Safety Plan (the "HASP")** - A plan shall be developed and implemented in accordance with the requirements of the current document entitled "The World Trade Center – Site Safety Program – Health And Safety Requirements";
8. **Contaminated Materials Plan** – A plan shall be developed and implemented for the sampling and testing program for the excavation of materials east of the NYCT 1 line to validate that the excavation is clean prior to removal from the site. The document shall be the Sites' Remedial Action Work Plan (RAWP) to address testing processes and procedures and mitigation plans. The RAWP shall be submitted to the Engineer prior to the excavation of any materials east of the NYCT 1 Line. The Contractor shall submit a RAWP to test and assess the materials for polycyclic aromatic hydrocarbons (PHA) and metals. If the sampled material has levels below threshold levels defined by NYSDEC, the excavated material can be removed. If threshold levels are exceeded, the Contractor will implement the remedial action plan in place;
9. **Soil Management Plan** – A plan to address the means and methods to be used in the handling, staging, disposal, transportation and decontamination of equipment and personnel in accordance with all jurisdictional codes and rules and regulations.
 - o **Common Fuel Storage Coordination Plan** - This plan shall require the Contractor to coordinate its ULSD fuel storage system on site with other agencies on the WTC Site. This may require the development of agreements to operate and maintain a common fueling station on site with agency roles and responsibilities defined. The plan shall consider the minimum number of fueling sites to keep construction activities moving and will be temporarily designed in accordance with State and City permit requirements for on site open fuel storage. The Contractor shall submit a location plan; installation plan and operations plan for the ULSD refueling station on site:
 1. Contaminated Materials Plan
 2. This plan shall provide for a sampling and testing program for the excavation of materials east of the NYCT 1 line to validate that the excavation is clean prior to removal from the site. The document shall be the Sites' Remedial Action Work Plan (RAWP) to address testing processes and procedures and mitigation plans. The RAWP shall be submitted to the Engineer prior to the excavation of any

materials east of the NYCT 1 Line. The Contractor shall submit a RAWP to test and assess the materials for polycyclic aromatic hydrocarbons (PHA) and metals. If the sampled material has levels below threshold levels defined by NYSDEC, the excavated material can be removed. If threshold levels are exceeded, the Contractor will implement the remedial action plan in place.

9. AVAILABLE DOCUMENTS

The following documents are available for reference in regard to the above stated requirements:

- Permanent WTC PATH Terminal – Final Environmental Impact Statement, dated May 2005;
- Memorandum Of Agreement Among The Federal Transit Administration, The New York State Historic Preservation Office, Advisory Council On Historic Preservation And The Port Authority Of New York And New Jersey Regarding The World Trade Center Transportation Hub (WTC PATH Terminal And Pedestrian Connections) In New York City, executed April 11, 2005;
- Record Of Decision – Port Authority Of New York And New Jersey – Permanent World Trade Center (WTC) PATH Terminal – New York, New York, dated June 2005;
- World Trade Center Site – Resource Protection Plan For Construction Of The WTC Transportation Hub Project, dated September 2005;
- Downtown Restoration Program – The World Trade Center And Transportation Hub-Site Safety Program – Health And Safety Requirements dated October 2005.

10. NONCOMPLIANCE

The Contractor will be issued a written Notice of Non-Compliance by the Engineer in the event that, emissions reductions, dust suppression, noise abatement, vibration abatement or cultural and historic resources protection measures fail to comply with the requirements of this Section. All notices of non-compliance shall be remedied within twenty-four (24) hours of the Contractor's receipt of notice from the Engineer. The failure of the Contractor to perform corrective action within this period shall constitute grounds for the Engineer to invoke the provisions of the Form of Contract entitled "Withholding of Payments."

115. PRESERVATION AND PROTECTION OF HISTORIC PROPERTIES AND HISTORIC AND ARCHAEOLOGICAL RESOURCES

The Contractor shall preserve and protect Historic Properties and historic and archaeological resources located on and adjacent to the WTC site, including but not limited to the perimeter column remnants outlining the north and south tower footprints and footprint areas affected, E Subway entrance, penetration of the East and West Slurry walls, steel beams in cross form, Hudson River Bulkhead and historic properties on which construction may have an adverse effect as set forth in the attachment entitled "Memorandum of Agreement Among the Federal

Transit Administration, the New York State Historic Preservation Office, Advisory Council on Historic Preservation, and The Port Authority of New York and New Jersey Regarding the World Trade Center Transportation Hub (WTC PATH Terminal and Pedestrian Connections in New York City, New York)", attached hereto as Appendix E, and the requirements of the Contract Drawings and Specifications of the Work package.

The Contractor shall protect historic elements of the WTC Site that are to remain in situ from damage during Work performed. The Contractor shall develop a WTC Resource Protection Plan ("WTCRPP") for the review and approval of the Authority. The WTCRPP shall describe in detail the construction procedures related to Historic Properties including but not limited to, the inspection and reporting of existing conditions at these historic elements; establish protection procedures; establish a monitoring program; establish and monitor construction methods; and establish methods and materials to be used for any repairs. The Authority will hire an historic architect to work in conjunction with the Contractor. The historic architect shall review design drawings and specifications prior to construction in order to prevent damage to Historic Resources.

The Contractor shall develop a Construction Protection Plan ("CPP") for the review and approval of the Authority that will set forth measures for protection and avoidance of structural and architectural damage from the Work for these Historic Properties. The CPP will be based on the "New York City Department of Building Technical Policy and Procedure Notice ("PPN") #10/88" regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction. The PPN defines an adjacent historic structure as being contiguous to or within a lateral distance of 90 feet from a lot under development or alteration. The CPP shall also provide for the inspecting and reporting of existing conditions at these properties; establishing protection procedures; establishing a monitoring program to measure vertical and lateral movement and vibration; establishing and monitoring construction methods to limit vibrations; and establishing methods and materials to be used for any repairs. The CPP shall also specify the implementation of special vibration protection measures to protect these Historic Properties from increased vibration levels.

116. CONSTRUCTION MANAGER/GENERAL CONTRACTOR PROJECT TEAM

Each Proposer will be requested to identify specific individuals it will provide to perform the following roles, each meeting or exceeding the outlined position requirements. Each of the key personnel identified in this Section shall provide the management for the Project. Some of the key personnel shall be required to reside in the New York / New Jersey metropolitan area during the course of the Project, and each of the key personnel will be required to be present in the New York City area during critical Project periods. Some individuals proposed may fulfill multiple positions on the Project, as indicated in the individual key personnel descriptions set forth.

In the qualifications specified below, the word "shall" indicates a required minimum qualification. The word "should" indicates the Authority's preferred qualifications, but such qualification is not a mandatory requirement. It is the responsibility of the Proposer to propose a team that it believes will meet the stated objectives of the Authority.

1. Principal-in-Charge: Shall be a Professional Engineer in the State of New York and have a minimum of 20 years of relevant experience. The Principal-in-Charge shall

have broad experience in the oversight and management of major construction projects. The Principal-in-Charge shall have acted previously in a position of a principal-in-charge for large construction projects. That experience shall contain projects where rail transit and/ or urban transportation facilities were a major component of the constructed work. The Principal-in-Charge shall have had previous interaction with, and negotiations and resolution of critical project issues with Federal, State and Local agencies. The Principal-in-Charge shall have the ability to bind the Proposer.

2. **Project Manager:** Shall be a Professional Engineer licensed in the State of New York and have a minimum of 15 years experience in construction and management of construction on major projects with an emphasis on rail transit and / or urban transportation facility projects that included Work of a similar scope, nature, and complexity as the Project. The Project Manager shall have experience in the delivery of projects making use of the CM/GC contracting method where it was used in a manner similar to this Project. The Project Manager shall have broad experience interacting with local governmental entities, as well as be able to demonstrate superior communication skills with the public and governmental entities.
3. **Project Value Engineer:** Should have a minimum of 15 years of broad experience in Project Management of major construction. The Project Value Engineer shall have had experience related to the management of rail transit and/ or urban transportation facility projects. The Project Value Engineer's experience shall include work with methods or programs that successfully increased the value of those projects to the owner.
4. **Construction Manager:** Shall be a Professional Engineer licensed in the State of New York and have a minimum of 15 years experience in construction and management of construction projects that required the coordination of complex components on major construction projects where the construction schedule is critical and the budget is constrained and limited. The Construction Manager shall have relevant experience on rail transit and/or urban transportation facility projects that included work of a similar scope, nature, and complexity as the Project. The Construction Manager should demonstrate previous experience with projects similar in size and complexity to this Project. The Construction Manager shall have experience in the delivery of projects making use of the CM/GC contracting method where it was used in a manner similar to this Project.
5. **Minority and Women Business Enterprise Liaison:** Should have a minimum of five years experience in managing MBE/WBE, Equal Employment Opportunity (EEO), and Affirmative Action (AA) programs. The MBE/WBE Liaison may fulfill multiple roles on the Project.
6. **Safety Manager:** The Safety Manager shall have a minimum of 10 years experience working on safety programs for rail transit and / or urban transportation facility construction projects. The Safety Manager shall have past experience working with Federal Railroad Administration (FRA) and FTA safety regulations and with OSHA regulations and shall be certified in accordance with the Building Code of the City of New York as a Site Safety Manager.

7. Quality Assurance/Quality Control (QA/QC) Manager: Shall have a minimum of five years experience in rail transit and / or urban transportation facility construction and shall have at least 10 years experience in QA/QC activities, including preparation and implementation of Quality Plans and procedures for design and/or construction as required in the provisions of the clause entitled "Contractor's Quality Program Requirements" herein.
8. Project Control Manager: Shall have a minimum of 10 years experience with at least five years of recent experience in budget management of rail transit and / or urban transportation facility projects, including experience with FTA regulations regarding finance and procurement, as well as Generally Accepted Accounting Practices. The Project Control Manager shall have demonstrated a minimum of ten years experience in scheduling, including detailed knowledge of Critical Path Method (CPM) scheduling.

The CM/GC shall not remove or replace the Principal-In-Charge or any other key personnel without the written consent of the Authority and the Authority will not consent until the CM/GC's has proffered a candidate with similar and equal credentials acceptable to the Authority.

117. CONFLICT OF INTEREST

During the term of this agreement, the CM/GC shall not participate in any way in the preparation, negotiation or award of any contract (other than a contract for its own services to the Authority) to which it is contemplated the Port Authority may become a party, or participate in any way in the review or resolution of a claim in connection with such a agreement if the CM/GC has a substantial financial interest in the consultant or potential contractor of the Authority or if the CM/GC has an arrangement for future employment or for any other business relationship with said contractor or potential contractor, nor shall the CM/GC at any time take any other action which might be viewed as or give the appearance of conflict of interest on its part. If the possibility of such an arrangement for future employment or for another business arrangement has been or is the subject of a previous or current discussion, or if the CM/GC has reason to believe such an arrangement may be the subject of future discussion, or if the CM/GC has any financial interest, substantial or not, in a consultant or potential consultant of the Authority, and the CM/GC's participation in the preparation, negotiation or award of any agreement with such a consultant or the review or resolution of a claim in connection with such a agreement is contemplated or if the CM/GC has reason to believe that any other situation exists which might be viewed as or give the appearance of a conflict of interest, the CM/GC shall immediately inform the Director in writing of such situation giving the full details thereof. Unless the CM/GC receives the specific written approval of the Director, the CM/GC shall not take the contemplated action which might be viewed as or give the appearance of a conflict of interest. In the event the Director shall determine that the performance by the CM/GC of a portion of its services under this Agreement is precluded by the provisions of this numbered paragraph, or a portion of the CM/GC's said services is determined by the Director to be no longer appropriate because of such preclusion, then the Director shall have full authority on behalf of both parties to order that such portion of the CM/GC's services not be performed by the CM/GC, reserving the right, however, to have the services performed by others and any lump

sum compensation payable hereunder which is applicable to the deleted work shall be equitably adjusted by the parties. The CM/GC's execution of this document shall constitute a representation by the CM/GC that at the time of such execution the CM/GC knows of no circumstances, present or anticipated, which come within the provisions of this paragraph or which might otherwise be viewed as or give the appearance of a conflict of interest on the CM/GC's part. The CM/GC acknowledges that the Authority may preclude it from involvement in certain disposition/privatization initiatives or transactions that result from the findings of its evaluations hereunder or from participation in any agreements which result, directly or indirectly, from the services provided by the CM/GC hereunder.

In the opinion of the Authority, any entity performing construction management (CM) or general contracting (GC) services for the Authority or other WTC stakeholders/owners, such as LMDC, NYSDOT, WTC Net Lessee, responsible for building portions of the WTC site has a potential conflict of interest with the performance as CM/GC under this Agreement during its pendency. However, if the CM/GC desires to enter into such a third party relationship and believes that it can provide a mitigation plan that would address the Authority's perceived conflict of interest, it shall, before entering into such relationship, give written notice of its interest to the Authority and submit such plan for evaluation to the Authority. The Authority will evaluate the submitted mitigation plan and notify the CM/GC of its decision. In the event the Authority determines that a conflict of interest exists which in its sole opinion would make such third party relationship inappropriate, the CM/GC hereby agrees not to enter into such relationship. This provision is of the essence of this Agreement.

118. MISCELLANEOUS

1. Museum Complex (If Required)

Although the Museum Complex is in the planning stage, the Authority considers this work to be within the scope of work of this Agreement and reserves the right to request pricing from the Contractor to perform this work and amend this Agreement, and the agreement entitled "Construction Management Services, WTC-284.458(CM) as necessary.

The Museum Complex will be located in the northeast corner of the memorial quadrant and adjacent to the WTC Memorial Pools. The building will be constructed above (over) the WTC PATH Station and Mezzanine. The proposed size and volume of the facility will contain approximately 250,000 to 275,000 gross square feet with a maximum footprint of approximately 40,000 gross square feet. The Museum Complex will be a world class education and engagement facility that will house three distinct programs: a museum with associated administrative and event space, a fine arts institution with administrative space, and a visitor's center for the WTC site. The Museum Complex shall also contain space for mechanical equipment for the WTC/ Hub. The Museum Complex will incorporate sustainable architectural design, conform to Americans with Disabilities Act (ADA) requirements and ensure the safety and security as required by code and engineering analysis.

If required, the work will include the construction of the Museum Complex below grade structure, above grade structure and exterior shell, and the building's PATH mechanical space. The fit-out of the building finishes and systems would not form part of the additional scope of work, but would be performed under a separate contract.

a. Museum Complex Below Grade including underpinning of 1 & 9 Subway Line

This component is defined by all the work below the Memorial Plaza, presently elevation 312. If required, the work will include excavation, foundations, structural transfer systems, and additional underpinning of the NYCT 1 & 9 Subway Line.

b. Museum Complex Above Grade Core and Shell

This component is defined by the construction of the Museum Complex building. If required, the work will include the structural floor and roof structures, exterior cladding, roofing, waterproofing, skylights, load bearing interior partitions, exterior doors and glazing, stairs without finishes and site paving.

c. Museum Complex PATH Mechanical

The Museum Complex has been designated to house the ventilation systems and ancillary PATH Mechanical equipment for the WTC/ Hub tracks, platforms and mezzanine. If required, the work will include the installation of the mechanical equipment associated with the PATH ventilation system, air handling units, smoke exhaust fans, supply and return duct work associated with these systems through the building to the PATH platforms and mezzanine. The Authority is also considering adding to the scope of work the electrical, HVAC, fire protection, and plumbing system work required to operate the PATH Mechanical equipment located in the Museum Complex building.

2. Memorial & Memorial Center & Performing Arts Center (If Required)

Although the Memorial & Memorial Center & Performing Arts Center is in the planning stage, the Authority considers this work to be within the scope of work of this Agreement and reserves the right to request pricing from the Contractor to perform this work and amend this Agreement and the agreement entitled "Construction Management Services, WTC-284.458(CM), , as necessary.

This work is defined by the work below the Memorial Plaza, presently elevation 312 for the Memorial and Memorial Center and the Performing Arts Center Building, which are situated over or adjacent to the PATH tracks, platform and mezzanine. If required, the work will include excavation, foundations, and structural systems.

WTC-284.458 GC ATTACHMENTS

Attachments and Appendices for PA Agreement # WTC-284.458 GC

ATTACHMENTS

- A. Wage and Rate Schedules
- B. Corporate Guarantees

APPENDICES

- A. World Trade Center Transportation Hub – Project Quality Assurance Plan (Rev: 0)
- B. World Trade Center Site Safety Program (Dated May 21, 2005)
- C. United States of America Department of Transportation Federal Transit Administration - Master Agreement for 'Lower Manhattan Recovery Grants' (Dated May 16, 2003)
- D. LMRO Third Party Contracting Requirements (Dated August 21, 2003)
- E. Memorandum of Agreement Among the Federal Transit Administration the New York State Historic Preservation Office Advisory Council on Historic Preservation and The Port Authority of New York and New Jersey Regarding the World Trade Center Transportation Hub (WTC PATH Terminal and Pedestrian Connections in New York City, New York)
- F. Schedule of Minimum Wage Rates
- G. FTA Construction Attachment
- H. **NOT USED**
- I. Minority Business Enterprises and Women's Business Enterprises Directory and Forms
 - Schedule A – Minority and Women's Business Certification
 - Schedule B – Information for Determining Joint Venture Eligibility
 - Schedule C – MBE/WBE Participation Plan
 - Schedule D – Statement of Subcontractor Payments
- J. Joint Venture Agreement of Phoenix Constructors (Dated as of July 15, 2005)

Contract WTC-284.458(GC)

ATTACHMENT A

**BASE Wage Rate By Pay Group
(no Cost Center)
Permanent Employees**

Print Date: 7/1/2005
Relevant Date: 3/7/2005

Exemption (2.b.)

WTC Transportation HUB Project
Port Authority of NY & NJ, Contract WTC-284.458 (GC)

CM Pre-Construction Services

Direct Hourly Rate Schedule for Construction Services Skanska

[Rates are bare rates without Employee Fringes (e.g. Payroll Taxes, Pension, Medical, & etc..) & TOWP (Vacation, Holiday, & Sick Time). Rates are subject to annual adjustment.]

	Employee Title / Description	Direct Hourly Rate
32	2 - Cost Accountant	\$48.56
33	Site Administration Manager (See Admin Staff Below)	\$62.10
34	Document Control Engineer Building	\$48.56
35	Document Control Engineer Site / Civil	\$48.56
36	Document Control Engineer Assistant	\$40.87
37	Procurement Contracts Manager	\$65.00
38	Civil Procurement Mgr.	\$60.52
39	Building Procurement Mgr.	\$60.52
40	Diversity Manager MBE/WBE	\$27.88
41	Estimating Manager	\$80.00
42	Building Estimator #1	\$60.52
43	Building Estimator #2	\$60.52
44	Civil/Structural - Estimator #1	\$60.52
45	Civil/Structural - Estimator #2	\$60.52
46	Site / Utilities Estimator	\$60.52
47	Electrical Estimator	\$80.00
48	Mechanical/Plumbing Estimator	\$60.51
49	Change Control Manager	\$61.00
50	Value Engineering/Constructability Mgr.	\$78.75
51	Civil/Structural Engineer	\$61.00
52	Building Structural Engineer	\$61.00
53	Architect	\$59.00
54	Curtain Wall Engineer	\$61.00
55	Railroad Engineer	\$61.00
56	Utility Coordination Engineer	\$61.00

**WTC Transportation HUB Project
Port Authority of NY& NJ, Contract WTC-284.458 (GC)**

CM Pre-Construction Services

**Direct Hourly Rate Schedule for Construction Services
Skanska**

[Rates are bare rates without Employee Fringes (e.g. Payroll Taxes, Pension, Medical, & etc..) & TOWP (Vacation, Holiday, & Sick Time). Rates are subject to annual adjustment.]

	Employee Title / Description	Direct Hourly Rate
PROJECT TEAM :		

PROFESSIONAL/CONSTRUCTION SERVICES TEAM:		
1	Principle / Executive Committee Member - Skanska	\$145.00
2	Project Manager	\$87.50
3	QA Manager	\$65.00
4	QA Engineer	\$45.67
5	Safety Manager	\$65.00
6	Safety Engineer	\$45.67
7	Deputy Project Manager	\$70.00
8	Construction Manager - Building	\$65.00
9	Assistant Construction Manager - Building	\$61.00
10	Transit Hall / Site - General Super	\$74.00
11	Structural Manager	\$65.00
12	Facade Manager	\$65.00
13	MEP Manager	\$65.00
14	Architectural Manager	\$65.00
15	Construction Manager - Site & Logistics	\$65.00
16	Assistant Construction Manager - Site & Logistics	\$61.00
17	Utilities Manager	\$65.00
18	MPT Manager	\$65.00
19	Landscaping Manager	\$65.00
20	Construction Manager - Civil/Structural	\$65.00
21	Assistant Construction Manager - Civil/Structural	\$65.00
22	Civil/Structural - General Superintendent	\$74.00
23	Trans Hall Sub Structure - Manager	\$65.00
24	Path Facilities/Ancillary Areas - Manager	\$65.00
25	Early Options/Greenwich/Day/Church Connectors Mgr.	\$65.00
26	East/West Connectors Manager	\$65.00
27	Project Controls & Administrative Manager	\$65.00
28	Cost & Schedule Manager	\$61.00
29	Cost Engineer	\$46.30
30	Schedule Engineer	\$54.81
31	Risk Manager/Insurance Liason	\$51.64

Granite Halmat Construction Company
AUDITABLE RATES FOR Contract 284-458(GC)

Note: Rates are based on June-30-2005 actuals and subject to annual adjustment.

- 1- Highest paid individuals are used as a basis for these rates
- 2- Recruiting cost are allowable costs and not included in the rate. CFR 31.205-34. Will be billed when incurred.
- 3- Severance pay is allowable and will be billed when incurred. 31.205-6. Severance cost is not included in the rate
- 4- Fringe benefits are allowable: vacations, sick leave, holidays, military leave, employee insurance, supplemental unemployment benefits-31.205-6
- 5- Cost of company vehicle is not included in the rates but allowable. Restrictions apply.

***** See attached detail of allowable and unallowable costs as per FAR Part 31.

AUDITABLE RATES FOR WTC PROPOSAL		
Rates are bare rates without Employee Fringes (Payroll taxes, pension, medical, vacation, holiday and sick time)		
TITLE	BASE PAY (monthly rates)	Hourly Bare rate
PROJECT MANAGER - MID	\$ 13,500.00	\$ 77.88
PROJECT MANAGER - MAX	\$ 14,583.33	\$ 84.13
ESTIMATOR - SENIOR - MAX	\$ 11,975.00	\$ 69.09
ESTIMATOR - MID	\$ 8,583.33	\$ 49.52
ESTIMATOR - JUNIOR - MIN	\$ 6,800.00	\$ 39.23
GRANITE OPERATIONS EXECUTIVE (RM)	\$ 14,333.33	\$ 82.69
GRANITE PROPOSAL EXECUTIVE (AM)	\$ 13,333.33	\$ 76.92
ASST PROJECT MANAGER	\$ 10,193.73	\$ 58.81
PROJECT SUPERINTENDENT	\$ 13,053.73	\$ 75.31
ASST SUPERINTENDENT	\$ 12,300.00	\$ 70.96
PROJECT ENGINEER	\$ 10,193.73	\$ 58.81
FIELD ENGINEER	\$ 5,520.87	\$ 31.85
COST ENGINEER	\$ 6,309.33	\$ 36.40
SCHEDULING ENGINEER	\$ 9,344.40	\$ 53.91
QUALITY ENGINEER	\$ 7,857.20	\$ 45.33
SAFETY MANAGER	\$ 9,666.67	\$ 55.77
SAFETY ENGINEER	\$ 7,000.00	\$ 40.38
OFFICE MANAGER	\$ 4,314.27	\$ 24.89
DOCUMENT CONTROL MANAGER	\$ 4,995.47	\$ 28.82
ACCOUNTS PAYABLE CLERK	\$ 3,550.00	\$ 20.48
ACCOUNTS PAYABLE MANAGER	\$ 5,069.95	\$ 29.19
PAYROLL MANAGER	\$ 4,725.07	\$ 27.28
PAYROLL CLERK	\$ 3,650.00	\$ 20.48
HUMAN RESOURCES MANAGER	\$ 7,430.00	\$ 42.87
RECEPTIONIST	\$ 3,833.33	\$ 22.12
CONTRACTS MANAGER	\$ 10,833.33	\$ 62.50
COST CONTROL MANAGER	\$ 8,750.00	\$ 50.48
RISK MANAGEMENT/INSURANCE LIASON	\$ 6,083.33	\$ 35.10
MAIL ROOM CLERK	\$ 2,250.00	\$ 12.98
BUSINESS MANAGER	\$ 7,583.33	\$ 43.75

WTC Transportation HUB Project
Port Authority of NY& NJ, Contract WTC-284.458 (GC)

CM/IGC Construction Services

Direct Hourly Rate Schedule for Construction Services
Bovis Lend Lease LMB

[Rates are bare rates without Employee Fringes (e.g. Payroll Taxes, Pension, Medical, & etc..) & TOWP (Vacation, Holiday, & Sick Time). Rates are subject to annual adjustment.]

	Employee Title / Description	Direct Hourly Rate
PROJECT TEAM:		

PROFFESIONAL/CONSTRUCTION SERVICES TEAM:		
1	Bovis Operations Executive	\$142.50
2	QC/QA Engineer	\$71.96
3	Deputy Project Director - Building	\$121.37
4	Project Liason	\$50.00
5	Area Superintedent Terminal Hall/Construction	\$71.91
6	Bovis Estimator I	\$68.39
7	Bovis Estimator II	\$84.38
8	Architectural Engineer	\$45.75
9	Curtain Wall Engineer	\$79.57
10	Document Control Engineer - Building	\$53.04
11	Purchasing Agent	\$89.70
12	I.T. Support	\$29.98

ATTACHMENT B

CORPORATE GUARANTEES

ATTACHMENT B
CONTRACT GUARANTY AGREEMENT

In order to induce THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY (the "Authority") to accept the Proposal submitted by Phoenix Constructors ("Phoenix") for Contract WTC 284.458 (the "Contract"), the undersigned Lend Lease Corporation Limited (the "Guarantor"), which has a material financial interest in the aforementioned Phoenix submitting said Proposal, warrants, undertakes and guarantees that said Phoenix, shall well and faithfully do and perform the things agreed by it to be done and performed according to the true terms and true intent and meaning of said Contract, including the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract.

This undertaking and guarantee shall be in no way impaired or affected by an extension of time, modification, amendment, omission, addition or change in or to the said Contract or the construction, operation and maintenance, or other services to be performed thereunder, or by payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent) or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any construction, operation and maintenance, or other services to be performed, or any moneys due or to become due thereunder, and Lend Lease Corporation Limited does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes payments, waivers, assignments, subcontracts and transfers, and does hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to Lend Lease Corporation Limited, as though done by or in relation to said Phoenix, provided however, that the obligations of Lend Lease Corporation Limited to the Authority under this Guaranty shall in no case be greater than the obligation of Phoenix to the Authority set forth in the Contract, and that Lend Lease Corporation Limited shall have benefit of the same causes of action and defenses available to Phoenix under the Contract.

Lend Lease Corporation Limited hereby irrevocably submits itself to the jurisdiction of the Courts of the State of New York in regard to any controversy arising out of, connected with, or in any way concerning this Guaranty. Lend Lease Corporation Limited agrees that service of process on Lend Lease Corporation Limited in relation to such jurisdiction may be made, at the option of the Authority, either by registered or certified mail addressed to Phoenix, 505 8th Avenue, Suite 601, New York, New York 10019, or by registered or certified mail addressed to any office actually maintained by Lend Lease Corporation Limited, or by actual personal delivery to an officer, director or managing or general agent of Lend Lease Corporation Limited.

Such service shall be deemed to be sufficient when jurisdiction would not lie because of the lack of basis to serve process in the manner otherwise provided by law. In any case,

however, process may be served as stated above whether or not it might otherwise have been served in a different manner.

This Guaranty shall be governed by and construed in accordance with the laws of the State of New York

All terms and conditions of the above Guaranty are contained in this instrument, and only express provisions of a writing signed by the party to be charged therewith may change this instrument.

Guarantor's liability under this Guaranty shall not exceed that of Phoenix under the Contract as to quantum, specie or duration, and in no event shall the Authority's recovery under all such guarantees exceed in the aggregate, the maximum liability of Phoenix under the Contract. No action shall be maintained against the Guarantors or any of them under their respective Contract Guaranty Agreements unless it is commenced within one (1) year of the Authority's issuance of the Certificate of Final Completion for the Contract.

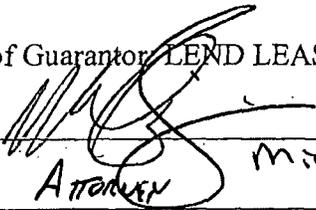
Notwithstanding any provision of this Guaranty to the contrary, this Guaranty is intended for the sole and exclusive benefit of the Authority and Lend Lease Corporation Limited and not for the benefit of any third party, and no third party shall be entitled to rely upon or enforce the terms of this Agreement or to be a third party beneficiary hereof.

IN WITNESS HEREOF, the aforementioned guaranteeing entity, Lend Lease Corporation Limited, has caused this instrument to be executed by its duly authorized signatories this 20th day of January, 2006.

Name of Guarantor LEND LEASE CORPORATION LIMITED

By: _____

Title: _____


Michael Feagin
ATTORNEY

THIS POWER OF ATTORNEY is made on 23 January 2006 by **LEND LEASE CORPORATION LIMITED** (ABN 32 000 226 228) of Level 4, 30 The Bond, 30 Hickson Road, Millers Point NSW 2000 (the "Principal").

1. Appointment

The Principal appoints each of the persons named in schedule 1 (each an "Attorney") as the attorney of the Principal. This power of attorney expires on 31 March 2006.

2. Powers

Each Attorney is empowered to do the following:

- (a) execute under hand or under seal and deliver either conditionally or unconditionally each document described in schedule 2 (each an "Approved Document") in a form and substance as the Attorney thinks fit;
- (b) complete any blanks in an Approved Document;
- (c) amend an Approved Document as the Attorney thinks fit (including, but not limited to, amending the parties), and execute and deliver as in clause 2(a) any document which effects or evidences the amendment;
- (d) do anything which in the opinion of the Attorney is necessary or incidental to :
 - (1) any document referred to in clauses 2(a) and 2(c); or
 - (2) any transaction contemplated by any document referred to in clauses 2(a) and 2(c);
- (e) to do any other thing (whether or not of the same kind as the above) which in the opinion of the Attorney is necessary, expedient or desirable for giving effect to the provisions of this deed poll.

3. Use of Name

Each Attorney may exercise its powers under this deed poll in the name of the Principal or in the name of the Attorney and as the act of the Principal.

4. Benefit to Attorney

Each Attorney may exercise its powers under this deed poll even if the Attorney benefits from the exercise of that power.

5. Ratification

The Principal undertakes to ratify and confirm any act of each Attorney in exercise of its powers under this deed poll.

6. No warranty

The exercise by any Attorney of any power under this deed poll does not connote:

- (a) a warranty, express or implied, on the part of the Attorney as to :
 - (1) the Attorney's authority to exercise the power; or
 - (2) the validity of this deed poll; or
- (b) an assumption of personal liability by the Attorney in exercising the power.

7. Indemnity

The Principal indemnifies each Attorney against all claims, demands, losses, damages, costs and expenses however suffered or incurred by the Attorney in respect of the exercise of any of its powers under this deed poll.

8. Registration and Stamping

The Principal must do all things necessary to ensure the registration and stamping of this deed poll in all jurisdictions in which it must be registered and stamped to ensure its enforceability and validity for the purposes of this deed poll.

Schedule 1 - Attorneys

- 1. Any Director or Secretary of the Principal
- 2. M Feigin
- 3. J Portela.

Schedule 2 - Approved Documents

Document	Parties
Attachment B - Contract Guaranty Agreement dated January 20 th , 2006	Lend Lease Corporation Limited
Any document, whether or not of the same kind as that listed above, which in the opinion of an Attorney is necessary or expedient for giving effect to the provisions of the above document.	
Any other document which is incidental to, related to, ancillary or supplemental to, or necessary or desirable to be entered into in connection with, the above document.	

EXECUTED by the Principal as a deed poll:

Signed sealed and delivered by
LEND LEASE CORPORATION LIMITED by:

S. Sharpe
Secretary
S J SHARPE
Name

[Signature]
Director
R H TAYLOR
Name

ATTACHMENT B
CONTRACT GUARANTY AGREEMENT

In order to induce THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY to accept the Proposal submitted by Phoenix Constructors ("Phoenix") for Contract WTC 284.458 (the "Contract"), the undersigned Granite Construction Incorporated, which has a material financial interest in the aforementioned Phoenix submitting said Proposal, warrants, undertakes and guarantees that said Phoenix, shall well and faithfully do and perform the things agreed by it to be done and performed according to the true terms and true intent and meaning of said Contract, including the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract.

This undertaking and guarantee shall be in no way impaired or affected by an extension of time, modification, amendment, omission, addition or change in or to the said Contract or the construction, operation and maintenance, or other services to be performed thereunder, or by payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent) or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any construction, operation and maintenance, or other services to be performed, or any moneys due or to become due thereunder, and Granite Construction Incorporated does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes payments, waivers, assignments, subcontracts and transfers, and does hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to Granite Construction Incorporated, as though done by or in relation to said Phoenix, provided however, that the obligations of Granite Construction Incorporated to the Authority under this Guaranty shall in no case be greater than the obligation of Phoenix to the Authority set forth in the Contract, and that Granite Construction Incorporated shall have benefit of the same causes of action and defenses available to Phoenix under the Contract.

Granite Construction Incorporated hereby irrevocably submits itself to the jurisdiction of the Courts of the State of New York in regard to any controversy arising out of, connected with, or in any way concerning this guaranty. Granite Construction Incorporated agrees that service of process on Granite Construction Incorporated in relation to such jurisdiction may be made, at the option of the Authority, either by registered or certified mail addressed to Phoenix, 505 8th Avenue, Suite 601, New York, New York 10019, or by registered or certified mail addressed to any office actually maintained by Granite Construction Incorporated, or by actual personal delivery to an officer, director or managing or general agent of Granite Construction Incorporated.

Such service shall be deemed to be sufficient when jurisdiction would not lie because of the lack of basis to serve process in the manner otherwise provided by law. In any case,

however, process may be served as stated above whether or not it might otherwise have been served in a different manner.

This guaranty shall be governed by and construed in accordance with the laws of the State of New York

All terms and conditions of the above guaranty are contained in this instrument, and only express provisions of a writing signed by the party to be charged therewith may change this instrument.

Guarantor's liability under this Guaranty shall not exceed that of Phoenix under the Contract as to quantum, specie or duration, and in no event shall the Authority's recovery under all such guarantees exceed in the aggregate, the maximum liability of Phoenix under the Contract. No action shall be maintained against the Guarantors or any of them under their Contract Guaranty Agreement unless it is commenced within one (1) year of the Authority's issuance of the Certificate of Final Completion for the Contract.

Notwithstanding any provision of this guaranty to the contrary, this guaranty is intended for the sole and exclusive benefit of the Authority and Granite Construction Incorporated and not for the benefit of any third party, and no third party shall be entitled to rely upon or enforce the terms of this Agreement or to be a third party beneficiary hereof.

IN WITNESS HEREOF, the aforementioned guaranteeing entity, Granite Construction Incorporated, has caused this instrument to be executed by its duly authorized signatories this 18th day of January, 2006.

Name of Guarantor: Granite Construction Incorporated

A handwritten signature in black ink, appearing to read "David R. Grazian", is written over a horizontal line. The signature is stylized and somewhat cursive.

By: David R. Grazian

Title: Director of Corporate Taxation and Assistant Secretary

ATTACHMENT B
CONTRACT GUARANTY AGREEMENT

In order to induce THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY to accept the Proposal submitted by Phoenix Constructors ("Phoenix") for Contract WTC 284.458 (the "Contract"), the undersigned Fluor Corporation, which has a material financial interest in the aforementioned Phoenix submitting said Proposal, warrants, undertakes and guarantees that said Phoenix, shall well and faithfully do and perform the things agreed by it to be done and performed according to the true terms and true intent and meaning of said Contract, including the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract.

This undertaking and guarantee shall be in no way impaired or affected by an extension of time, modification, amendment, omission, addition or change in or to the said Contract or the construction, operation and maintenance, or other services to be performed thereunder, or by payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent) or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any construction, operation and maintenance, or other services to be performed, or any moneys due or to become due thereunder, and Fluor Corporation does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes payments, waivers, assignments, subcontracts and transfers, and does hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to Fluor Corporation, as though done by or in relation to said Phoenix, provided however, that the obligations of Fluor Corporation to the Authority under this Guaranty shall in no case be greater than the obligation of Phoenix to the Authority set forth in the Contract, and that Fluor Corporation shall have benefit of the same causes of action and defenses available to Phoenix under the Contract.

Fluor Corporation hereby irrevocably submits itself to the jurisdiction of the Courts of the State of New York in regard to any controversy arising out of, connected with, or in any way concerning this guaranty. Fluor Corporation agrees that service of process on Fluor Corporation in relation to such jurisdiction may be made, at the option of the Authority, either by registered or certified mail addressed to Phoenix, 505 8th Avenue, Suite 601, New York, New York 10019, or by registered or certified mail addressed to any office actually maintained by Fluor Corporation, or by actual personal delivery to an officer, director or managing or general agent of Fluor Corporation.

Such service shall be deemed to be sufficient when jurisdiction would not lie because of the lack of basis to serve process in the manner otherwise provided by law. In any case, however, process may be served as stated above whether or not it might otherwise have been served in a different manner.

This guaranty shall be governed by and construed in accordance with the laws of the State of New York

All terms and conditions of the above guaranty are contained in this instrument, and only express provisions of a writing signed by the party to be charged therewith may change this instrument.

Guarantor's liability under this Guaranty shall not exceed that of Phoenix under the Contract as to quantum, specie or duration, and in no event shall the Authority's recovery under all such guarantees exceed in the aggregate, the maximum liability of Phoenix under the Contract. No action shall be maintained against the Guarantors or any of them under their Contract Guaranty Agreement unless it is commenced within one (1) year of the Authority's issuance of the Certificate of Final Completion for the Contract.

Notwithstanding any provision of this guaranty to the contrary, this guaranty is intended for the sole and exclusive benefit of the Authority and Fluor Corporation and not for the benefit of any third party, and no third party shall be entitled to rely upon or enforce the terms of this Agreement or to be a third party beneficiary hereof.

IN WITNESS HEREOF, the aforementioned guaranteeing entity, Fluor Corporation, has caused this instrument to be executed by its duly authorized signatories this 18th day of January, 2006.

Fluor Corporation

By: Lawrence N. Turk

Title: Chief Legal Officer & Secretary

ATTACHMENT B
CONTRACT GUARANTY AGREEMENT

In order to induce THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY to accept the Proposal submitted by Phoenix Constructors ("Phoenix") for Contract WTC 284.458 (the "Contract"), the undersigned SKANSKA AB, which has a material financial interest in the aforementioned Phoenix submitting said Proposal, warrants, undertakes and guarantees that said Phoenix, shall well and faithfully do and perform the things agreed by it to be done and performed according to the true terms and true intent and meaning of said Contract, including the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract.

This undertaking and guarantee shall be in no way impaired or affected by an extension of time, modification, amendment, omission, addition or change in or to the said Contract or the construction, operation and maintenance, or other services to be performed thereunder, or by payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent) or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any construction, operation and maintenance, or other services to be performed, or any moneys due or to become due thereunder, and SKANSKA AB does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes payments, waivers, assignments, subcontracts and transfers, and does hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to SKANSKA AB, as though done by or in relation to said Phoenix, provided however, that the obligations of SKANSKA AB to the Authority under this Guaranty shall in no case be greater than the obligation of Phoenix to the Authority set forth in the Contract, and that SKANSKA AB shall have benefit of the same causes of action and defenses available to Phoenix under the Contract.

SKANSKA AB hereby irrevocably submits itself to the jurisdiction of the Courts of the State of New York in regard to any controversy arising out of, connected with, or in any way concerning this guaranty. SKANSKA AB agrees that service of process on SKANSKA AB in relation to such jurisdiction may be made, at the option of the Authority, either by registered or certified mail addressed to Phoenix, 505 8th Avenue, Suite 601, New York, New York 10019, or by registered or certified mail addressed to any office actually maintained by SKANSKA AB, or by actual personal delivery to an officer, director or managing or general agent of SKANSKA AB.

Such service shall be deemed to be sufficient when jurisdiction would not lie because of the lack of basis to serve process in the manner otherwise provided by law. In any case, however, process may be served as stated above whether or not it might otherwise have been served in a different manner.

This guaranty shall be governed by and construed in accordance with the laws of the State of New York

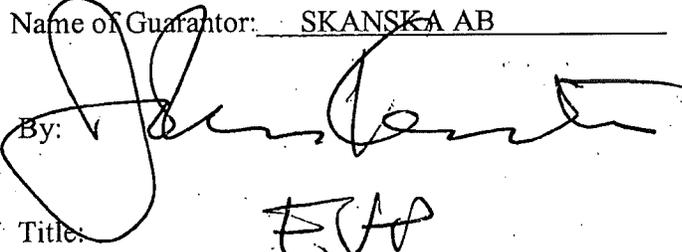
All terms and conditions of the above guaranty are contained in this instrument, and only express provisions of a writing signed by the party to be charged therewith may change this instrument.

Guarantor's liability under this Guaranty shall not exceed that of Phoenix under the Contract as to quantum, specie or duration, and in no event shall the Authority's recovery under all such guarantees exceed in the aggregate, the maximum liability of Phoenix under the Contract. No action shall be maintained against the Guarantors or any of them under their Contract Guaranty Agreement unless it is commenced within one (1) year of the Authority's issuance of the Certificate of Final Completion for the Contract.

Notwithstanding any provision of this guaranty to the contrary, this guaranty is intended for the sole and exclusive benefit of the Authority and SKANSKA AB and not for the benefit of any third party, and no third party shall be entitled to rely upon or enforce the terms of this Agreement or to be a third party beneficiary hereof.

IN WITNESS HEREOF, the aforementioned guaranteeing entity, SKANSKA AB, has caused this instrument to be executed by its duly authorized signatories this 18th day of January, 2006.

Name of Guarantor: SKANSKA AB

By: 

Title: 

**Downtown Restoration Program
World Trade Center Transportation Hub**

**Permanent WTC PATH Terminal
and
Pedestrian Connections**

Project Quality Assurance Plan

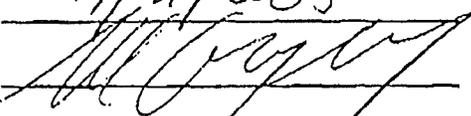
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**Priority Capital Programs Department
The Port Authority of NY & NJ**

APPROVALS PAGE

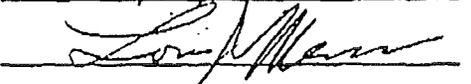
Prepared By: Mewburn H. Humphrey, Ph.D., P.E., F.ITE
Project Quality Assurance Manager
Priority Capital Programs

Date: 4/21/2005

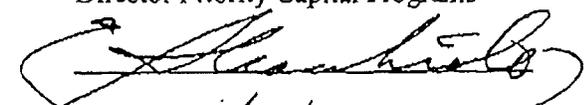
Signature: 

Reviewed by: Louis Menno, P.E.
Program Director
Priority Capital Programs

Date: 4/21/05

Signature: 

Approved by: Anthony G. Cracchiolo, P.E.,
Director Priority Capital Programs

Date: 

Signature: 4/21/05

Approved by: Michael DePallo
Director & General Manager PATH

Date: 4/22/05

Signature: 

Accepted by: Jerrold Dinkels, P.E.
Engineering Program Manager Downtown Restoration

Date: 04/21/05

Signature: 

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World Trade Center Transportation Hub – Project Quality Assurance Plan

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ACRONYMS PAGE

List of Acronyms

Description

AFR	Audit Findings report
ASQ	American Society for Quality
BCR	Building Code Reviewer
BDR	Basis of Design Report
C	Design Checker
CAR	Corrective Action Requests
CM	Construction Manager
CMD	Construction Management Division
CQAM	Construction Quality Assurance Manager
CQMS	Construction Quality Management System
CWP	Construction Work Plans
DDP	Downtown Design Partnership
DQAP	Design Quality Assurance Plan
DQMS	Design Quality Management System
EADD	Engineering Architectural Design Division
EDMS	Electronic Document Management System
EOP	Engineer of Projects
EOR	Engineer of Record
EPM	Engineering Program Manager
EQAM	Engineering Quality Assurance Manager
FTA	Federal Transportation Administration
IM&T	Inspection, Measuring and Testing
IP	Implementation Procedures
ITP	Inspection and Test Plans
ISO	International Organization for Standardization
MED	Materials Engineering Division
NIST	National Institute of Standards and Technology
PA	Port Authority of New York and New Jersey
PATH	Port Authority Trans Hudson
PE/A	Principal Engineer/Architect
PCM	Project Controls Manual
PCP	Priority Capital Programs
PM	Project Manager
PMP	Project Management Plan
POP	Project Operations Plan
QA	Quality Assurance
QMS	Quality Management System
QR	Quality Records
PQAM	Project Quality Assurance Manager
PQME	Project Quality Manual Elements
PQMS	Project Quality Management System
QAD	Quality Assurance Division
QAM	Quality Assurance Manager
QAP	Quality Assurance Plan

World Trade Center Transportation Hub – Project Quality Assurance Plan

QCM	Quality Control Manager
QMS	Quality Management System
QC	Quality Control
RE	Resident Engineer
REO	Resident Engineer Office
RFI	Request for Information
WBS	Work Breakdown Structure

REVISION INDEX PAGE

<u>Revision</u>	<u>Description of Revision</u>	<u>Issue Date</u>
0	Initial issue	04-22-05

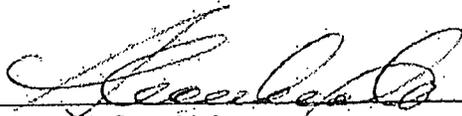
QUALITY POLICY

Project Quality

It is the Policy of Priority Capital Programs (PCP) that the “World Trade Center Transportation Hub” (Project) be planned, developed and delivered with the highest regard for quality and under the purview of an effective Quality Assurance Program. Project design and construction programs will define quality goals and objectives, specify quality related activities and indicators, and assign responsibilities to ensure that Project activities are executed to meet the Client’s (PATH) requirements.

Each Project Group that is providing management, design, construction, consulting or other services to the Project is required to provide the PCP’s Project Quality Assurance Manager (PQAM), a Quality Management Plan that outlines their Quality Management Systems (QMS) approach to managing the quality of the deliverables for the Project. Their respective plans will outline the management, administrative and control measures appropriate to their respective scopes of services. The contract documents for the Project, including all specifications and drawings for architectural and engineering, construction management, construction, procurement, and/or other services will be reviewed to determine the specific QMS to be implemented, determine the adequacy of the plans as submitted and recommend amendments, where necessary. The objective of the QMS is to ensure the attainment of the Project requirements and delivery of the expected and acceptable level of quality for the work. This objective is based on the principle that each Project Group has absolute responsibility for the quality of their development and delivery packages.

This policy will be implemented and maintained at all levels of the Project organization and the PQAM is vested with the authority to oversee the entire QA Program in accordance with the established QMS and assure the delivery of a quality product that meets the satisfaction of the Client. Adherence to this policy will result in the provision of the highest quality of Project service to the Downtown residents, visitors to the New York City/New Jersey Region and PATH riders.



Anthony G. Cracchiolo
Director, Priority Capital Programs

Date: 4/22/05

DEFINITIONS PAGE

PURPOSE

To define Quality terms as they pertain to this project.

DEFINITIONS

Quality: An inherent or distinguishing characteristic of a product or service. A trait or characteristic used to measure the degree of excellence that a product or service achieves. Conformance to prescribed requirements - the project produces what it was supposed to, as defined in the performance criteria established by the owner. The product satisfies user needs, aesthetically and functionally.

Quality Assurance: All those planned and systematic actions necessary to provide adequate confidence to the management that a product or service will satisfy given requirements for quality. QA emphasizes "upstream" actions that directly improve the chances that QC actions will result in a product or service that meets requirements. QA includes ensuring the project requirements are developed to meet the needs of all relevant internal and external agencies, planning the processes needed to assure quality of the project, ensuring that equipment and staffing is capable of performing tasks related to project quality, ensuring that contractors are capable of meeting and do carry out quality requirements, and documenting the quality efforts.

Quality Audit: A formal review/investigation to determine whether the quality characteristics of a product or service meet the defined quality criteria. Determine if the quality system is performing as documented and whether the quality system is implemented.

Quality Control: The operational techniques and activities that are used to fulfill requirements for quality. These techniques are used to assure that a product or service meets requirements. Generally, QC refers to the act of taking measurements, testing, and inspecting a process or product to assure that it meets specification. It also includes actions by those performing the work to control the quality of the work. Products may be design drawings or specifications, manufactured equipment, or constructed items. QC also refers to the process of witnessing or attesting to, and documenting such actions.

Quality Management: The management processes put into place to ensure that the end product of a project (process or product) meets the Client's needs.

Quality Planning: This involves defining the ranking of quality pertaining to schedule, scope, and cost; defining the required quality standard for the end product; and defining the requisite deliverables, tasks, resources and milestones to ensure that the end product achieves the Client's needs.

INTRODUCTION

The safety, reliability, maintainability requirements and human factor considerations within this transit-related project, which is situated in the midst of the Lower Manhattan development, demand that systematic, consistent, and authoritative controls be implemented in its design, development and delivery. Early identification of conditions that may affect a project's ability to perform satisfactorily, and timely corrective action that precludes repetition of problems, requires the establishment of Quality Criteria. Attainment of these criteria is achieved through sound engineering design, effective procurement and contract procedures, proper contractor/supplier selection, and effective implementation and control of manufacturing, construction, installation, testing, and operational activities.

The controls necessary for preserving the integrity of the quality activities and the documentation of quality results are categorized into the following general areas:

- Review of design, contract, and procurement documents, as well as test, operating, and maintenance procedures to verify that quality aspects have been considered in the development and delivery phases of the project;
- Surveillance and/or witness of manufacturing, construction, installation, and integrated testing activities for adherence to design, contract, and operation requirements;
- Audits of Quality Programs for adequacy and compliance with performance requirements;
- Process control to ensure that suppliers and contractors identify, plan and execute the production and installation processes that directly affect quality and ensure that these processes are performed under controlled conditions;
- Corrective action to eliminate potential problems that could arise from nonconforming work and prevent recurrences;
- Management review to ensure that the documented quality policy is understood, implemented and maintained throughout the Project organization;
- Training of all personnel performing activities affecting quality, in order to qualify each individual on the basis of the appropriate education, training, and/or experience, as required;
- Document Control of Quality Records.

PURPOSE/OBJECTIVE

The objectives of this Project Quality Manual are to:

- Establish a document, which provides overall critical direction and support for implementation of the Quality Management Systems for each functional element of the Project organization. This Project Quality Manual outlines the elements of the Quality Management System and defines PCP's policy regarding those elements.
- Establish a systematic approach to ensure that contracted products and services are produced and delivered as specified in a timely and cost-effective manner.
- Ensure the attainment of the required level of quality on the "World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections".

World Trade Center Transportation Hub – Project Quality Assurance Plan

It is the intent of PCP to minimize its detailed involvement in project quality activities by using communication means, periodic walkthroughs, audits and other update mechanisms to assure itself that Engineering, its consultants, the Construction Manager/General Contractor (CM/GC), other contractors, and their respective subcontractors, suppliers and vendors are maintaining an effective Quality Management System (QMS). Each consultant, the CM/GC, other contractors their respective suppliers and vendors will be required to develop Quality Control Programs and submit applicable Quality Control Plans for approval by the EQAM and/or CQAM, as applicable, for the respective approvals, prior to the performance of any work on the Project. A copy of such approved programs and associated plans will be forwarded to the Project Quality Assurance Manager for his/her review and files.

SCOPE PAGE

A. General

The Office of Priority Capital Programs (PCP) has prepared the Quality Assurance Plan (QAP) for the World Trade Center Transportation Hub Project. This plan has been written to; (1) enable PCP to assure the achievement of the Client's (PATH) Project objectives by enabling the delivery of a quality product within budget and schedule, (2) meet the expressed requirements of the grantor, (3) maintain and preserve the highest professional standards during the design and construction phases of the project (4) be efficient among the several work elements in maintaining the highest quality of standards, (5) be prevention oriented with respect to management, design and construction deficiencies, (6) comply with regulatory requirements, (7) be attentive and sensitive to stake holder concerns and issues, (8) enable the maintenance of quality throughout the design and construction phases of the Project by utilizing a system of audits inspections and walkthroughs, (9) maintain a fully documented quality management system that will guarantee the established project quality objectives and (10) strive (within this living document) to achieve continual improvement of its performance in pursuit of the Project objectives.

This Project Quality Manual describes the planned and systematic actions necessary to provide confidence that the Engineering Design Quality Plan and Construction Quality Plan will function as detailed in their respective plans. The Engineering Department, its consultants, sub-consultants, the CM/GC, other contractors and their respective subcontractors, suppliers and vendors will conform to the applicable requirements outlined in the FTA Quality Assurance and Quality Control Guidelines FTA-IT-90-5001-02.1 and the ISO 9000: 2000 series' guidelines, principles and requirements.

B. Quality Management

Priority Capital Programs as an agent of the Client (PATH) is committed to providing the highest level of quality to the project and this document is intended to communicate, implement and maintain a quality policy that would result in a high-performance product.

PCP has appointed a Quality Assurance Manager (QAM) who is vested with the authority and responsibility to oversee the quality policy for the project and ensure that the policy is understood, implemented and maintained throughout the project organization and through all the design and construction processes.

C. Responsibility

The PQAM is responsible for the administration of this Quality Assurance Plan and is delegated the authority and organizational freedom to identify and evaluate quality problems and recommend to the Engineering Department any actions deemed necessary in his/her opinion to address and/or control the further processing, delivery, or installation of nonconforming or deficient items or services, including a request to stop the work. The PQAM will ensure that no work will resume until proper disposition of the issue(s) is obtained. The PQAM will ensure that schedule and cost considerations do not compromise quality, and will have complete and ready access to the Director of Priority Capital Programs.

World Trade Center Transportation Hub – Project Quality Assurance Plan

D. Implementation

The Quality Management System described in this Project Quality Manual is to be implemented for the Project in accordance with the Contract Documents and will follow the policies identified in this document and the applicable Implementation Procedures and Construction Work Plans. The PQAM has the responsibility to review all Project bid and proposal documents in order to identify, which sections of this Project Quality Manual are to be implemented. The development and submittal of a written Quality Control Program with associated plans will be a requirement for all RFP and competitive bid respondents (consultants, the CM/GC, other contractors, subcontractors, suppliers and vendors) for this Project.

E. Revisions

Revision and maintenance of this living PCP Quality Assurance Manual is the responsibility of the PQAM. Authorized Document Signatories will authorize any revisions to this manual. Each element of the project organization will respectively revise their Quality Manuals, as deemed necessary, and the copies made available to the PQAM and Document Control for filing.

1. PROJECT QUALITY MANUAL ELEMENTS

This document is prefaced by a “Statement of Quality Policy,” which sets forth PCP’s overall policy, concerning Quality. The following summary of Project Quality Manual Elements (PQMEs) establishes the Quality Assurance criteria for the Project’s Quality Management System. These criteria are predicated upon the 15 elements of the latest Federal Transit Administration’s (FTA’s) Quality Assurance & Quality Control Guidelines and ISO 9000 Series Requirements.

1.1 PQME #1 – Management Responsibility

Authority, accountability, and responsibility are identified in the Quality Assurance Plan, thereby defining the organization, structure, function of each member of the quality organization, and the reporting chain of command within the organization. Exhibit 1-1 shows the World Trade Center Transportation Hub Project Organization Chart including the reporting relationship to the PQAM and his/her relationship to the Director of Priority Capital Programs and the Director, PATH.

1.2 PQME #2 – Documented Quality Management System

The policy of PCP is to have a documented Quality Management System (QMS) that will ensure that the Project’s goals and objectives are fully met and will include the appropriate organizational structure, outlined responsibilities, procedures, guidelines, processes, resources, defined Project requirements, and provide methods for positive management, administration and control. The QMS is expected to contribute to the development and delivery of a high performing, safe, reliable, economical, convenient and quality Project for the benefit of all New York City/New Jersey residents, PATH riders and visitors. The PQAM will be responsible for the administration of the QMS.

Each Contract for the Project will be reviewed to determine the portions of the QMS that are to be implemented. Consultants, the CM/GC, other contractors and their respective subcontractors, vendors and suppliers will be required to develop, implement, and maintain a Quality Control Program that is consistent with the Quality requirements stated in the Contract Documents, and applicable to their scope of work.

All Quality Control Programs and associated plans are to be reviewed and approved by the EQAM or CQAM, and forwarded to the PQAM for his/her review, comments/acceptance and file.

1.3 PQME #3 – Design Control

Engineering Department’s Design will conform to the tenets included in their Quality Assurance Plan, and also conform to agreements made by PCP with regulatory agencies, state and city agencies, community groups, stakeholders and the requirements of the Client (PATH).

The Engineering Department and its Design Consultants will be required to submit their Project Design Quality Assurance Plans to PCP for review and acceptance by the PQAM and Senior Staff.

In the submission of design packages for review to PCP, the Engineering EQAM will issue to the PQAM a certificate of assurance that the component design was done in accordance with performance and quality criteria of the DQAP.

Design changes that impact the scope, cost and schedule will be subject to the same control measures applied to the original design and such changes must receive PCP Program Manager’s approval before implementation.

World Trade Center Transportation Hub – Project Quality Assurance Plan

1.4 PQME #4 – Document Control

The Project will have a safe and easily retrievable repository for all documents generated from and received by the Project at its various levels. Project documents such as drawings, specifications, inspection procedures, test procedures, special work instructions, operational procedures, the Quality Assurance Program and its procedures and forms are to be controlled as defined in PCP's Project Management Plan and Engineering Program Management's Project Controls Manual. The supervisor and staff are to ensure that all relevant documents in Document Control are current and are promptly available to staff when required. Obsolete documents are to be eliminated from the Document Control Centers at each level and station of the document control system for the Project. Document control is to ensure that all superseded document that are held for traceability and record are labeled SUPERSEDED, on each page, with the effective date so that only the current material is used when referenced.

The Engineering Electronic Document Management System (EDMS) referenced in Section 4 of the DQAP will govern the procedures to be followed by EPM during the design process.

1.5 PQME #5 – Purchasing

The policy of PCP is to satisfy the requirements of the FTA Quality Assurance and Quality Control Guidelines and control procured material, equipment, parts, components, consultants, contractors and vendor services, with sufficient specification detail to support their procurement. Engineering Program management will pursue purchasing in accordance with Section 5 of the DQAP, and the procedures included in the referenced Grants Management Procedures Manual.

1.6 PQME #6 – Product Identification And Traceability

Product identification and traceability should conform to the requirements of the DQAP and the CQAP.

1.7 PQME #7 – Process Control

The EQAM will maintain day-to-day oversight over the design development and delivery process and provide the assurance to the PQAM that all planning, design, checking and documentation processes performed by the Engineering and its consultants are in accordance with the PQAP and DQAP. The EQAM will also maintain day-to-day oversight over CM/GC, other contractors and their subcontractors, suppliers and vendors, and provide the assurance to the PQAM that all planning, construction, checking and documentation processes are performed in accordance with the Contract Documents and within the established PQAP, DQAP, CQAP, FTA and PA process control guidelines and criteria.

The CQAM will maintain day-to-day quality oversight over the construction process and provide the assurance to the PQAM that all construction work being performed by contractors and their suppliers and vendors are performed in accordance with the contract documents and within the established CQAP, FTA and PA process control guidelines and criteria.

The respective Program Managers, in their day-to day responsibilities will assure the PQAM that the design and construction processes are being performed under controlled conditions and in compliance with the Contract Documents and that the quality inherent in the design and performance criteria PQAP requirements.

1.8 PQME #8 – Inspection And Testing

Design and construction activities are to be reviewed, checked, inspected and documented by those charged with ensuring the delivery of a quality product. The EQAM and the CQAM will, respectively, ascertain through inspection and testing that the design and construction activities are being carried out by Staff, consultants, the CM/GC, other contractors and their respective subcontractors, suppliers and vendors in accordance with the referenced manuals of the DQAP and CQAP and provide such certification to the PQAM.

Inspections and tests will be performed in accordance with approved implementation procedures to ensure that items in development, production and delivery meet the design, performance, quality assurance and testing requirements of the Contract Documents (Drawings and Specifications). “Hold” points where specified in the Contract Documents or brought to the attention of the RE by the CQAM, EQAM or PQAM from a field observation, will be identified, as appropriate, and incorporated in the implementation procedures. No Work will be permitted to proceed beyond those identified “Hold” points until an inspection is completed to the satisfaction of the Engineer of Record for design conformance and/or accepted or waived by the originating authority for quality conformance.

Controlled routine inspections will be utilized in addition to the final inspection of completed items, or portions thereof. Established Authority procedures will be followed for the final acceptance of the Work following the performance of a final inspection to be conducted by the Authority Resident Engineer, Program Manager, Engineering Project Manger, PQAM, EQAM and CQAM.

Testing is to be performed and documented in accordance with established PA procedures and the RE, with the CQAM in attendance, is to verify that all materials, products, facilities, systems, and subsystems incorporated in the permanent construction conform to the design, performance, quality assurance and testing requirements of the Contract Documents. The results of all inspections and tests will be forwarded to the EQAM and Document Control as objective evidence of acceptability of the product. A copy of the documentation is to be sent to the PQAM for his/her review and records.

1.9 PQME #9 – Inspection, Measuring, And Test Equipment

Engineering procedures outlined in Section 9 of the DQAP will be followed and certification provided to the PQAM, EQAM, and CQAM that the requirements of this section are being met and that the articles within the PA Construction Standards Manual are being followed. The selection of all testing equipment proposed by the CM/GC, other contractors, and subcontractors will be specified in each applicable implementation procedure as reviewed and approved by the Authority Resident Engineer. Specific submissions including certificates of calibration will be submitted for review and approval by the Engineer of Record prior to the performance of any testing. Copies of the aforementioned items will be forwarded to the CQAM, EQAM and Document Control with a certificate of conformance forwarded to the PQAM for his/her information and records.

1.10 PQME #10 – Inspection And Test Status

Pertinent sections of the DQAP and the CQAP will be implemented for the determination of the Inspection and Test Status of components of the Project. A detailed material and equipment list will be established in accordance with the Division 1 requirements of the Contract Specifications and routinely updated to indicate the acceptance status of all materials, equipment, and components. No materials, equipment, or components will be incorporated into the permanent construction or delivered to the site until the Authority Resident Engineer, CQAM and/or the Engineer of Record have determined that the applicable design, performance, quality assurance and testing requirements of the

World Trade Center Transportation Hub – Project Quality Assurance Plan

Contract Documents have been satisfied. The CQAM will forward to the DQAM a confirmation certificate that all quality requirements were met. The EQAM, in turn, will transmit this certification to the PQAM for his /her review, concurrence and records.

An Implementation Procedure will be established and fully documented to indicate quality status as a result of discoveries from required inspection and testing performed on furnished and/or installed equipment, material, components and completed work. Once implemented, work is not to progress further, until the authority that declared a non-acceptable condition has removed the non-acceptable status indication.

Status tagging nomenclature and color-coding shall be established by the Quality Management Team and used uniformly throughout the Project. All Testing and Inspection shall be sufficiently documented in testing and inspection reports, including the outcome of the test or inspection.

A status tagging nomenclature and color-coding system will be established for all materials and equipment manufactured or fabricated and inspected offsite. The delivery and offloading of materials or equipment at the site will not be permitted unless the deliverables bear the markings of offsite acceptance.

1.11 PQME #11 – Nonconformance and Corrective Action

A Nonconformance Reporting Procedure shall be implemented and fully documented as included in the DQAP and CQAP to ensure that items that do not follow the design, performance, quality assurance or testing requirements of the Contract Documents are identified and evaluated to determine appropriate disposition. In addition, these items must be segregated and removed from the construction site immediately, to prevent inadvertent use or installation until the determination of an appropriate disposition. Any conditions considered adverse to the quality objectives of this program shall be promptly identified, documented, investigated (to determine the root cause), and corrected. In addition, steps necessary to prevent a recurrence will be established, implemented, and committed to in writing by the CM/GC, other contractors, the subcontractor, supplier or vendor prior to closure of the specific issue.

As part of the continuous improvement process, a Corrective Action Request Procedure shall be implemented and fully documented to ensure that quality system failures, deficiencies within the existing quality system, inadequate administration of the existing quality system, or series of related or repeating nonconformances are identified and rigorous steps are instituted to preclude recurrence. Per the DQAP and CQAP, the appropriate EQAM or CQAM will administer this action and provide the PQAM with a summary report of the corrective actions taken, and measures taken to prevent recurrences.

Preventive Action is action to eliminate the cause of potential nonconformity or other undesirable situations. Preventive actions include planning, documentation, training, and process control. Preventive Action could also be an outcome of the Corrective Action process.

1.12 PQME #12 – Quality Records

Records, which provide objective evidence of conformance to requirements, shall be identified collected and stored in a readily retrievable manner and preserved to preclude damage, loss, or deterioration. Quality Record must be readily available for viewing by Quality Assurance Management Staff.

Procedures as included in the Electronic Information Management and Document Control Procedure will be applied. These procedures will identify which records should be kept, who is responsible for production and collection of these records, and who is responsible for indexing, filing, storage, maintenance, and disposition of these quality records.

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Quality records will be maintained to show achievement of Project quality objectives and appropriate functioning of the QMS. Quality records generated by the CM/GC, other contractors and their respective subcontractors, suppliers and vendors in accordance with their approved Quality Control Programs will be included when and where pertinent.

Where specified by Contract Documents, quality records should be made available to the purchaser/vendor or purchaser/vendor's representative.

The following quality records will be kept and are to be made available to the PQAM when required:

- Inspection reports
- Test data and test reports
- Qualification records
- Calibration records
- Nonconformances
- Corrective actions
- Preventive actions
- Audit reports
- Requests for information
- Change Orders
- Submissions and approvals
- Construction Plans
- Receiving Documentation
- Personnel Qualifications
- Daily reports
- Meeting Minutes

This list will be amended, as required, as the project progresses and the need arises for additional items to be added to this list of Quality records.

A back-up copy of these records is to be kept off Program site at a safe location that meets the above criteria for safety, and the prevention of loss of information and data. The frequency of these backups will be as dictated in the PMP.

1.13 PQME #13 – Quality Audits

A comprehensive program of planned and periodic audits is to be established and fully documented to verify by examination and evaluation of objective evidence that applicable elements of the Quality Assurance Program are suitable and have been developed, documented, and effectively implemented in accordance with the Contract Documents. Audits will be conducted by the EQAM (in accordance with Section 14 of the DQAP), the PQAM, jointly or individually, as required. Before an audit is conducted, the EQAM, the CQAM and staff will be notified in writing at least fourteen (14) calendar days in advance of the date. Attached to such notification will be the audit plan and the checklist for their information and action. As referenced in Section 14.8 of the DQAP, Audits will be carried out in accordance with the ASQ Guidelines.

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Audit results will be documented and reviewed by management personnel having responsibility in the area being audited. When and where necessary, follow-up audits, including re-audit of deficient areas will be conducted to provide the assurance that the effective corrective action has been taken.

1.14 PQME #14 – Training

Personnel working on the Project are to be trained and/or instructed in PCP's Quality Management System and the Engineering Department's DQMS and CQMS, as they apply to their duties and responsibilities, and such training or instructions shall be documented. All personnel who manage or perform activities affecting quality are to be qualified on the basis of appropriate education, training, and/or experience and are subject to approval by the PQAM.

Training documentation will be maintained for review, together with the verification of training completed, and the qualifications of persons manning the Quality Management Team.

World Trade Center Transportation Hub – Project Quality Assurance Plan

2. MANAGEMENT RESPONSIBILITY

2.1 Purpose

To describe the Management Responsibility for Quality Assurance activities on the World Trade Center Transportation Hub Project.

2.2 Scope

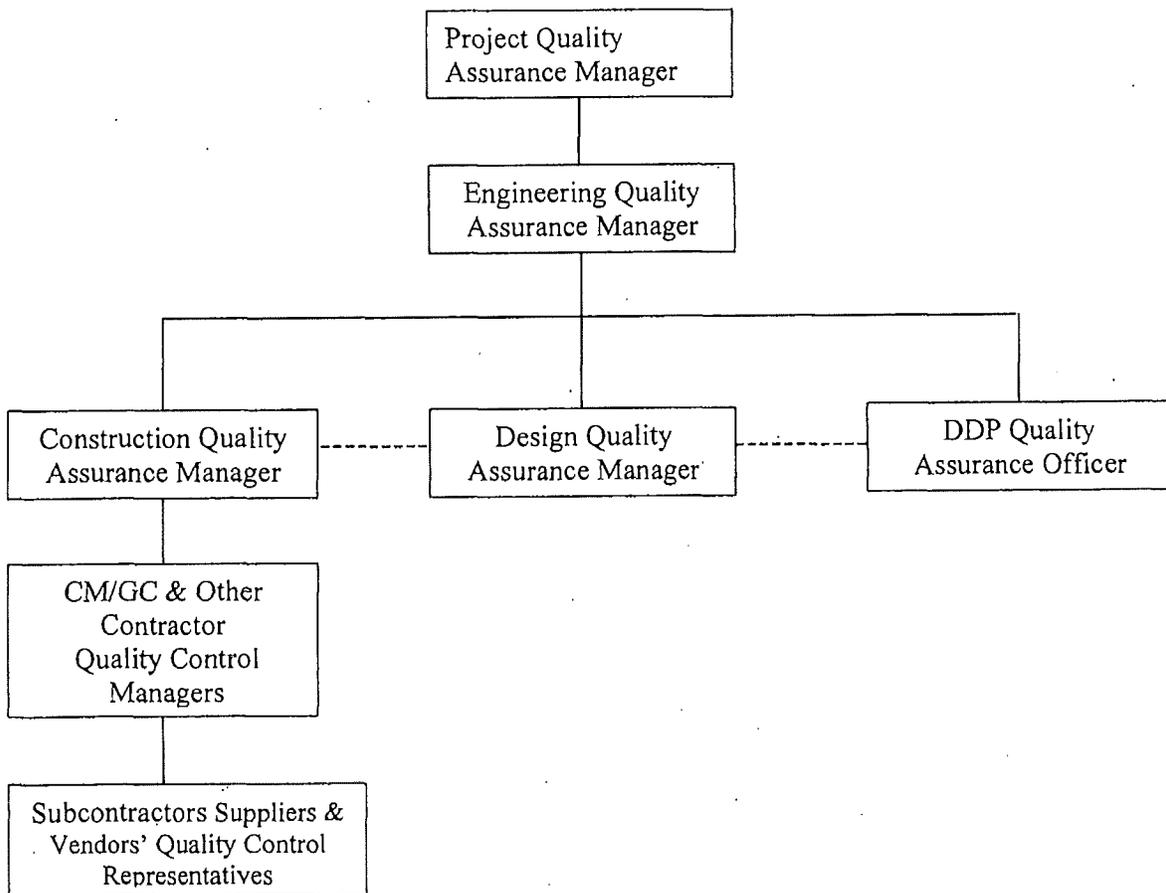
These requirements apply to all organizations and all of their respective levels that are performing work on the Project.

2.3 Policy

Authority, accountability, and responsibility will be identified, defining the organization, the function of each element of the organization and the reporting chain of command within each organization involved in the Project.

The Quality Management System for the project is two-tiered and consists in the first tier of the Quality Management Structure and in the second tier the quality documentation structure that will be implemented and maintained within each element of the first tier.

Tier 1 is simply structured as shown below.



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The second Tier addresses:

- The Quality Policy within each management element,
- Quality Procedures for the implementation of the Quality Management System,
- Work instructions with respect to testing, inspections and follow-up,
- Records to verify that the Quality Management System has been implemented and the recorded success in verifying Compliance and accomplishment of the Project Quality Objectives.

2.4 Requirements

The Project Quality Assurance Organization shall be structured in such a manner where:

- Quality is achieved and maintained by those who have been assigned responsibility for performing the work; and
- Persons or organizations not directly responsible for performing the work evaluate quality effectiveness.

The structure of any organization performing work on the Project is subject to approval by Senior Management of PCP or those given their delegation.

The organizations responsible for Quality have sufficient authority, access to work areas, and organizational freedom to identify quality problems; verify implementation of solutions; and ensure that further processing, delivery, or installation is controlled until proper disposition of a discrepant condition has occurred.

Quality verification functions will report to a level of management, which provides sufficient authority and organizational freedom to ensure that appropriate action is taken to resolve conditions adverse to Quality.

Quality Assurance/Quality Control personnel will not be assigned duties other than those related directly to Quality, as determined by the EQAM, CQAM and ultimately the PQAM

The adequacy and measures of effectiveness of this Quality Program shall be at a minimum, annually assessed to determine the needs of the QMS and what effective measures are required to remedy the observed deficiencies in the Quality Management Plan and the Quality Management System.

The Project Management Team will review this system once yearly, and/or more often if necessary, for continuous improvement opportunities. This criterion for review will be based on the results of internal quality audits, design package review comments, internal client feedback, and changes to the Project scope of work.

2.5 Responsibilities

The mission of the Project Quality Assurance Team is to provide a design for and construction of the WTC transportation Hub that is consistent with the established goals and objectives of PCP and the Client (PATH), meets the design and performance requirements of the Contract Documents, with an emphasis on safety, quality, and customer satisfaction, as well as meeting our commitments to cost and schedule, regulatory requirements, State and local Agency requirements, community board issues and stakeholder concerns.

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The commitment to the Project Quality Policy begins with the project's senior management. One of the principal goals of the senior management team is to ensure that both the Quality Policy and this manual are understood and implemented throughout the project. A synopsis of the senior management organization and their roles follows.

2.5.1 Client (PATH) Liaison Manager

The designated Client Liaison Manager is the representative of the Director, PATH on the project. His responsibilities include, ensuring that PATH's objectives are met with respect to the design criteria, budget, schedule and the quality of the work being developed for delivery to the Department. The PATH Liaison Manager will, throughout the construction portion of the project, ensure that at no time, railroad operations are affected.

The Liaison Manager will attend design meetings to ensure that (1) all desired criteria are included in the developmental process (2) attend all meetings for WTC Site structures that interface with and impact the PATH Station Project, (3) ensure the integrity of the PATH Project is preserved and (4) that quality is in no way compromised in agreements and concessions made for the accommodation of adjacent structures.

During the design phase, the Liaison Manager will ensure that the completed designs and drawings produced satisfy the intended scope of work, all design criteria have been met and the quality of the product meets the Department's expectations.

During the construction phase, the Liaison Manager will ensure that the work being constructed satisfies the agreed-on designs and specifications and that the quality of the finished work meets PATH's expectations. The PATH Liaison Manager will attend all final inspections and tests. The Liaison Manager is responsible for accepting the work on the successful completion of all punch list items.

2.5.2 Program Executive

The Director of Priority Capital Programs ultimately, has the responsibility for the successful delivery of the Project to the Client in accordance with the agreed on plans and specifications and ensuring that the Program Director and his staff carry out his/her wishes, and those of the Client.

The Program Director, WTC Transportation Hub reports to the Director Priority Capital Programs, who in turn reports directly to the Port Authority's Chief Operating Officer. The Program Director has the responsibility for implementing, managing, directing and controlling the project to ensure the successful delivery of the Project to the Client, in accordance with the agreed on plans and specifications. The Program Director will manage the Project through his/her Deputy Program Director and Program management Staff, and ensure their diligence with respect to the budget and schedule and the delivery of a quality product.

2.5.3 Program Manager

The Program Manager manages all related activities for the design and construction of the Project. The Program Manager is also the single point of contact for all official information on the project, including all project planning, programming, project implementation and control activities, as well as serving as liaison with the FTA. The Program Manager, in the execution of his/her duties is responsible for managing the work under his/her purview within budget, schedule and delivering a quality product that meets or exceeds the performance criteria

World Trade Center Transportation Hub – Project Quality Assurance Plan

established by the Client (PATH). The Program Manager is responsible for certifying to the PQAM that the work being managed by him/her meets or exceeds the minimum quality requirements.

The Program Manager will attend all final inspections and tests. The Program Manager is responsible for accepting the work on the successful completion of all punch list items.

2.5.4 Project Quality Assurance Manager

The Director of PCP has delegated the oversight of the Project QMS to the Project Quality Assurance Manager. The PQAM reports directly to the Program Director WTC Transportation Hub and has direct access to the Director, PCP and ultimately to the Director, PATH. The PQAM is responsible for developing the Quality Assurance Plan, implementing and managing the PQMS. The Project Quality Assurance Manager will review all Requests for Proposals prior to their issuance for bids. This is to assure the adequacy of the respective Quality Assurance Plans to be implemented by the consultants and their subconsultants, the CM/GC, other contractors and their respective subcontractors, vendors and suppliers. This will assure that the Quality language on the project is consistent, and assure that adequacy of the control measures to be implemented for the Project.

The responsibilities of the PQAM are categorized into the following general areas:

- Providing Quality consultation and direction to the Engineering Program Manager responsible for the design and construction management of the Project,
- Following the submittal of a project specific Quality Plan, the Project Quality Assurance Manager will perform the necessary reviews for comment and acceptance of the respective programs offered by the responders,
- Ensure that the Engineering Department's Quality Assurance Plans are adequate and will participate in the developmental processes of these plans to ensure that the Agency's CQAP, DQAM and PQAP are seamless,
- Review of design, contract, and procurement documents, as well as test, operating, and maintenance procedures to verify that quality aspects have been considered in the development and delivery phases of the project;
- Through the EQAM and CQAM, provide oversight of consultants and contractors in accordance with this QMS. The Project Quality Assurance Manager, through the EQAM and CQAM coordinates with Consultant and Contractor Quality Assurance Managers to assure that their quality systems are maintained, up-to-date and effective
- Surveillance and/or the witnessing of manufacturing, construction, installation, and integrated testing activities for adherence to design, contract, and operation requirements,
- Monitoring and evaluating the implementation, adequacy and effectiveness of the respective QMS among functional groups
- Audits of Quality Programs for adequacy and compliance with performance requirements,
- Process control to ensure that suppliers and contractors identify, plan and execute the production and installation processes that directly affect quality and ensure that these processes are performed under controlled conditions
- Corrective action to eliminate problems that arise from nonconforming work and prevent recurrences
- Responsible for Preventive action of potential problems
- Management review to ensure that the documented quality policy is understood, implemented and maintained throughout the Project organization

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- Overseeing the staffing of the Project Quality Assurance Organization, with rights to challenge the qualifications and experience of members of functional groups, who are performing QA/QC functions
- Training of all personnel performing activities affecting quality, in order to qualify each individual on the basis of the appropriate education, training, and/or experience, as required
- Document Control of Quality Records

Decisions made by the Project Quality Assurance Manager regarding the applicability, interpretation or modifications to any or all sections of the Project Quality Manual is subject to review and approval by all signatories to the PQAP.

The Project Quality Assurance Manager will attend all final inspections and tests. The PQAM is responsible for accepting the work on the successful completion of all punch list items.

2.5.5 Engineering Quality Assurance Manager

The Engineering Program Manager has delegated the oversight of the EQMS to the Engineering Quality Assurance Manager. The EQAM is responsible for developing the Design Quality Assurance Plan, implementing and managing the DQMS and ensuring that the CQMS developed by CMD fits as a component part of the EQMS. The Engineering Quality Assurance Manager will review all Requests for Proposals prior to their issuance for bids. This is assuring the adequacy of the respective Quality Assurance Plans to be implemented by the consultants and their subconsultants, CM/GC, other contractors and their respective subcontractors, vendors and suppliers. This is to assure that the Quality language on the project is consistent and assure that adequacy of the control measures to be implemented for the Project. The EQAM will assure the PQAM that the respective plans satisfy the Program plans.

The responsibilities of the EQAM are categorized into the following general areas:

- Review of design, contract, and procurement documents, as well as test, operating, and maintenance procedures to verify that quality aspects have been considered in the development and delivery phases of the project
- Surveillance and/or witness of manufacturing, construction, installation, and integrated testing activities for adherence to design, contract, and quality requirements
- Audits of Design and Construction Quality Programs for adequacy and compliance with performance requirements
- Implement process control to ensure that contractors and their suppliers identify, plan and execute the production and installation processes in a quality manner under controlled conditions
- Corrective action to eliminate problems that arise from nonconforming work and prevent recurrences
- Responsible for preventive action of potential problems
- Management review to ensure that the documented quality policy is understood, implemented and maintained throughout the engineering and service providing organization
- Training of all personnel performing activities affecting quality, in order to qualify each individual on the basis of the appropriate education, training, and/or experience, as required

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- Document Control of Quality Records

Decisions made by the Design Quality Assurance Manager regarding the applicability, interpretation or modifications to any or all sections of the Project Quality Manual is subject to review by all signatories to the DQAP.

The Engineering Quality Assurance Manager will attend all final inspections and tests. The EQAM is responsible for accepting the work on the successful completion of all punch list items.

2.5.6 Construction Quality Assurance Manager

The Construction Quality Assurance Manager will report to the Engineering Quality Assurance Manager, and will be responsible for overseeing the project. He/she will ensure that all service providers; to include the CM/GC, other contractors and their respective subcontractors, suppliers and vendors, provide products in accordance with the design, performance, quality assurance and testing requirements of the Contract Documents. All entities providing construction services to the Project will submit Quality Management Programs and Plans for their respective Work to the CQAM. Such programs and plans must outline their respective Quality Management Systems (QMS) approach to managing their Contract specified quality of the deliverables for the Project. Their respective plans will outline the management, administration and control and testing measures considered appropriate to their respective scopes of work. The CQAM will review with the EQAM and PQAM all drawings and specifications included in the Project's Contract Documents for construction prior to issuance. During construction, quality reviews will include all proposed means and methods, procurement, and/or other services to ensure appropriate content and the inclusion of quality control and assurance programs and plans consistent with this document and the CQAP. Copies of all written correspondence to the CM/GC or other contractors regarding these reviews and quality will be forwarded to the EQAM for comment and document control. The EQAM will in turn, forward these documents to the PQAM for his/her review and files.

The responsibilities of the CQAM are categorized into the following general areas:

- Review of all Contract Documents to verify that quality aspects have been considered in the development and delivery phases of the project;
- Conduct routine and controlled inspections of all construction, installations, and integrated testing activities for adherence to the design, performance, quality assurance and testing requirements of the Contract Documents;
- Review and approve all Quality Control Programs and associated plans submitted by the CM/GC, other contractors and their respective subcontractors, suppliers and vendors prior to the commencement of Work to ensure compliance with the CQAP, and the design, performance, quality assurance and testing requirements of the Contract Documents;
- Develop and/or review and approve all implementation procedures and associated process controls to ensure that the CM/GC, other contractors and their respective subcontractors, suppliers and vendors plan and execute all production and installation processes under appropriately controlled conditions to ensure the highest achievable level of quality;

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- Stop the Work or alter the progress of Work to eliminate, correct or avoid nonconforming construction and prevent recurrences,
- Responsible for preventive action of potential problems,
- Review and explain the CQAP to the CM/GC, other contractors and their respective subcontractors, suppliers and vendors to ensure a clear understanding of the Authority's goals and objectives regarding quality control and assurance on the Project. Also, their responsibilities to implement and maintain their quality control programs and plans as approved by the CQAM, EQAM and PQAM throughout the construction process;
- Ensure that all staff and personnel performing activities affecting quality are appropriately trained and qualified based on appropriate education, training, and/or experience, as required;
- Document Control of Quality Records.

Decisions made by the Construction Quality Assurance Manager regarding the applicability, interpretation or modifications to any or all sections of the Project Quality Manual is subject to review by all signatories to the CQAP.

The Construction Quality Assurance Manager will attend all final inspections and tests. The CQAM is responsible for accepting the work on the successful completion of all punch list items.

2.5.7 Consultants, Contractors, Subcontractors, Suppliers & Vendors' QA Plans

Consultants, Contractors, Subcontractors, Suppliers and Vendors' Quality Assurance Programs and Plans will be drafted to conform to the tenets embodied in the PQAP, EQAP and CQAP. Their plans will be reviewed and approved by the respective DQAM and CQAM and forwarded to the PQAM for review and comment.

2.6 Attachments

Exhibit 1.1 shows the World Trade Center Planning and Development Organization

Exhibit 1.2 shows the World Trade Center PATH Terminal Project Organization

Exhibit 1.3 shows the World Trade Center Site Public Infrastructure and Bus Parking Facility Project Organization.

Exhibit 1.2:

WTC PATH Terminal Project Organization

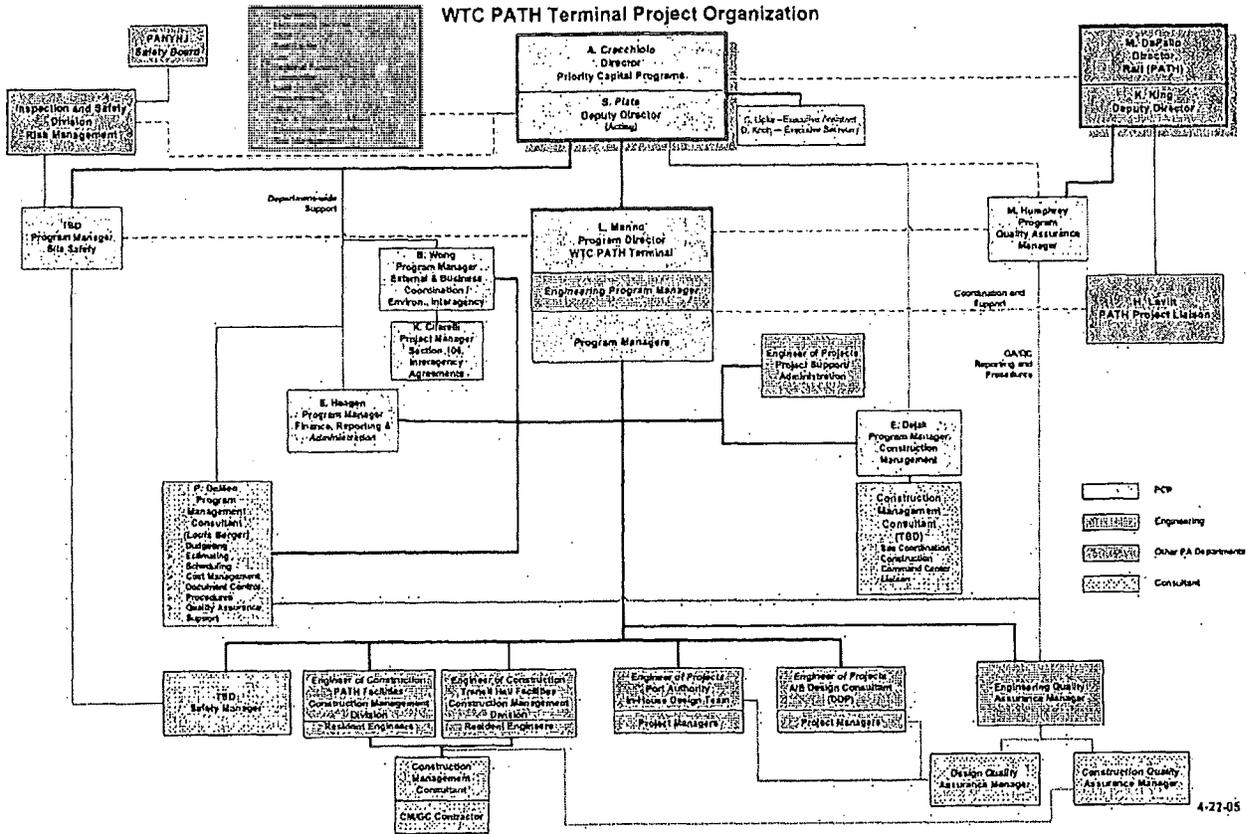
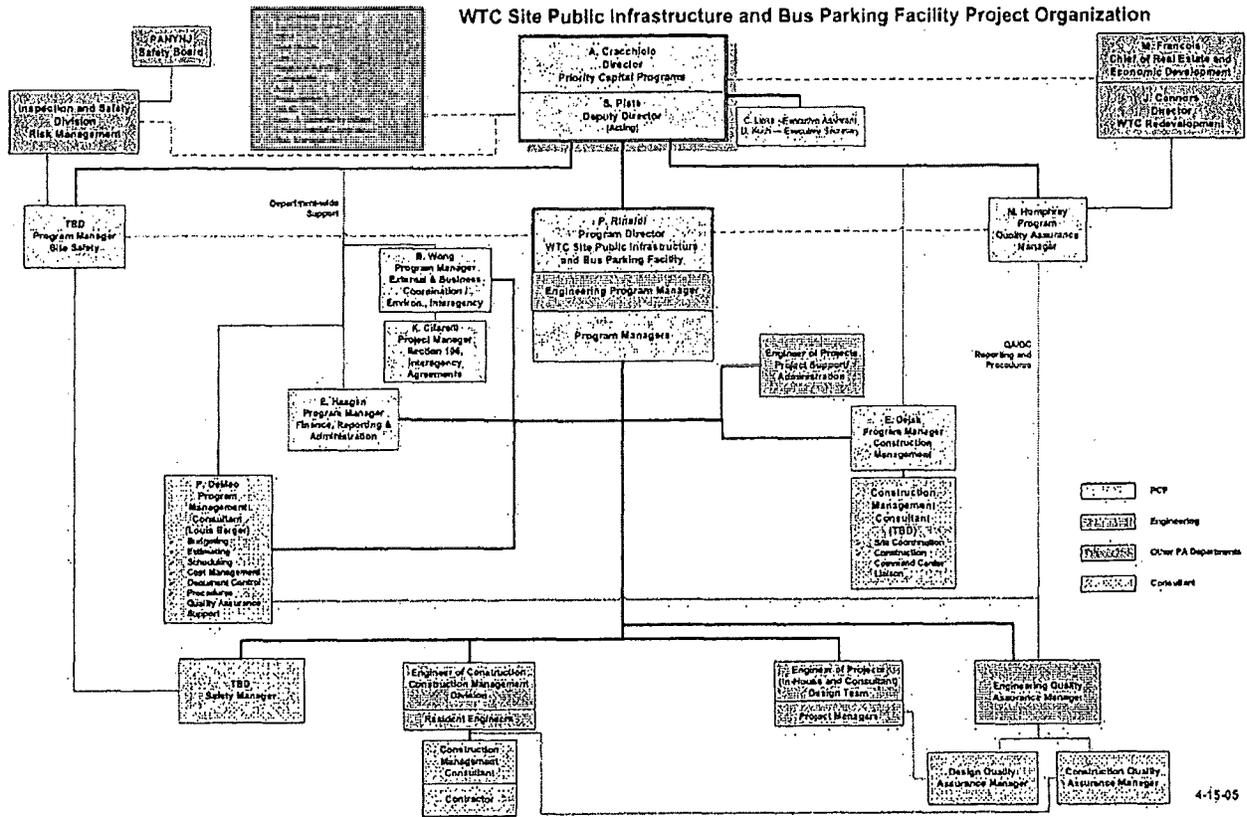


Exhibit 1.3:

WTC Site Public Infrastructure and Bus Parking Facility Project Organization



2. DOCUMENTED QUALITY SYSTEM

2.1 Purpose

To describe and assign responsibility for developing, approving and implementing a documented Quality Management System (QMS) for the World Trade Center Transportation Hub Project. The system will ensure that the Project's goals and objectives are fully met and assign responsibility for verifying the effectiveness of the program and for controlling quality. Each element of Tier 1 of the QMS, depicted in Section 1.3, is bounded under this section to maintain a documented QMS.

2.2 Scope

The documented QMS described herein applies to all project participants in Tier 1 depicted in Section 1.3 through the design and construction phases, as applicable.

2.3 Policy

The policy of PCP is to have a documented Quality Management System (QMS) that will ensure and certify by its contents that the Project's goals and objectives are fully met. PCP also intends that the documented QMS will include the appropriate organizational structures, outlined responsibilities, procedures, guidelines, processes, resources, defined Project requirements, and provide methods for positive management, administration and control.

PCP intends to implement a documented QMS that defines requirements that will contribute to the attainment of a quality, reliable, economically and convenient WTC Transportation Hub that meet the Client's performance requirements.

2.4 Responsibilities and Authority

The PQAM is responsible for developing the documented PCP Quality Assurance Plan. He/she is also responsible for managing and overseeing the QA/QC process for the Project by reviews, walkthroughs, inspections and audits of the quality records maintained by the EQAM and CQAM, and insisting on the proper documentation to ensure the delivery of a quality project. The PQAM is responsible for interfacing, on a regular basis, with the EQAM to ensure that the documented QMSs embodied in the QAPs among the Tier 1 participants (see Section 1.3) are active and functional. The PQAM will take briefings from the CQAM when required and take defaulting matters up with the EQAM, when identified, for action by the CQAM.

The EQAM is responsible for managing and overseeing the QMSs for the design and construction processes to ensure the delivery of a quality product. The EQAM is responsible for interfacing, on a regular basis, with the CQAM. The EQAM by reviews and audits ensures that the CQAM maintains the intent embodied in the CQAP and that the construction QMS is active and maintains its intended documented structure to ensure the delivery of a quality product. The EQAM is also responsible for keeping the PQAM up-to-date on the functioning of the system. He/she will appraise the PQAM of Conformances, as well as Nonconformances, and the subsequent actions taken to correct such Nonconformances and prevent Recurrence.

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The CQAM is responsible for managing and overseeing the construction QMS process and ensuring that the CM/GC, and all other contractors, subcontractors, suppliers and vendors deliver quality work in the construction phase of the Project. The CQAM is responsible for interfacing, on a routine basis, with their designated Quality Control Managers (QCMs) to discuss all quality issues. The CQAM ensures that the QCMs maintain the intent embodied in their individual Quality Control Programs and Plans as approved by the Authority Resident Engineer, and being implemented, maintained and properly documented to ensure the delivery of a quality product. The CQAM is also responsible for keeping the EQAM apprised on the status and success of the quality management system. He/she will appraise the EQAM of Conformances as well as Nonconformances and the subsequent actions taken to correct all such Nonconformances including any preventive measures taken to eliminate or avoid a Recurrence. The CQAM will also be responsible for briefing the PQAM on the state of the Construction QMS, when required/requested.

Consultants, the CM/GC, other contractors, and their respective subcontractors, suppliers and vendors are responsible for developing, implementing and maintaining a documented QMS that meet the requirements of the QMS embodied in the PQAM, EQAM and CQAM, as well as the design, performance, quality assurance and testing requirements contained in the Contract Documents.

It is the CM/GC's and other contractor's responsibility to review, approve and provide written certification that the Quality Control Programs and Plans of their respective subcontractors, suppliers and vendors, are complete and appropriate for the portion of Work each is contracted for to ensure the delivery of a quality product.

As with the CM/GC and other contractors, it is the responsibility of each subcontractor, supplier and vendor to review, approve and provide written certification that the Quality Control Programs and Plans of their next tier subcontractors, suppliers and vendors are complete and appropriate for the portion of Work or materials each is providing, to ensure the delivery of a quality product.

In the event the CM/GC or another primary contractor subcontracts all or any portion of the contracted work, the accountability for the implementation and maintenance of the approved Quality Control Programs and Plans remains with the primary contractor.

2.5 Procedure

Each level of the project organization will prepare a Quality Plan and establish a QMS to ensure the quality delivery of their respective products, namely; suppliers, vendors, subcontractors, CM/GC, CMD, EPM, and PCP.

The PQAM will oversee the Project's QMS throughout its Tier 1 levels and ensure that the respective QAPs are consistent with the intent of the PQAP, for the successful delivery of a quality Project. Through the EQAM, the PQAM will interface with the functional elements in Tier 1, (shown in Section 1.3), conduct walkthroughs, inspections and audits to ensure that the documented system is in place and effectively enabling the provision of a quality product. The PQAM will prepare the necessary reports citing Conformances and any Nonconformances, and file these reports in document control with copies to the EQAM.

The EQAM will ensure that the QMS of the design elements are in accordance with the DQAP by conducting regular inspections, walkthroughs and audits to ensure the delivery of a quality product. The EQAM will prepare the necessary reports citing Conformances and

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Nonconformances, and file these reports in document control with copies to the PQAM for his/her review and files.

The CQAM is required to review and approve, if acceptable, the quality plans and certificates provided by the CM/GC, other contractors and their respective subcontractors, suppliers and vendors. The CQAM will ensure that the programs and plans are being implemented and maintained in accordance with the CQAP. He/she will conduct daily inspections, walkthroughs and audits to ensure that the quality of the construction is in conformance with the requirements of the contract documents. The CQAM will prepare the necessary reports citing Conformances and Nonconformances and file these reports in document control with a copy to the EQAM.

The RE will provide copies of all submittals from the contractor the CQAM. In addition, the RE will provide the CQAM with copies of Plans and contractors certificates with his certificate of assurance of the quality of the plans. The CQAM will conduct reviews, walkthroughs and inspections (as necessary) before signoff of the work and file the relevant report in Document Control. The CQAM must also prepare a Quality Assurance Plan and a documented Quality Management System for the EQAM and PQAM's review and approval.

The CQAM will review the several packages, request any additional information, if necessary, and issue a certificate of assurance for the several plans to the EQAM. The CQAM must document these submissions in his/her files for further reference.

The requirement for developing and implementing an effective Quality Control Program is to be incorporated into all Requests for Proposals or bid solicitations. Proposers and/or Bidders are required to acknowledge their understanding of and ability to adhere to this requirement as a pre-requisite to acceptance of their bids.

The EQAM will review the several packages, request any additional information, if necessary, and issue a certificate of assurance for the several plans to the PQAM. This is the final review and approval of the quality plans in the process, and the PQAMs approval will indicate Project approval of the QAPs' from the descending levels of the Project organization. The PQAM will then forward to the Director, PCP a certificate indicating the assurance that the plans to be implemented for the Project could deliver a quality product, which would meet the performance criteria, defined for the project. On approval, the Directors of PCP and PATH will sign on the concurrence lines of the certificate indicating PCP and PATH's approval of the respective plans.

The CM/GC and other contractors are required to prepare Quality Control Programs and Plans to establish a documented Quality Management System for submission, review and approval by the Authority Resident Engineer. The CM/GC and other contractors will also provide to the Authority Resident Engineer the approved Quality Control Programs and applicable Plans from their respective subcontractors, suppliers and vendors for review and approval. The contractor will provide to the RE, his/her respective supplier/vendor's Quality Assurance Plan and documented Quality Management System for approval for review and approval by the CQAM, with such approval being transmitted to the EQAM and PQAM

Each subcontractor, supplier and vendor is required to prepare a Quality Control Program with applicable Plans, and establish a documented Quality Management System for submission, review and approval by the CM/GC or other contractor. Such second tier programs and plans shall be certified in writing by the CM/GC or other contractor, and be incorporated in the CM/GC or other contractor's Quality Control Program. All Quality Control Programs and

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Plans and the requirements thereof will be specifically outlined and discussed with the CM/GC and other contractors at each pre-bid conferences, pre-construction meetings and progress meetings conducted by either the EPM or Authority Resident Engineer. The Project Quality Assurance Manager will always be invited to attend and participate in these meetings.

Quality Programs for all phases of the Project shall consist of three elements, as follows:

1. The basic policies and general requirements specified in the Quality Policy Statements and this Project Quality Manual (PQM).
2. A project Quality Control Program prepared by the consultant or contractor specific to each contract, as required by the Contract Documents.
3. Written Implementation Procedures (IPs) prepared by the consultant or contractor that describe specific quality control related activities, and how and when each is to be performed, verified, and documented.

The authority to stop work, control further processing, or prevent shipment of items that do not meet the design, performance, quality assurance or testing requirements of the Contract Documents is vested solely in the Authority Resident Engineer as the duly authorized representative of the Chief Engineer at the construction site. Such orders, if necessary, will be issued in writing to the CM/GC or other contractor.

The PQAM is vested with the Authority to issue a Stop Work request to the RE to control further processing, or prevent shipment of items that do not meet quality requirements. (This does not preclude the request for Stop Work by the Program Manager, through the Engineering Project Manager, for work within their area of responsibility, in accordance with breaches of the contract documents). Stop Work can be implemented in accordance with the following documented procedures:

- Stop Work authority will be exercised when there is evidence that an existing condition is adverse to the quality objectives outlined in the CQAP, and that the continuance of the activity would result in an incorrigible or unsafe condition
- Stop Work Order will be issued in writing, stating the full particulars of the condition, and satisfactory corrective action must be taken before work will be permitted to resume.
- On request from the inspecting QAM, the Authority Resident Engineer will issue written Stop Work Orders to the CM/GC or other prime contractor responsible for the condition of nonconformance, copied to the Engineer of Construction, the EQAM and Engineering Program Manager, CQAM, EQAM, PQAM, and others, as appropriate.
- A Stop Work Order issued by the Authority Resident Engineer, due to a request from a QAM, can only be lifted by the Authority Resident Engineer if the initiating QAM is satisfied with the quality of the work.

All approved Project Quality Programs must be submitted to the PQAM for his/her review and files.

3. DESIGN CONTROL

3.1 Purpose

To define the requirements for the control, verification, and documentation of the quality of design activities associated with the Project. Further, to describe the design control measures to be implemented to assure that all design criteria and directives are properly conveyed between external design disciplines and internal PA design groups. This will include design input, design output, design reviews, sign off and change procedures

3.2 Scope

The design control requirements are included in the Design Quality Assurance Plan produced by Engineering Department outlined below, and which apply to the design of facilities, systems and equipment for the Project.

This procedure applies to all PA design disciplines and / or design groups where design work is being performed. This procedure is applicable to all design criteria and directives of a magnitude that documentation is necessary for clear project communications and verification.

This procedure addresses the conveyance of design directives and revisions that occur following compilation of data on existing conditions and the adoption of a preliminary plan establishing the “Basis of Design”. The Basis of Design Report (BDR) shall contain design input addressing contract requirements, applicable codes and standards, as well as defined performance standards / requirements. This procedure shall be used as the project standard reference when issuing design directives.

Design directives may contain drawings, instructions, data submittals, special provisions, detail specifications, cost estimates, schedules, materials selections and relevant design elements as identified by the PA design engineers. Design directives and instructions shall not be issued verbally. In situations where design directives have been issued verbally, such directives shall be documented by the respective design engineer via formal memorandum and shall be distributed to the design team via the document control process.

3.3 Policy

Each design consultant is required to develop and maintain a Design Quality Management System (DQMS) that describes their design processes and design quality assurance/control processes. The Design Quality Assurance Manual is to be submitted to the Project Quality Assurance Manager for review and acceptance, prior to the start of work. The design consultant’s Design Quality Manual will define a comprehensive Quality Assurance Program that will be implemented by the design consultant and their subconsultants. Implementation of all aspects of the each design consultant’s DQMS will be subject to Audit/Surveillance by the EQAM, PQAM and the FTA Representative, either jointly or severally.

Design activities will be controlled in accordance with applicable requirements of the Contract Documents; as described in the DQMS. Quality standards and appropriate quality criteria will be specified in the design documents including, but not limited to:

- Design Basis

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- Scope of work/services
- Technical requirements/specifications
- Drawings
- Codes and Standards
- Design and Performance Criteria

Quality standards will be established that are consistent with the criticality of the facility, system and subsystems.

Design documents, specifications, test/analysis reports, or other documents used to specify the design, will be identified, using an approved Project Numbering System. This system will be prepared in accordance with the applicable standards and practices established for the Project's Document Control System. Design documents will be subjected to a review/check process and coordinated with interfacing design disciplines, groups or entities, as described in the Engineering and the design consultants DQMS'. The respective Project Managers for the work to be conducted for the development of the 16-acre World Trade Center Site will appraise Engineering Department of interface requirements that need to be considered in the development of the design.

Change to design documents shall receive the same review and approval process as the original document.

Design documents are to be controlled in accordance with the design consultant's Configuration Management and Document Control IPs to assure the use of approved and current documents. Design documents are to be maintained and distributed in accordance with the Engineering Department, design consultant, and contractor's IPs.

Design documents shall provide for identification of items important to quality and safety by providing traceability of the item through part numbers, log numbers, serial numbers, or other means in accordance with applicable codes and standards.

Design documents shall provide identification of design criteria.

Design reviews shall be performed to determine that the design bases have been accurately expressed and to verify the constructability of the design.

- Design reviews are to determine if appropriate quality standards have been specified for the intended use, and those components, materials, equipment and processes specified are appropriate to their intended application.
- Design reviews shall include appropriate means of verifying design such as modeling, independent design analysis, qualification testing, evaluation of sustainable design, Section 106 and environmental data and the appropriate simulation to confirm compliance with stakeholder requirements.
- Design reviews, checking, calculations, alternate calculations, performance tests, peer reviews, or other means used to verify the design prior to issue will be performed by personnel other than those who originated the design but with qualifications at least equal to those of the originator. Review personnel may be supervisors who were not actually involved in the design.

Design changes (revisions) that impact budget, schedule, Client's requirements or specifications will be subject to checking, coordination, and design review to the same level as

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the original design. Design change documents must be approved by the Program Manager and processed in accordance with the Project's change management procedures. Superseded design documents will be so marked, dated and retained for information only. Design changes shall be controlled using an alphanumeric system or other approved method as determined by the PCP Document Control Supervisor and current Engineering procedures.

- Design changes shall be issued according to a standard distribution list; changes, including field changes, shall be promptly incorporated into design documents.
- A Design Change Notice procedure shall be a part of the Engineering Department's Design Quality Manual. To expedite design changes, parties affected by changes shall be promptly notified. Design changes should be incorporated into a drawing revision in accordance with Engineering Department Procedures.

3.4 Design Reviews

The PCP Program Manager and the PATH Representative will attend design meetings to assure themselves that the design is progressing in accordance with the objectives of the Program.

PCP and PATH will receive completed document packages. They will conduct reviews of these packages and forward comments to the Engineering Program Manager for incorporation.

Construction cost estimates that accompany milestone design submissions must be subjected to the same review, checking and verification procedures outlined in the DQAP for A/E designs and drawings. Construction cost estimates from the estimator are subject to a review by the EQAM, before they are forwarded to PCP, through the PQAM. Any modification made to the estimate, due to Program Management review, must be sent to the PQAM with a statement on the nature of the change. He/she will review the package, initial the change and statement of change, and forward the package to the EQAM. The EQAM will review the package, initial the change and statement of change and return the estimate, through the Engineering Program Manager to the estimating team for reconciliation and concurrence. This action must be completed before the estimate is returned to PCP, with EPM approval, via the EQAM and PQAM for PCP transmittal to the FTA.

Construction schedules that accompany milestone design submissions must be subjected to the same review, checking and verification procedures outlined in the DQAP for A/E designs, drawings and estimates. Construction Schedules are to be reviewed by the EQAM prior to their submission to PCP, through the PQAM, who will in process, review all schedules before forwarding to Program Management Staff. Any modification made to the schedule, due to Program Management review, must be sent to the PQAM with a statement on the nature of the change. The PQAM will review and initial the schedule and statement of change, and then return the amended schedule and statement of change to the Engineering Quality Assurance Manager. The EQAM will review the schedule change package, initial the change and transmit the amended schedule and statement of change to the Engineering Scheduler, through the appropriate Engineering Program Manager, for reconciliation/adjustment. This procedure must be executed before the schedule is returned through the Engineering Program Manager, EQAM and to the PQAM for PCP transmittal of the schedule to the FTA.

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4. DOCUMENT CONTROL

4.1 Purpose

To define requirements for the systematic control of documents for the Project.

4.2 Scope

These requirements for document control apply to preparation, review, approval, release, reproduction, distribution, revision, maintenance, retention and disposition of all quality documents from the Port Authority and its consultants, CM/GC, other prime contractors, subcontractors, suppliers, vendors, stakeholders and concerned parties'. The requirements of this section apply equally whether all or some of the above processes are performed in hard copy or electronic media.

Refer to Section 3, **Design Control** above, for additional requirements specific to design documents.

4.3 Policy

IP's will be developed and implemented by PCP and the Engineering Department, including its consultants, CM/GC, and contractors, consistent with their scopes of work and subject to approval by Engineering, PCP and PATH.

Project documents such as correspondence, specifications, instructions, submittals, procedures, forms, and drawings will be controlled in accordance with established Configuration Management/Document IPs.

4.4 Procedures

The PCP Program Manager, Engineering Project Manager, and the Authority Resident Engineer are responsible for establishing and maintaining the system for the control of the Project documents, and for the conveyance of the document control requirements included in the Contract Documents.

At the completion of the project, copies of document control files in the required WBS format will be turned over to PQAM, by all consultants and contractors.

Project consultant and contractor document control and configuration IPs, including subsequent revisions, shall be reviewed and approved by the EQAM and subsequently the PQAM prior to implementation.

On the Project, each consultant, and each contractor responsible for control of project documents, shall at a minimum:

- Establish configuration and document control IPs.
- Establish a filing system, which assures that documents are safely secured, maintained, and readily retrievable.
- Prepare appropriate indices for documents received and sent for systematic filing.
- Establish necessary logs, registers, transmittals, and acknowledgements to determine and record status of documents in accordance with the Contract Documents and IPs.

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- Implement controls for reproduction of "Controlled Documents" to minimize potential use of obsolete documents.
- Maintain a log or matrix to document and record historical procedures in a chronological order. Approved original procedures shall be retained for reference.

The Authority Resident Engineer will control all construction documents in accordance with the established CMD filing procedure. However, for QA/QC verification purposes, the EQAM, CQAM and PQAM will receive copies of such documents or must have access to these documents.

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5. PURCHASING

5.1 Purpose

To define the requirements for Quality Assurance/Quality Control measures that satisfies FTA guidelines and policies for purchasing. These are to be incorporated into the Contract Documents for all consultants and contractors performing services or work for the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project.

5.2 Scope

The requirements of this section apply to all procurement for the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project.

5.3 Policy

The policy of PCP is to ensure that all materials, equipment or services procured for the Project are specified with sufficient detail to meet design, performance, quality assurance and testing requirements of the Contract Documents. PCP will enforce the FTA's requirements with respect to an open and fair competitive procurement process. Only those professional services or materials, which meet the specification requirements of the Contract Documents, will be purchased. The CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors will be required, when necessary, to submit written procedures to the Authority Resident Engineer for review and approval to ensure that each procurement of materials, equipment and services satisfies the CQAP, EQAP, PQAP, Contract Documents and FTA requirements, prior to the release of the associated purchase documents or agreements to subcontractors, suppliers and vendors.

The CM/GC and all other prime contractors along with their respective subcontractors, suppliers and vendors will be required to develop and implement, within their documented Quality Control Programs and Plans, provisions to verify and document the quality of procured services or items. Their programs and plans will also define the means by which quality requirements are transferred to subcontractors, suppliers and vendors. Contractors/Suppliers will submit procedures for such control to the CQAM for approval. Copies of the approved document must be sent to the EQAM and PQAM for their review and files.

5.4 Procedures

5.4.1 Procurement Documents

All applicable design, performance, quality assurance and testing requirements of the Contract Documents and applicable provisions from the Quality Control Programs and Plans approved by the Authority Resident Engineer and Quality Assurance Management Staff will be included and specifically referenced in documents used for procurement of all materials, equipment and services. The specific requirements will address the following:

- The requirements of the approved Quality Control Program and associated plan applicable to the consultants, sub-contractors, suppliers and/or vendors are to be specified;

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- The procurement documents for the materials, equipment and/or services will include a statement of the Scope of Work to be performed by the subcontractor, supplier or vendor contractors;
- The procurement documents for the materials, equipment and/or services to be provided must be reviewed and approved by the Authority Resident Engineer to verify completeness and ensure that the information references is adequate to ensure that the requirements of the approved Quality Control Program and associated plans are appropriately addressed;
- Any revisions, amendments or changes of any kind to the approved procurement documents to the same review and approval requirements as the original.

Engineering Department, during the design and construction phases of the project will ensure that proper procedures are followed with respect to procurement and purchasing of services and material. These include: Procurement Document Control, Supplier/Sub-Supplier Selection/Qualification, Supplier Quality Survey, Pre-Award Quality Surveys, Supplier Quality Approval, Source/Vendor Surveillance, Source/Vendor Inspection, Release for Shipment, and Receiving Inspection.

5.4.2 Source Selection

The CM/GC, as well as, all other prime contractors, subcontractors, suppliers and vendors will be evaluated prior to bid award to determine their capability to meet the design, performance, quality assurance and testing requirements of the Contract documents, the CQAP and any applicable and approved Quality Control Programs or Plans.

5.4.3 Quality Assurance Audits And Source Surveillance/Inspection

Audits, source surveillance, or inspection will be performed either jointly or severally by the CQAM, EQAM, PQAM and the FTA representative as required and will be fully documented on the appropriate forms.

Initial surveillance/inspection will include a review of fabrication drawings, codes, specifications and purchase order requirements. Material certifications, fabrication, welding and test procedures and personnel qualifications will be reviewed and verified as required. Documented evidence of all surveillances or inspections are to be maintained.

6. PRODUCT IDENTIFICATION AND TRACEABILITY

6.1 Purpose

In design, assure design delivery documents are project identifiable and the sources (for example: design input, calculations, check prints, etc) of these documents are traceable.

In construction, define identification requirements for control of materials, equipment, parts and components to assure their traceability.

6.2 Scope

In design, this process will apply to all design deliverables.

In construction, this process will apply to the procurement of materials and products.

6.3 Policy

In design development, the procedures for identification and traceability will be followed in conformance with the DQAP.

In construction, materials and equipment, including partially fabricated or assembled components, will be identified and traceable subject to the procedures included in the CQAP.

Controls will be established by the Authority Resident Engineer to assure conformance with requirements established in the approved procurement documents.

Measures should be established and maintained for identifying and controlling items of production (batch, materials, parts, and components) to prevent the use of incorrect or defective items and to ensure that only correct and acceptable items are used or installed.

Physical identification and control should be used to the extent possible. Where physical identification is impractical, physical separation, procedural control, or other appropriate means may be employed. Items that fail to possess identification, or items for which record traceability has been lost, or items that do not conform to requirements should be segregated to prevent use or installation. An item should be able to be identified by how it is marked or where it is located.

For vendors supplying products, product identification and traceability should take place during all the various production phases from receipt of raw materials, components, or subassemblies through the manufacturing process, to delivery of final products or systems.

Traceability may mean traceable to a particular component of the project, specific warranty, test report, supplier and purchase order.

Raw materials should be traceable back to a particular batch number, shipment number, packing slip, or invoice and should be accompanied by applicable test data sheets and material certifications as required by the CQAP.

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Tracking procedures should allow for items to be traceable back to a particular order number, batch number, date received, test lot, or other pertinent source as required by the CQAP.

Final assemblies should be clearly marked with project numbers, model numbers, serial numbers, bar codes, etc., so that all pertinent information regarding that assembly may be retrieved.

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7. PROCESS CONTROL

7.1 Purpose

To define requirements for the control of design and construction processes, including special processes that directly affect the quality of the Project and to assure that these processes are performed under controlled conditions in compliance with the quality and performance criteria embodied in the Contract Documents.

7.2 Scope

These requirements apply to all consultants, contractors and subcontractors performing work, including special processes for the Project. This procedure is applicable to all special design and construction processes that will impact the project and its interfaces with adjacent projects, to include; sustainable design, Section 106 concerns, environmental requirements, State, City and public concerns.

7.3 Policy

Project development and delivery activities that affect quality are to be performed in accordance with written Implementation Plans (IPs). Design Work Plans (DWP) will be reviewed by the Program Manager through the Engineering Project Manager to confirm compliance with the scope of work. He/she will confirm that Project Quality requirements are included in the IPs and DWPs, and that the scope of work includes consideration for impacted parties, and that the PA's attention to Regulatory, State, City and stake holders are being addressed. Construction Work Plans (CWP), drawings, or other means and methods appropriate to the circumstances will be reviewed by the Authority Resident Engineer.

IPs and CWPs shall be prepared, implemented and formally controlled by the CM/GC or other prime contractor performing the Work. IPs, CWPs and associated documentation, in so far as practical, shall be standardized for the Project. CWPs are to be reviewed and approved by the Authority Resident Engineer, prior to the start of Work. In the case of an IP or CWP prepared by a subcontractor, the CM/GC or other prime contractor is to review and certify in writing that the documents are complete and appropriate prior to submission to the Authority Resident Engineer. IPs and their associated forms will be copied to the CQAM, EQAM and PQAM for their review and records.

7.4 Procedures

Activities affecting quality are to be prescribed by written IPs and/or CWPs that are appropriate to the criticality and complexity of the activity.

The organization performing an activity affecting quality is responsible for the development of appropriate IPs and CWPs for review and approval by the Authority Resident Engineer. Copies of approved IPs and CWPs will be forwarded to the CQAM for concurrence. He/she will then forward copies of the IP's and his or her certification to the EQAM for information and document control. The EQAM will send a copy of the approved/assured IP package to the PQAM for his/her review and records. All IPs and CWPs at a minimum shall include the following

- A sufficient level of detail to describe the procedure necessary to facilitate performance and ensure the effective control of all activities affecting quality;

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- Reference the performance and/or acceptance standards to be used to determine whether or not prescribed activities have been satisfactorily accomplished in accordance with the design, performance, quality assurance and testing requirements of the Contract Documents.

Special processes will be controlled and accomplished by qualified and/or certified personnel using approved IPs and CWPs in accordance with the Contract Documents. Such qualifications will be stated on the applicable IPs for field verification of credentials at the time of performance. Records of qualification and certification credentials will be forwarded to the EQAM for his information and Document Control. He/she will then forward these records to the PQAM for his/her review and records.

All qualifications of personnel performing special processes will be verified by the Authority Resident Engineer. All such testing will be witnessed and documented by the Authority Resident Engineer with the CQAM in attendance. Copies of which will be forwarded to the EQAM for his information and Document Control. A copy will be sent from the EQAM office to the PQAM for his/her information and records.

The Quality Control Manager of each consultant or contractor is responsible for the review and certification of completeness of each IP, prior to submission to the Authority Resident Engineer and CQAM for their review and approval. No Work that affects quality shall proceed until the Authority Resident Engineer and CQAM have approved the applicable IP. These approvals should be copied to the EQAM and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

All IPs and CWPs shall be prepared, implemented, and formally controlled by the CM/GC, other prime contractor, subcontractor, supplier or vendor actually performing the activity, and shall, as far as possible, be standardized for the Project.

The Engineering Quality Assurance Manager will maintain day-to-day control over the design development and delivery process with oversight from the respective PCP Program Managers, who will assure the PQAM that the processes (including special processes e.g. the design of security elements, sustainable design, conformance with regulatory requirements etc.) that directly affect the quality of the Project are being performed under controlled conditions in compliance with the Contract Documents.

During the construction phase, the Authority Resident Engineer will control the process. He/she will use progress meetings, task specific meetings, look-ahead schedules, testing and inspection to aid the process. Representatives from PCP and PATH will be invited to attend all such meetings.

The CM/GC and all other prime contractors will have full time and dedicated Quality Control Managers (QCM) assigned to the project. The CM/GC and all other prime contractors will ensure via their procurement processes that each subcontractor has an appropriate quality control representative at the construction site.

8. INSPECTION AND TESTING

8.1 Purpose

To define procedures for planning, implementing and controlling inspection and test activities required to verify conformance to the design, performance and quality requirements of the Contract Documents.

8.2 Scope

This section is applicable to procurement, engineering, construction, testing and start-up activities required to verify conformance to Contract Documents.

These requirements apply to the CM/GC, other prime contractors, subcontractors, suppliers and vendors performing work or providing materials, equipment or other services for the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project.

8.3 Policy

Activities affecting quality are to be inspected, tested and documented by qualified personnel who are independent of those performing the work. Inspections and tests will be performed in accordance with approved IPs to ensure that each item of Work meets or exceeds the design, performance and quality requirements of the Contract Documents.

IPs shall be established to include procedures for the inspection and testing of all operations including, but not limited to, the following: receiving, in-process manufacturing, installation, final acceptance and systems start-up and integration.

IPs shall include appropriate checklists and/or forms utilized for inspection and/or testing along with the required acceptance and rejection criteria and specific acceptance values, etc., as practical.

Inspection and test activities by the Authority Resident Engineer will attempt to ensure that the design, performance and quality requirements of the Contract Documents have been satisfied. Testing shall include, as applicable: Qualification testing, Offsite Factory testing, Installation Verification testing, Offsite and Onsite Material testing, Demonstration testing, System Start-Up and Integration tests and Final Acceptance testing. For Quality Assurance purposes the CQAM will accompany the Authority Resident Engineer on these inspections and tests and his/her certificate of satisfaction sent to the EQAM for his information and records. The EQAM and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

8.4 Procedure

Inspections and tests will be planned, performed and documented by qualified persons other than those responsible for accomplishing the work being inspected. IPs shall be developed and implemented covering performance of inspection and test activities including personnel qualification, measuring equipment control, and calibration and status control.

Inspection and Test Plans (ITPs) and the associated IPs must be reviewed and approved by the Engineer Of Record, the Authority Resident Engineer and the CQAM. In addition, all such ITPs must be reviewed for completeness by the Quality Control Manager of the CM/GC, other

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prime contractors, subcontractors, suppliers and vendors prior to submission to the Engineer Of record, the Authority Resident Engineer and the CQAM, and prior to the commencement of any work or delivery of any materials or equipment. With the CQAM's approval, he/she will transmit a copy of his/her final approval with copies to the EQAM, and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

In-process inspections of equipment, facilities, or systems will be performed as deemed necessary to verify conformance to Contract Documents. "Hold Points" either defined in the Contract Documents or recommended by a QAM, CM/GC, other prime contractor, subcontractor, supplier or vendor and approved by both the Engineer Of Record and the Authority Resident Engineer will be specifically identified in both the IP and ITP. No work, manufacturing or production shall proceed beyond a designated "Hold Point" until required inspection and testing is completed to the satisfaction of the Authority Resident Engineer or waived by the Engineer Of Record or approved/waived by the Party that established the Hold Point.

Final acceptance of any Work shall include the review of all pertinent records and documents impacting quality, and will be performed only after all required inspections and testing have been completed with acceptable results.

All records and documentation of inspections and testing will be forwarded by the CQAM to the EQAM and he/she in turn will forward these to the PQAM for information and filing in Document Control.

8.5 Final Inspection, Test and Acceptance

The Authority Resident Engineer will arrange and conduct all final inspections and quality assurance inspections and testing. The PQAM, EQAM, Engineering Project Manager and representation from PATH and PCP will be invited to participate. At the completion of all such inspections and testing, a punch list will be generated by the Authority Resident Engineer. A written copy of which will be forwarded to the Inspection Party, CM/GC or other prime contractor for immediate action. On notification that these punch list items have been addressed to the satisfaction of the Authority Resident Engineer and that QA issues raised by QAM staff have been addressed, a reinspection may be conducted for final acceptance. This process will be repeated until the Work is acceptable. The Authority Resident Engineer is responsible for the administration of this process.

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9. INSPECTION, MEASURING, AND TESTING EQUIPMENT

9.1 Purpose

To define the requirements for the control of measuring and test equipment

9.2 Scope

These requirements apply to all equipment used to perform quality control or assurance inspection and/or testing for the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project.

9.3 Policy

Measuring and test equipment used on the World Trade Center Transportation Hub, Permanent PATH Terminal and Pedestrian Connections Project shall be controlled and consistent with National Institute of Standards and Technology (NIST) standards. The standards used to perform calibration are to be traceable to the National Institute for Standards and Technology or other recognized source.

9.4 Procedures

- Inspection and measuring equipments will be uniquely identified by permanent marking or tagging on the equipment.
- Intervals of calibration are to be periodically reviewed and adjusted depending on usage, accuracy, required precision, and adjustment and maintenance history.
- Records of calibration dates and results of calibrations, which are directly traceable to the equipment, will be maintained and made available upon request.
- Measuring and test equipment are to be identified, controlled, and at specified periods, calibrated and adjusted to maintain accuracy within required limits, in accordance with written, approved procedures.
- All test equipment must be visibly and legibly marked with due date of next calibration.
- The name, model and serial number of equipment used for inspection and/or testing shall be identified on all applicable inspection/testing documentation.

Inspection and testing will not be performed with any device unless the Authority Resident Engineer can reasonable verify that the device has been properly calibrated in accordance with the manufacturer's recommendations. Inspection and tests performed with devices suspected to be out of calibration will be documented as such, per the requirements of the responsible organization's nonconformance reporting procedure and such item in question shall be re-inspected and/or retested with properly calibrated equipment.

The Authority Resident Engineer and CQAM shall verify the calibration status of all measuring and test equipment, through physical inspection and by review of supporting documentation.

Requirements for the control of measuring and test equipment are to be included in IPs and ITPs submitted by the CM/GC, all other prime contractors, subcontractors, suppliers and vendors, and approved by the Authority Resident Engineer and CQAM. A copy of this

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approval will be sent to the EQAM and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

The Authority Resident Engineer will forward records and documentation of verification to the EQAM and he/she will transmit it to the PQAM for information and filing in Document Control.

Simple measuring devices will be treated as addressed in Section 9 of the DQAP.

Equipment calibration shall be documented in a report. The report shall indicate the status of the equipment as received and after calibration, and indicate traceability to NIST.

10. INSPECTION AND TEST STATUS

10.1 Purpose

The identification of inspection and test status shall be clearly tracked and documented to ensure that only items passing inspection and testing, when applicable, are released for use in the World Trade Center Transportation Hub Project.

10.2 Scope

These requirements apply to all furnished/installed material, equipment and systems for the World Trade Center Transportation Hub.

10.3 Policy

An Implementation Procedure (IP) shall be established to track and document the quality status of all materials and equipment beginning at the point and time of delivery, and the receiving of a receipt of inspection. Materials and equipment that conform to quality requirements of the Contract Documents and approved submissions should be so noted and tracked. A record of the respective tests and reports should be so noted and a record placed in Document Control with copies to the EQAM and PQAM. No materials or equipment with a nonconformance status is to be accepted for delivery or incorporated in the permanent construction until the Authority Resident Engineer, CQAM and Engineer Of Record are satisfied that the materials or equipment meets or exceeds the design, performance and quality requirements defined in the Contract Documents.

Implementation Procedures will also be established to indicate quality status, as a result of required inspection and testing performed on furnished and/or installed materials, equipment and construction. The Authority Resident Engineer, accompanied by the CQAM, and in accordance with established Authority procedures and standards shall document all work that conforms to quality requirements. All such documentation will be forwarded to the EQAM for his information and filing in Document Control and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

Work that is determined by the Authority Resident Engineer (or brought to his/her attention by one of the QAMs), to be unacceptable will be either stopped or corrected, and appropriate documentation maintained to record the nonconformance. Copies of the nonconformance will be forwarded to the EQAM for information and Document Control. Continuance of this work will only take place on the satisfaction of the Authority Resident Engineer or the authority other than the Authority Resident Engineer, requesting the stop.

The status tagging nomenclature and color-coding of offsite manufactured materials and equipment will be performed in accordance with the procedures established by the Authority's Materials Engineering Division.

10.4 Procedures

The Authority Resident Engineer, and finally the responsible organization's Project Quality Manager shall be responsible for the determination of the status of quality for all furnished and/or installed materials, equipment and construction for the Project. Also and for the issuance, control, application and removal of tags used as status indicators.

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10.4.1 Use of Tags

Tags and stamps shall be utilized, when practical, to indicate the status of quality control and assurance of offsite manufactured or fabricated materials and equipment.

The Materials Engineering Division (MED) has established procedures for the tagging and stamping of offsite procured, manufactured or fabricated materials and equipment. The Authority Resident Engineer is responsible to ensure that all materials and equipment delivered to the construction site bears the tag or stamp of acceptance from MED. The delivery to the construction site and acceptance to offload will not be permitted by the Authority Resident Engineer unless the materials or equipment bear an appropriate tag or stamp of MED acceptance or is accompanied by other documentation attesting to its acceptance. The CQAM will witness and issue concurrence with the acceptance of materials and equipment delivered to the site and transmit a certificate of such concurrence to the EQAM for his/her information and records and who in turn will issue an assurance certificate to the PQAM for his/her information and records.

10.4.2 Reports and Logs

A list of all materials and equipment submitted for the Project will be developed and updated weekly. Each line item will include a detailed description of the item including the name of the manufacturer, the model, dimensions, color and any other identifiable characteristics considered necessary by the Authority Resident Engineer and CQAM for use by the Construction Field Inspector to verify the item at the time of delivery. Also included will be the approval status of the item, which will be updated during weekly job progress meetings. The Authority Resident Engineer will conduct weekly job progress meetings for the purpose of updating and maintaining the list with the Engineer Of Record, CQAM and EQAM in attendance. The attendance of the PQAM and representatives from PATH and PCP are also encouraged. Copies of the list will be forwarded to the EQAM weekly for information and Document Control and to the PQAM for his/her records.

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11. NONCONFORMANCE AND CORRECTIVE ACTION

11.1 Purpose

To define the requirements for documentation and control of nonconforming-items from the point of identification, determination and acknowledgement of root cause, corrective action, prevention of recurrence, and verification of resolution of the issues.

11.2 Scope

These requirements apply to the CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors performing work, or provided materials, equipment or other services for the WTC Transportation Hub Project.

11.3 Policy

A Nonconforming Reporting (NCR) Procedure will be developed and implemented by the CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors. Such a procedure will be included in their individual Quality Control Programs and Plans and referenced in all Implementations Plans and Inspection & Testing Plans submitted to the Authority Resident Engineer and CQAM for review and approval. The NCR Procedure will be applicable to all activities that possess quality control and quality assurance requirements. The intent is to ensure that any materials, equipment or construction that does not conform to the requirements of the Contract Documents are identified, segregated, removed from or denied access to the construction site to prevent their inadvertent use.

Auditing, test and inspection groups will develop systems to uniquely identify and track each Nonconformance Report (NCR).

Completed NCRs, with all back-up documentation, will be maintained by the originating organization's Project Quality Assurance Manager as project quality records. The RE, Program Manager and CQAM, will in turn issue certificates of conformance to the EQAM and PQAM. The PQAM, may at his/her discretion inspect the work before signing his/her concurrence with the resolution of the nonconformance.

11.3.1 Nonconformance Report

A Nonconformance Report (NCR) shall be prepared when a deficiency or discrepancy from the requirements of the Contract Documents is identified, or if compliance cannot be reasonably determined. In either case, the materials, equipment or construction cannot be accepted for incorporation into the permanent construction until an appropriate and documented determination is made as to its suitability. This may apply where the condition potentially requires a REJECT, REWORK, REPAIR, or USE-AS-IS disposition.

An organization may implement its existing system and forms, provided that the system meets or exceeds the requirements of this Section of the PQAP and is approved by the Project Quality Assurance Manager.

11.4 Definitions

- **Accept-As-Is** – (See Use-As-Is)
- **Conformance** – An affirmative indication or judgment that the condition of an item meets the requirements of relevant specifications, contracts or regulations; also the state of meeting the requirements.
- **Corrective Action** – Documented commitment of specific action planned or being implemented to resolve a known condition or conditions, which adversely effect quality. Corrective Action must address both remedial action to correct the known discrepancy and action to prevent reoccurrence based on the identified root cause.
- **Disposition** – A statement describing the manner in which a nonconformance is to be resolved.
- **Nonconformance** – Is a non-fulfillment of a need or expectation that is stated, generally implied or obligatory. A discrepancy in characteristic, documentation or procedure which affects form, fit or function and renders the quality of an item or service unacceptable or indeterminate in regard to meeting all relevant Contract Document requirements. Examples of nonconformance include: physical defects, test failures, incorrect or inadequate documentation or deviation from prescribed processing, inspection or test procedures.
- **Nonconformance and Corrective Action Report** – A form used to identify a nonconformance and its root cause, notify the responsible organization, and to document a proposed disposition, approval of the disposition, verification of any required corrective action, and planned action to prevent recurrence. Nonconformance Reports are used for resolution of problems in the quality system, REJECT, REWORK, REPAIR and USE-AS-IS dispositions.
- **Quality** – An inherent or distinguishing characteristic of a product or service. A trait or characteristic used to measure the degree of excellence that a product or service achieves. Conformance to prescribed requirements - the project produces what it was supposed to, as defined in the performance criteria established by the owner. The product satisfies user needs, aesthetically and functionally.
- **REJECT** – A disposition, which indicates that the item is unsuitable for its intended purpose and economically or physically incapable of being reworked or repaired.
- **REPAIR** – A disposition which will result in making an item acceptable for its intended use even though it is not restored to a condition which meets all specification requirements.
- **REWORK** – A disposition, which indicates that the deficiency can be brought into conformance with the original requirements through re-machining, reassembling, reprocessing, reinstallation, or completion of the required operations.
- **USE-AS-IS** – A disposition which recognizes that an item will satisfy its intended use, even though it does not meet all design/functional requirements.

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11.5 Responsibilities

NCRs are tracked to closure by the Authority Resident Engineer, CQAM, and the Quality Control managers of the CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors. Specific responsibilities, methods, documentation, and interface requirements shall be carried out in accordance with the CQAP and each approved Quality Control Program and Plan.

An NCR noting dispositions to USE-AS-IS or REPAIR must be approved by the Engineer of Record (EOR), and/or the Chief Engineer. In such cases a copy of the final documentation for the disposition or decision will be forwarded to the CQAM for information and Document Control. The package is then transmitted to the EQAM and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

11.6 Procedure

11.6.1 Nonconformance Report

This procedure is broadly defined, using terms generally applied to equipment disposition. The specific NCR procedures developed and implemented by the Quality Control Manager of the CM/GC, other prime contractors and their respective subcontractors, suppliers and vendors should take this into account when preparing their procedures, but the principles apply regardless, for the WTC Transportation Hub Project.

- The Quality Control Manager of the CM/GC, other prime contractor, subcontractor, supplier or vendor shall prepare an NCR in accordance with the Quality Control Program and Plan and applicable IP or ITP approved by the Authority Resident Engineer and CQAM. The NCR shall be uniquely identified, shall describe the nonconforming condition in detail, the determination of root cause, the recommended disposition and actions to be taken to preclude a recurrence. Also to be included is a schedule with specific dates for the disposition of the nonconformance, and the anticipated impact to the overall Project Schedule, if any,
- The NCR shall be forwarded to the Authority Resident Engineer for a decision and/or the coordination of a decision regarding the disposition by all involved parties including, but not limited to, the Engineer Of Record, CQAM, EQAM, PQAM, the Engineering Program Manager, the Project Manager, the Materials Engineering Division, the Engineering Quality Assurance Division and Risk Management.
- If the recommended disposition is REJECT or REWORK, the CM/GC, other prime contractor, subcontractor, supplier or vendor shall take immediate action to replace or take other action to bring the materials or equipment into conformance. Upon verification by the Authority Resident Engineer and CQAM that appropriate action has been taken, and the nonconformance has been satisfactorily addressed, the NCR shall be closed. A copy to be forwarded to the EQAM for information and Document Control and who in turn will issue an assurance certificate to the PQAM for his /her information and records.
- If the recommended disposition is USE-AS-IS or REPAIR, The CM/GC, other prime contractor, subcontractor, supplier or vendor shall submit to the Authority Resident Engineer and CQAM all appropriate and detailed documentation necessary for the Authority to make a decision. The Authority Resident Engineer will coordinate the process to secure a decision among CQAM, Engineer Of Record, PCP and PATH and

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forward such recommendation to the Chief Engineer for Approval. A copy of the decision taken is to be filed in document control for later reference, if required.

- The Authority Resident Engineer will advise the CQAM in writing of all decisions regarding the disposition recommendations. A copy to be forwarded to the EQAM for information and Document Control and who in turn will issue an assurance certificate to the PQAM for his /her information and records.
- Upon receipt, the CM/GC, other prime contractor, subcontractor, supplier or vendor will immediately implement the approved disposition.
- An NCR is closed upon written verification by the Authority Resident Engineer with concurrence by the CQAM that the required disposition has been satisfactorily completed. Copies of all closed NCRs will be forwarded to the EQAM for information and Document Control, and who in turn will issue an assurance certificate to the PQAM for his /her information and records.

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12. QUALITY RECORDS

12.1 Purpose

To define the requirements for the collection and maintenance of records which provide objective evidence that the design, performance and quality assurance requirements of the Contract Documents have been met.

12.2 Scope

This procedure includes requirements for the collection and maintenance of Quality Records (QR) for design, procurement, construction, installation, inspection, testing, and start-up activities for the WTC Transportation Hub Project.

12.3 Policy

QRs are to be collected, retained and stored in a controlled and readily retrievable manner during all phases of the WTC Transportation Hub Project.

12.4 Requirements

QRs shall be collected, stored and preserved in Document Control in a manner that precludes damage, loss or deterioration.

QRs shall be identified by title, contract number, revision, and activity description, with dated signatures of responsible personnel as appropriate.

QRs are to be available to authorized persons as required by Document Control Staff.

12.5 Procedure

QRs are defined as documents that provide objective evidence of compliance of materials, equipment, products and services to specified acceptance criteria, including compliance with approved procedures. QRs are generated in the areas of Design, Procurement, Construction, Inspection, Testing, Start-Up and Operations.

QRs are considered valid only if stamped, initialed or signed as required by IPs, and dated by authorized personnel. These records may be either the original or a reproduced copy.

Corrections/revisions to QRs, as a minimum, are to receive the same review and approval as the original document.

QRs are subject to Quality Assurance audits.

12.6 Transmission and Retention of Quality Records

QRs shall be prepared, filed in Document Control and maintained in accordance with approved IPs in such a manner that they will make them readily retrievable when requested by authorized personnel.

Contractor/Suppliers or others generating QRs are responsible for their retention copies during the period of construction, inspection, assembly and/or installation, and testing.

Storage facilities for QRs in Document Control will include fire resistant steel file cabinets that preclude damage from fire, condensation, and extreme temperature variation. In lieu of

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fire resistant files a second (backup) copy of each Quality Record will be maintained at another location.

Specific retention requirements for QRs are to be approved by PQAM or designee.

Unless otherwise stated in the contract, QRs will be turned over to the PQAM at the completion of the Contract and all file indexing requirements of the PCP Document Control Procedures will be met.

12.7 Quality Records

Types of documents that are considered QRs:

- Design Records
 - Design Calculations and Checks
 - Drawings (Standards, Reference, Directive, Contract, Record/As-Built, Shop, Working)
 - Design Review Reports
 - Design Deviations and Changes
 - Contract Specifications
 - Quality Assurance System Audit Reports
 - Nonconformance Reports and Tracking Logs (Non-construction organizations)
 - Corrective Action Requests.
 - Training Records
 - Meeting minutes
- Procurement Records
 - Surveillance Inspection Reports
 - Pre-Award Surveys
 - Contract Specifications and Modifications
 - Certificates of Compliance
 - Quality Assurance System Audit Reports
 - Test Results
 - Applicable Contract Data Items
 - Meeting Minutes
- Construction, Manufacturing, Installation Records
 - Shop Drawings, Catalog Cuts and Samples
 - Contractor Data Submittals
 - Process and Personnel Certifications and Credentials
 - Daily Narratives and Inspection Reports
 - Material Certifications and Mill Test reports
 - Test Procedures (IPs)
 - Test Results
 - Nonconformance Reports and Tracking Logs
 - Surveillance Reports
 - Release for Shipment Notices
 - Inspection and Test Plans

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- Training Records
- Meeting Minutes
- Inspection Records
- Request for Information (RFI)
- Quality Assurance Process Audits
- Test Witness Reports
- Calibration Records
- Corrective Action Requests

- Operational Records
 - Maintenance Actions (corrective and preventive)
 - Inspection Records
 - Quality Assurance Operational Audits
 - Personnel Certifications
 - Retrofit Records
 - Meeting Minutes

The preceding list is a guide to documents considered Quality Records and should not be construed as a complete listing and will be added to as the Project develops.

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13. QUALITY AUDITS

13.1 Purpose

To define requirements for performing Quality Assurance audits of WTC Transportation Hub Project activities to ensure that the elements of the QMS are functioning as intended.

13.2 Scope

Includes Quality Assurance audits performed jointly or severally by CQAM, EQAM, PQAM and FTA Representative for the Project. As applicable, this procedure may also be used for System Safety Performance and Safety Certification audits, or other audits, as determined by the PQAM.

13.3 Policy

A comprehensive program of planned and periodic audits will be established to verify that applicable elements of the QMS are acceptable, and have been developed, documented, and effectively implemented in accordance with the PQAP, DQAP and CQAP.

Quality audits will be performed by any member(s) of the Project's Quality Management Team and documented in accordance with IPs, with notification to the Project Quality Assurance Manager.

13.4 Procedure

The activities of Engineering Design Teams and the Resident Engineer's Office, , consultants, contractors, and critical suppliers will be audited for compliance and implementation of quality activities required by the PQAP, DQAP and CQAP, including evaluation of program effectiveness.

The lead auditor assigned is responsible for all elements of the audit. Auditors are to have no direct responsibility in the activities to be audited. Auditors will have experience or training commensurate with the scope, complexity, or special nature of the activities to be audited.

Audit records include audit schedules, audit plans, audit reports, audit checklists, audit performance records, and Audit Finding Reports (AFRs) as applicable.

Audits will be scheduled and performed on a selected basis with a frequency commensurate with the activities in progress on the project, or as indicated as a follow-up by previous audits. Follow up audits to verify completion and the effectiveness of corrective action are to be scheduled as required.

Fourteen days prior to the scheduled audit the lead auditor will send to the group being audited a copy of the audit plan and checklist for their information and action in preparing for the audit.

Audit Schedules shall be maintained by the CQAM, EQAM, and PQAM.

13.5 Performance of the Audit

A pre-audit conference will be held to establish the ground rules for the conduct of the audit.

Auditors shall conduct the audit in accordance with the Quality Audit Plan and checklist. If deficiencies outside the stated scope of the audit checklist are observed during the audit,

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appropriate action will be initiated as determined by the lead auditor and/or the Project Quality Assurance Manager.

Each audit shall include, but is not limited to the following:

- Review for compliance of the documentation required by the IPs.
- Interviews conducted with individuals who perform specific activities relating to quality to ascertain that they have a proper understanding of the required procedures.
- Review of operations associated with the audit item, including the witnessing of operations to determine adherence to IPs or CWPs.

Upon completion, the lead auditor will conduct a post audit conference with management and supervision in the areas audited to review the audit findings. The purpose of this review is to confirm the conditions found, resolve any misunderstandings with respect to observed deficiencies, and to establish corrective action commitments.

After completion, the lead auditor and auditors are to document the results in an Audit Report and include reference to:

- The documents reviewed, the location of the documents and the acceptability of items, or deficiencies observed in the documentation review.
- The operation reviewed, and the acceptable or non-acceptable areas observed.
- The individuals contacted during the audit and notations of any audit deficiencies found through interviews with persons involved in the performance of tasks.

13.6 Audit deficiencies

The Audit Report will be prepared by the lead auditor or auditor, addressed to the management of the audited organization, and distributed to the CQAM, EQAM and PM, PQAM and others as appropriate.

Audit deficiencies shall be documented on an AFR. Audit Findings Reports will be issued with the audit reports on which they are based. The management of the activity audited will normally be required to respond to the AFRs within ten to fifteen working days. Circumstances may arise where responses require more or less time or further clarification. Such instances will be resolved directly with the lead auditor and appropriately documented.

AFR corrective action responses are to be specific with respect to cause of deficiency, as well as actions taken to correct the deficiency and preclude recurrence.

The auditor is responsible for accepting or rejecting corrective action responses to audits, and for verifying that appropriate technical or contractual approvals for corrective action have been obtained, when required. The reason for rejection of the response to an AFR shall be stated in writing.

The lead auditor is responsible for scheduling follow-up audits when required, to verify completion and effectiveness of corrective action. Deficiencies noted will be handled in the same manner as original findings.

World Trade Center Transportation Hub – Project Quality Assurance Plan

13.7 Audit Records

Audit Records are to be maintained and included as project Quality Records in Document Control and made available for review and audit.

As a minimum, Audit records will be shared with all members of the Quality Team.

14. TRAINING

14.1 Purpose

To describe the requirements for identifying the training needs, performance of training, and that only trained and qualified personnel perform quality assurance and control activities affecting quality on the WTC Transportation Hub Project.

14.2 Scope

These requirements apply to all personnel working on the WTC Transportation Hub Project.

14.3 Policy

Only personnel versed in their organization's QMS, and who have been appropriately trained, and/or possess certification/qualifications as required by the PQAP, DQAP, CQAP and the Quality Assurance and Control Guidelines of the FTA would perform quality assurance and control activities that affect this Project.

14.4 Requirements

All personnel working on the Project must be trained in the quality guidelines and procedural requirements as are applicable to their responsibilities. Such training or instructions shall be documented. All personnel are to be qualified on the basis of appropriate education, training, and/or experience.

14.5 Records of Personnel Qualification

Records of personnel qualification are Quality Records and shall be maintained in Document Control as required by IPs.

14.6 Responsibilities

It is the responsibility of all Quality Management staff to ensure that all personnel working on the Project are trained in the proper execution of the procedures and guidelines for the project.

DOWNTOWN RESTORATION PROGRAM

THE WORLD TRADE CENTER
TRANSPORTATION HUB
SITE SAFETY PROGRAM

HEALTH AND SAFETY REQUIREMENTS

PREPARED BY: PORT AUTHORITY of NEW YORK and NEW JERSEY

May 21, 2005

THE WORLD TRADE CENTER TRANSPORTATION HUB
SITE SAFETY PROGRAM

HEALTH AND SAFETY REQUIREMENTS

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SECTION 1.0 PROJECT INFORMATION

1.01 Program Objective

The Port Authority of New York and New Jersey (the "Port Authority") has prepared this Site Safety Program to promote safety, and to mitigate and/or control all hazards and risks associated with the construction at the World Trade Center (WTC) Site including the WTC Port Authority Trans-Hudson (PATH) Transportation Hub (WTC/HUB). The goals of this program are to prevent personal injury, property damage, environmental matters and to reduce all direct and indirect costs and productivity losses attributable to accident occurrences.

1.02 Program Approach

The Port Authority approach to safety management begins with the establishment of minimum site requirements as contained in this document for worker protection, public safety, and protection of adjoining properties/utilities/streets, and the environment. All measures are intended to ensure regulatory compliance and best management practices during the performance of any work at the WTC Site.

Work to be performed at the WTC Site is to be accomplished in conjunction and coordination with the operation of the PATH rail rapid transit system. Constant care must be exercised to avoid any adverse impacts attributable to construction activities on PATH's patrons, employees or the general operation of the system.

1.03 Program Effectiveness And Cooperation

The effectiveness of this program is dependent on the active participation and cooperation of all project stakeholders including the Port Authority, its consultants, all contractors, subcontractors, and employees thereof, tradesmen, vendors, participating city, state and Federal officials and authorized visitors. The success of the program, its implementation and maintenance requires the careful coordination of all activities on the WTC Site respectful of the following items:

- a) All work must be planned prior to execution to ensure that appropriate care is taken to anticipate and eliminate all risks or potential for personal injury, property damage, and environmental contamination;
- b) The means and methods decided for the performance of any work must comply with the safety requirements of all applicable Federal, state and local jurisdictional rules and regulations, ordinances, codes, statutes, industry standards, Port Authority policies and procedures and the Contract Documents;

- c) Reliable, verifiable and uniform safety and health procedures must be established and maintained for the entire WTC Site to ensure the prompt detection and remediation of unsafe conditions or work practices;
- d) Comprehensive safety training must be established and maintained for WTC Site workers to enhance safety awareness, and to promote a cooperative approach in the identification and mitigation of unsafe or unhealthy conditions and work practices;
- e) Comprehensive, enforceable, and site-specific Health and Safety Plans (HASPs) and Job Hazard Analyses (JHAs) must be established, and be readily available at the worksite to ensure that all work is performed in a manner that eliminates predictable worker, property, and environmental hazards. All HASPs and JHAs, at a minimum, shall be updated every six months, or as required by the Port Authority Resident Engineer, based upon any changes in the scope of work or the intended method of execution;
- f) A comprehensive communications system must be established and maintained to ensure that all emergency response contacts and related information are readily available throughout the WTC Site for the prompt reaction to, and investigation of, all accidents/incidents;
- g) All emergency activities and response must be coordinated among all Port Authority, city, state and Federal responders and entities.

1.04 Titles and Responsibilities of WTC Site Personnel

Engineer of Construction

The Engineer of Construction is the duly authorized representative of the Chief Engineer, the final authority regarding the interpretation and application of all jurisdictional codes, regulations, and ordinances at the WTC Site. The Engineer of Construction, or his/her duly authorized representative, is primarily responsible for ensuring that a WTC Site Safety Program is developed and implemented in accordance with this document and the program objectives to ensure a safe and healthy worksite. The Engineer of Construction represents the Port Authority Engineering Department and contractor on the WTC Site Safety Committee. The day-to-day enforcement and administration of the WTC Site Safety Program and all associated HASPs and JHAs is the responsibility of the Port Authority Resident Engineer.

Port Authority Resident Engineer

The Port Authority Resident Engineer is responsible for the daily monitoring and enforcement of the WTC Site Safety Program, and for issuing final approval for all HASPs, JHAs, plans, practices, submittals, and drawings. The Port Authority Resident Engineer's authority and responsibilities at the WTC/HUB worksite include, but are not limited to, the following:

- a) The stoppage of any construction activities if warranted for protection of life and/or property/or utilities, protection of the environment, or the elimination of any hazardous or potentially hazardous conditions;
- b) Ensure that the contractor and all subcontractors provide effective safety enforcement and management;
- c) Notify the contractor and his Site Safety Manager when unsafe working conditions, practices and behavior are detected (e.g., lack of good housekeeping practices, use of equipment in obviously poor condition, failure to adhere to rules, regulations, ordinances or policies regarding safety);
- d) Notify the contractor and his Site Safety Manager in writing of any noncompliance with safety requirements contained in either the contract documents or the established WTC Site Safety Program;
- e) Maintain all written communications to the contractor and his Site Safety Manager on file regarding any matters of site safety management;
- f) Review all Daily Reports, Equipment Maintenance Log, Inspection Reports, and Accident Reports as appropriate. Such reports are to be promptly submitted and audited to ensure that the contractor takes immediate and prudent action to correct all anticipated or discovered safety deficiencies;
- g) Direct the immediate removal from Port Authority property any employee, worker, person, or equipment on the WTC/HUB worksite deemed unnecessary or dangerous;
- h) Report all accidents/incidents within WTC/HUB and all serious injuries to PATH patrons/employees to the Manager, System Safety and Security Division;
- i) Conduct a biweekly safety meeting with the Engineer of Construction, Site Safety Manager and supervisory representatives from the contractor and all subcontractors to discuss all current safety and health issues associated with the work in progress and prepare a safety update for presentation at the upcoming WTC Site Safety Committee meeting.

Inspection & Safety Division-Risk Management

The Inspection & Safety Division-Risk Management (I&SD-RM) will advise and support the Port Authority Resident Engineer in all matters of occupational and public safety, health, and environmental protection. I&SD-RM is represented on the WTC Site Safety Committee, and at a minimum, shall provide the following services:

- a) Routinely inspect and monitor the safety performance of the contractor on the WTC/HUB worksite, and prepare reports documenting their findings and corrective recommendations for the protection of workers, the public, adjoining structures, utilities, and the environment. Such written reports will be provided to the Port Authority Resident Engineer immediately following any routine inspection;
- b) Review the Contract Documents, drawings, specifications, and submittals to ensure compliance with all applicable safety standards codes;
- c) Review all HASPs and JHAs provided by the Port Authority Resident Engineer to ensure uniformity and completeness in accordance with all applicable safety standards and codes and best management practices;
- d) Conduct accident investigations to identify the factors contributing to all incidents, and provide recommendations to prevent reoccurrences;
- e) Accompany outside regulatory agency representatives, i.e., Occupational Safety and Health Administration (OSHA), Fire Department of New York (FDNY) and insurance brokers throughout their routine inspections and investigations;
- f) Provide ongoing recommendations to improve the effectiveness of the WTC Site Safety Program.

Treasury-Risk Management Division

Treasury-Risk Management will advise and support the Port Authority Resident Engineer in all matters of insurance, and coordinates with the insurance company safety representatives in a cooperative approach to site safety. Under the Port Authority's Owner Controlled Insurance Program (OCIP), qualified insurance company safety professionals who have significant years of field experience in accident prevention in the construction industry, will focus their efforts on current safety and health issues, and their potential impact to the Agency. These safety professionals will work under the direction of the I&SD-RM, and in cooperation with the Port Authority Resident Engineer regarding all health and safety matters within the WTC/HUB worksite.

At a minimum, Treasury-Risk Management shall:

- a) Coordinate and maintain effective and routine communication with all parties involved in the safety and loss control efforts provided by the Port Authority and Insurers involved in the management and control of risk within the WTC Site;
- b) Analyze loss trends, prepare safety and loss control reports, including an analysis of accident frequency, severity and causes. Provide recommendations to increase the effectiveness of the WTC Site Safety Program;

- c) Routinely review and recommend changes and/or enhancements to the application and content of the HASPs submitted by the contractor and each subcontractor.

PATH System Safety and Security Division

PATH System Safety and Security Division (PATH SS&SD) will advise and support the Port Authority Resident Engineer in all matters of occupational and public safety, emergency management, fire protection and environmental protection that affect the PATH rail rapid transit system. The PATH SS&SD is represented on the WTC Site Safety Committee, and at a minimum, the PATH SS&SD or PATH designee shall provide the following services:

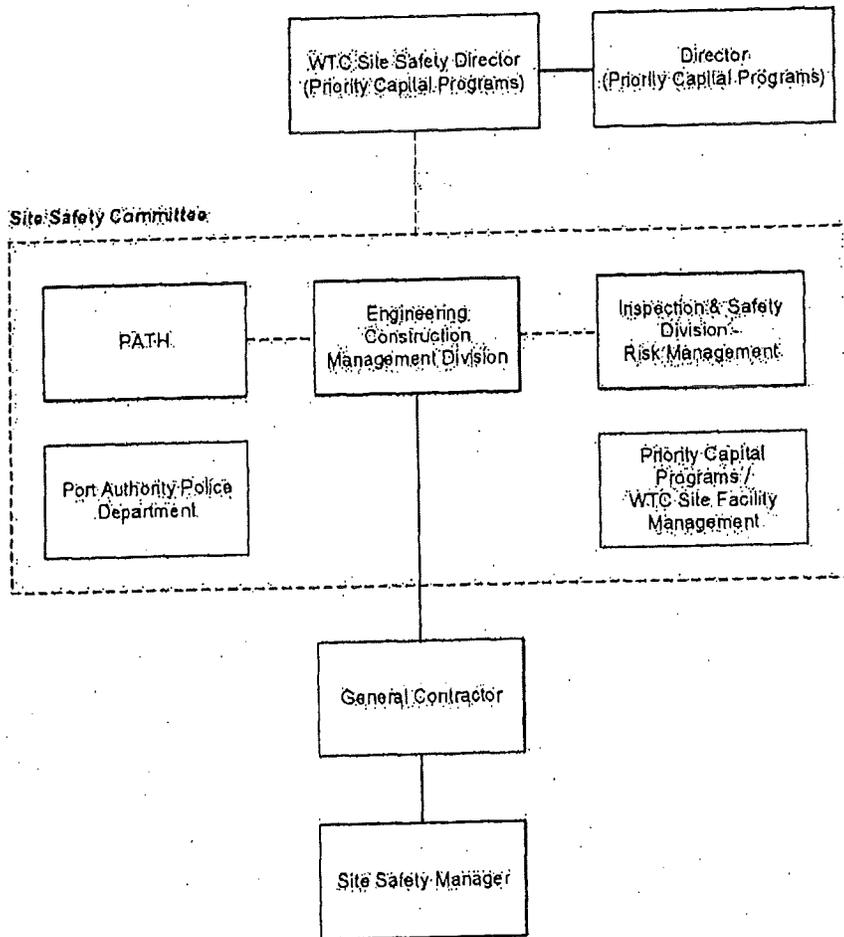
- a) Routinely inspect and monitor the safety performance of the contractor on site in the PATH Right-of-Way, Station and terminal areas, and prepare written reports documenting their findings with corrective recommendations for worker protection, the protection of the public, adjoining structures, utilities, emergency management, egress, fire protection concerns and the environment. Such written reports will be provided to the Port Authority Resident Engineer immediately following any routine inspection;
- b) Review Contract Documents, drawings, specifications, and submittals to ensure compliance with all applicable safety, environmental and transportation standards and codes;
- c) Conduct accident/incident/injury investigations within the PATH Right-of-Way, station/terminal areas to identify the factors contributing to the accident/incident/injury, and provides recommendations to prevent reoccurrences;
- d) Accompany outside regulatory agency representatives, i.e., Federal Railroad Association (FRA), FDNY in the performance of their routine inspections and investigations of the PATH Right-of-Way, Station and terminal areas;
- e) Provide ongoing recommendations to improve the effectiveness of the WTC Site Safety Program;
- f) Provide and update the PATH System Safety Program Plan, PATH Emergency Preparedness Plan for WTC Temporary Station, PATH Emergency Preparedness Plan (EPP) and PATH System Security Program Plan.

WTC Site Safety Director

The Port Authority shall designate a person to serve as the WTC Site Safety Director (SSD). The SSD will serve as the Chairperson of the WTC Site Safety Committee, and is responsible for a fully coordinated and uniformly implemented WTC Site Safety Program throughout the WTC Site including the WTC/HUB. The SSD is also responsible for the promotion, planning

and implementation of all safety awareness programs, practices, procedures, and training necessary to control, reduce, and eliminate hazards throughout the WTC Site.

The SSD will have access to all project staff, and reports directly to the Director of Priority Capital Programs. The organizational chart below shows the relationship of the SSD with the other members of the WTC Site Safety Committee.



The SSD ensures that all WTC stakeholders implement the WTC Site Safety Plan and that it is updated as required to address the changing conditions of the WTC Site that may affect

health and safety of the work environment. This includes the coordination of the various Port Authority Departments, WTC stakeholders and external agencies supporting the construction of the WTC/HUB. Such stakeholders and agencies include, but not limited to, Federal safety/health/environmental protection regulatory agencies, New York City agencies, New York State agencies, the Metropolitan Transit Authority, the Lower Manhattan Construction Command Center, utility companies, Lower Manhattan Development Corporation, and WTC Net Lessee(s).

At a minimum, the SSD has the following responsibilities:

- a) Identify, promote, plan, develop and coordinate all site safety activities, programs and initiatives to preserve and protect the health and safety of all workers and employees within the WTC Site, the public, adjoining properties and utilities, and the environment;
- b) Develops and directs a comprehensive on-site inspection program to audit all construction activities within the WTC Site to ensure compliance with all applicable federal, state, and local regulations related to the health and safety of the workers and the public;
- c) Coordinates all activities amongst WTC stakeholders to ensure that the work of one entity does not adversely impact the health and safety of another;
- d) Reviews and revises as required the WTC Site Safety Program and its associated health and safety requirements to improve overall worksite conditions, continually evaluate the effectiveness of its programs and initiatives, and initiate changes based on current industry trends;
- e) Ensures the preparation of site-specific HASPs and JHAs by all WTC stakeholders, the implementation of such plan(s), and revisions thereto, as the project develops;
- f) Coordinates WTC Site safety training; and implements associated initiatives and objectives;
- g) Participates in the investigation of all accidents on-site. Provides the necessary support for investigative entities for purposes of conducting their investigation;
- h) Tracks and verifies that identified site safety deficiencies are corrected in a timely manner;
- i) Serves as a Port Authority liaison to outside Federal, state, and city agencies as it relates to WTC Site health and safety issues;
- j) Reviews and/or audits all documentation maintained in the Port Authority Resident Engineer's Office related to safety as required.

WTC Site Facility Management

WTC Site Facility Management is responsible for the safe and orderly operation, maintenance, and security of the WTC Site on a 24 hour basis, 365 days per year. Facility Management is represented on the WTC Site Safety Committee, and at a minimum, shall provide the following services:

- a) Establish policies and procedures governing Site operations and Site security to facilitate redevelopment;
- b) Approve access for authorized individuals and vehicles;
- c) Provide physical upkeep for common facilities;
- d) Approve contractor traffic management and security plans; and
- e) Maintain designated public areas and facilities.

Contractor

The contractor is solely responsible for accident and fire prevention, overall job site safety, the protection of adjoining properties/utilities/structures, the environment, and the WTC/HUB.

Safety management and enforcement shall be administered by a full-time employee of the contractor certified by the Building Code of the City Of New York (NYCBC) as a Site Safety Manager. The Site Safety Manager shall cooperate and work with the Port Authority Resident Engineer, and shall directly report to the company's CEO and/or Corporate Safety Director, and not to the site Project Manager or Job Superintendent. This responsibility shall not be delegated nor contracted out to subcontractors, suppliers, consultants, or any other persons or agency without the expressed written approval of the Port Authority Resident Engineer.

The Port Authority Resident Engineer and the WTC Site Safety Committee will review the resume of any Site Safety Manager proposed by the contractor. A personal interview may also be required. Only an individual deemed to be fully qualified by the Port Authority Resident Engineer and WTC Site Safety Committee shall be approved as a Site Safety Manager.

The responsibilities of the contractor include, but are not limited to, the following:

- a) The planning and execution of all construction work in accordance with the objectives and safety requirements of the WTC Site Safety Program, the Contract Documents, Port Authority policies and procedures, and all applicable Federal, state and local laws, rules, regulations, statutes, and ordinances. The scheduling of all construction work must be approved in advance by the Port Authority Resident Engineer, so as not to interfere or conflict with, PATH Maintenance and Operations;

- b) Develop and submit an original and fifteen (15) copies of a written WTC Site specific HASP within fourteen (14) working days of the Port Authority's acceptance of the contractor's proposal. The HASP shall be reviewed and approved by the Port Authority Resident Engineer prior to the commencement of any work other than mobilization to ensure that construction activities do not interfere with PATH's abilities to provide a safe and secure environment for its patrons and employees, and to evacuate passengers in the event of an emergency situation. All HASPs and JHAs, at a minimum, shall be updated every six months, or as required by the Port Authority Resident Engineer, based upon any changes in the scope of work or the intended method of execution;
- c) The stopping of all construction activities as warranted for the protection of life and/or property, streets, utilities, the environment, and the PATH rail system;
- d) Ensure formal and "tool-box" safety meetings are conducted on a weekly basis. All meetings shall be documented to identify the date of the meeting, the individual running the meeting, the issues discussed, follow-up actions, and a list of attendees present;
- e) Ensure that all subcontractors, employees, workers, and visitors on the WTC Site are familiar with the provisions of the approved HASP, including all rail safety Roadway Worker Protection, conditions and procedures, including but not limited to working adjacent to an operational rail rapid transit system and energized third rail;
- f) Notify the Port Authority Resident Engineer immediately if any inspector or official from any industry, Federal, state or local safety entity (i.e., FDNY, OSHA, FRA, etc.) arrives on the job site for a formal safety inspection or media inquiry;
- g) Ensure that if any conflicts are discovered between the approved HASP and any other Federal, state, or local rules, regulations or ordinances, the more stringent requirement will be complied with. Should such a conflict be discovered, the contractor shall notify the Port Authority Resident Engineer immediately;
- h) Provide the Site Safety Manager with a two-way voice communication system (e.g., NEXTEL telephone) that provides direct and immediate contact with all emergency contacts;
- i) Develop and administer a comprehensive "Return to Work" program. Duties shall be identified which shall provide suitable work activities and/or environment to permit injured individuals to return to work in a modified, limited, or restricted status/condition.

The Site Safety Manager

The contractor shall designate a full time Site Safety Manager (SSM) unless otherwise directed by the Port Authority Resident Engineer. The SSM shall report directly to the Port Authority Resident Engineer on all matters of safety and risk.

The SSM ensures through documented worksite inspections, training, and the JHA process, that site workers are performing work in a manner that minimizes the potential for injury, property damage, and environmental contamination.

In addition to occupational safety and health management, the general contractor's SSM shall be responsible for compliance with the New York City Department of Building's (NYCDOB), Subchapter 19 - *Safety of Public and Property During Construction Operations*, for the protection of the public and property during construction operations.

The SSM shall possess a current and valid Site Safety Manager Certificate issued by the NYCDOB, consistent with Subchapter 19 - *Safety of Public and Property During Construction Operations*. A copy of a valid and current certification shall be contained in the contractor's HASP as submitted to the Port Authority Resident Engineer.

At a minimum, the SSM shall have the following responsibilities:

- a) Ensure that the site specific HASP appropriately addresses all applicable Federal, state and local regulatory standards, ordinances, etc., and the site specific requirements of the WTC Site Safety Program, as well as contractor responsibilities for PATH system safety and adherence to PATH's safety rules and programs as applicable to this project;
- b) At a minimum, perform weekly worksite safety inspections with the competent persons of each subcontractor and work crew to identify, document and correct any health and safety deficiencies, and to enforce the requirements of the HASP approved by the Port Authority Resident Engineer;
- c) Ensure that the contractor and all subcontractors prepare appropriate JHAs for each task identifying the hazards and controls required to minimize the risk of injury;
- d) Provide appropriate site safety orientation training for all workers and employees, as well as task specific training as required by the WTC Site Safety Program and all applicable OSHA regulations;
- e) Verify that all equipment has been inspected and maintained in accordance with applicable OSHA regulations and manufacturer's specifications, and maintains appropriate documentation on site of all such inspections;
- f) Maintains a current listing of all competent persons as defined by OSHA at all times during performance of work at the site. Competent person certifications shall be

submitted to the Port Authority Resident Engineer for review and approval prior to the start of any such work. Activities that require a competent person shall be immediately terminated if no such person is readily available or the applicable OSHA standard is not adhered to;

- g) Ensures that each contractor and/or subcontractor work crew has a competent person assigned during each work shift, and that the competent person remains on site for the duration of the task;
- h) Ensures that the contractor and all subcontractors working on the site adhere to all of the requirements of the WTC Site Safety Program, HASPs and JHAs approved by the Port Authority Resident Engineer;
- i) Prepares weekly safety updates for distribution to each subcontractor performing work under the Contract. Copies of which shall be provided to the Port Authority Resident Engineer;
- j) Ensures that the contractor convenes weekly safety meetings with his employees and subcontractors to inform them of all site safety issues and initiatives implemented by the WTC Site Safety Committee;
- k) Conducts initial site orientation and routine site safety training programs for all employees and workers which at a minimum shall include a review of the approved HASPs and JHAs, a description of the hazards present at the WTC Site which they may be in contact with or exposed to, identification of the procedures and equipment needed to eliminate the hazards; and the availability of all required personal protective equipment (PPE) necessary to perform the work and emergency procedures;
- l) Ensure that prior to use, all workers are trained and proficient in the use, inspection, and maintenance of all equipment, aerial lifts, machinery, electric power tools, pneumatically driven tools, hydraulic power tools, fuel powered tools, and powder actuated tools in accordance with applicable regulations and the manufacturer's specifications;
- m) Ensures the implementation of a comprehensive WTC Site safety training program as approved by the Port Authority Resident Engineer and coordinated by the WTC Site Safety Committee;
- n) Maintains on site all training documentation including the training date, name of instructor, training agenda, and training session sign-in sheets and list of all attendees including job title, trade and WTC Identification Number. Conducts and ensures that all contractor and subcontractor employees, visitors or other personnel who work, inspect, etc., construction activities on or adjacent to the PATH tracks or platforms are trained and annually certified in PATH's Roadway Worker Protection Program. Said persons must carry proof of certification at all times and the SSM must certify in writing that the personnel he/she trains have been properly trained and tested to

demonstrate a competency and understanding of the rail safety rules and procedures. Such a written certification to the Manager, System Safety & Security Division shall be required prior to the issuance of certification cards in accordance with 49 CFR Part 214;

- o) Conducts accident investigations and prepares follow-up reports describing the incident, contributing factors, and actions to be taken to prevent a re-occurrence;
- p) Ensures that the HASP and all associated JHAs are in compliance with all applicable Federal, state and local rules, regulations, statutes and ordinances;
- q) Performs the required inspections as outlined in Appendix A, Paragraph I: Periodic Site Safety Inspections, of Subchapter 19 of the NYCBC;
- r) At a minimum, prepares, maintains, revises as required subject to the review and approval of the Port Authority Resident Engineer the following plans as required by Subchapter 19 of the NYCBC:
 - 1. Lifting Operations
 - 2. Crane and Sling Inspections
 - 3. Fire Prevention and Protection
 - 4. Sidewalk / Roadway Protection
 - 5. Horizontal and Vertical Netting Installation and Inspection
 - 6. Machinery Inspection
 - 7. Demolition
 - 8. Excavations
- s) Establish site safety performance goals and measures and provide appropriate weekly reporting.

OSHA Competent Person

A competent person is a person capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

The contractor and each subcontractor shall designate, and will have the performance of work during each shift at least one competent person per standard 29 CFR Part 1926.32, and where referenced in other 29 CFR

At a minimum, each competent person shall have attended, and have cards verifying attendance in an OSHA 30 Hour Construction Safety Program. The Site Safety Manager shall obtain prior to the performance of each task a document indicating the experience and training of each competent person for each task.

1.05 General Requirements

The contractor shall protect the health and safety of their employees, suppliers, all employees of the Port Authority, all site visitors, the public or in the vicinity of the WTC Site. The contractor is also responsible for the storage of materials, supplies, and equipment either existing, constructed or to be constructed prior to the issuance of a Final Certificate of Completion unless otherwise approved by the Port Authority. Listed below are the some of the requirements that the contractor must achieve these purposes:

- a) Each contractor performing work at the WTC Site shall report directly to the contractor's CEO and/or Corporate Safety Director, the site Project Manager or Job Superintendent. The contractor shall not be delegated nor contracted out to subcontractors, suppliers, vendors, or persons or agency without the expressed written approval of the Resident Engineer;
- b) The SSM cooperates and works with the Port Authority on the implementation of the HASP, and compliance with the requirements of Subchapter 19: Safety of Public and Property During Construction of work performed under the Contract;
- c) Prior to the commencement of work, the contractor shall prepare for the review and approval of the Port Authority a specific HASP. At a minimum, the HASP shall include:

1. All submittals required by this Safety Program;
2. Provisions to appropriately address all health and safety

4. Job Hazard Analysis (JHAs) for each specific scope of work.
5. A written Emergency Action and a Fire Prevention Plan identifying at a minimum locations of all fire standpipes, emergency egress routes, emergency vehicle access, fire extinguishers, fire alarm systems, chemical and compressed gas storage locations, electrical control panel assembly locations, etc. Existing fire protection systems shall not be impacted unless specific contract provisions are included. PATH's Fire Safety Director monitors the system 24/7. All fire safety measures shall be coordinated with them through the Port Authority Representative.
6. A written Traffic Control Plan identifying for all project areas staging areas, crane hoisting locations, employee parking areas, signal controls, worker and pedestrian crossings, vehicle access, and barriers for exit and entry, barriers, barricades, lighting, and fencing.
7. A written Hazard Communications Plan;
8. A written plan addressing compliance with PATH's safety requirements;
9. A written plan to address the general housekeeping of the site but not limited to, the appropriate storage and/or securing of materials, the continued maintenance of clear access to walkways, and traffic areas, the maintenance of all project structures and buildings, maintaining work areas free of waste materials, rubbish, debris, or other refuse and/or debris during the performance of work, and the removal, disposal of rogue water, snow, dust, other transient materials with the exception of those from the WTC Site;
10. A written plan outlining the securing and anchoring of equipment to resist uplift attributable to high winds with the exception of wind hazards which could adversely impact PATH operations;
11. A written plan to address the grounding of all temporary electrical panels, tools and equipment in accordance with applicable regulations and the National Electrical Code (NEC). Implementation of an "Assured Grounding Program" is required. Extension cords and equipment must be appropriately grounded.

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12. A written plan to address the installation and maintenance of fencing, barricades, signage, markings and lighting conditions;
 13. A written plan to address the design, erection, use, maintenance of all ladders and scaffolds prior to use. All ladders and scaffolds shall be confirmed as appropriate for the application in accordance with applicable federal standards and manufacturer's requirements. Personnel shall be trained in ladder and scaffold use prior to performing tasks;
 14. A written plan to address burning, cutting, and/or welding work. The plan shall address the consequences and penalties for such work without a permit from the Port Authority Resident Engineer. The SSM shall ensure that proper fire protection measures have been provided prior to the commencement of any "hot" work;
 15. All tools or equipment must be inspected prior to work. Equipment that shows evidence of defects or excessive wear shall be removed from service and replaced, or repaired to meet the manufacturer's specifications. The SSM shall maintain records of the disposal and/or removal of the equipment from the work area;
 16. All necessary document classification markings in accordance with Port Authority information security policies.
- d) No employee shall possess, use, purchase, sell, distribute, receive, or be under the influence of a controlled substance or alcohol when performing work at the WTC Site. Offending personnel shall be removed and/or dismissed from the WTC Site and/or subject to criminal prosecution as warranted by their intent. The SSM is directed to implement a reasonable suspicion program to identify employees in the signs and symptoms of Drug and Alcohol Abuse and to identify employees who evidence such behaviors;
 - e) No employee shall possess, carry, use, receive, purchase, sell, or be under the influence of a controlled substance or alcohol at the WTC Site. The Port Authority Police shall be informed of all such incidents;
 - f) Prior to the use of an explosive or incinerating device, each employee shall submit their plan to the Port Authority Resident Engineer for review and approval;
 - g) Prior to the start of any work, other than site mobilization and

and supplies replenished promptly. As required by OSHA, the contractor and each subcontractor shall have a competent person on site at all times during the performance of work who is familiar with and capable of performing Cardio Pulmonary Resuscitation (CPR).

1.06 Description Of Work

The requirements contained in this Program are applicable to all phases of the redevelopment of the WTC Site including the WTC/Hub.

1.07 Emergency Notification Procedures

The contractor will develop procedures under the guidance of the Engineer to contact the Port Authority Police, the I&SD-RM, and other Authority personnel or Units for the following occurrences:

1. Accidents,
2. Fatalities,
3. Fires,
4. Bomb Threats
5. Workplace Violence,
6. Site Intrusions,
7. Civil Disturbances,
8. Medical Emergencies,
9. Hazardous Materials Incidents,
10. Environmental Contamination,
11. Property/Utility Damage,

15. Suspicious activities, items or deliveries.

The contractor's emergency procedures shall be continually reviewed for maximum effectiveness. All procedures are to be included in the manual with the SSM through the Port Authority Resident Engineer.

1.08 Emergency Notifications

The SSM shall ensure that all accidents are reported, verified, investigated, and as prescribed by this section. The contractor and each subcontractor on the WTC Site shall instruct their employees and other personnel to report occupational related illnesses immediately to the Port Authority Police, the Port Authority Resident Engineer, and their immediate supervisors. The following shall be followed for any accident on the WTC Site that requires off-site medical attention:

- a) Immediately report all worker injuries, exposures, and accidents to the Port Authority Resident Engineer, and then via telephone to all contacts contained in the WTC Site Emergency Contact List;
- b) Seek and obtain prompt and competent medical assistance for injured workers. The injured person's supervisor ensures that first-aid is administered by trained medical personnel, i.e., PAPD are summoned if necessary;
- c) Except for rescue and emergency personnel, immediately secure the accident scene and restrict access. The accident scene shall not be disturbed until it has been investigated by the Port Authority Resident Engineer, I&SD-RM, and PATH (as applicable);
- d) Copies of the preliminary accident report shall be delivered to the Port Authority Resident Engineer within 24 hours of the occurrence;
- e) Only authorized personnel, such as the Port Authority Resident Engineer, Construction, SSD, I&SD-RM, PATH System Safety, or other authorized Port Authority representatives, or authorized regulatory agency personnel, shall be given information pertaining to the event;
- f) Actions to be taken during emergencies should be discussed with the Port Authority Resident Engineer's supervision and at "tool box" safety meetings. Telephone numbers for off-site emergency facilities including, but not limited to, hospitals, ambulances, emergency medical services and police shall be posted in conspicuous locations at all job sites and at all telephone locations. Any emergency site

1.09 Regulatory References

Work performed at the WTC Site shall at a minimum comply with the applicable requirements of the following agencies as they pertain to health, environmental protection, waste management, and transportation regulation shall be followed:

1. U.S. Occupational Safety and Health Administration Title 29 CFR 1910 and 1926
2. U.S. Environmental Protection Agency Title 40 CFR
3. U.S. Department of Transportation Title 49 CFR
4. NYS Department of Environmental Conservation
5. NYS Department of Transportation
6. NYS Department of Labor
7. NYC Department of Buildings
8. NYC Fire Department
9. NYC Department of Health and Mental Hygiene
10. NYC Department of Environmental Protection
11. NYC Department of Sanitation
12. NYC Department of Transportation
13. NYC Department of Consumer Affairs
14. NFPA 130 – Standard For Fixed Guideway Transit Facilities
15. Port Authority Security Policies and Procedures

- b) The Engineer of Construction and other support staff including Port Authority Resident Engineer and representatives from subcontractors;
- c) An authorized representative of the I&SD-RM;
- d) An authorized representative of PATH;
- e) An authorized representative of Priority Capital Programs/WTC;
- f) A representative of the Port Authority Police Department.

This Committee will meet biweekly, or as requested otherwise, to address occupational health and safety issues, including but not limited to safety training, safety updates, monitoring results, general site conditions, approved HASPs and JHAs. This includes conflicts between the project HASP and any other Federal, state, or local rules, regulations or orders. The committee will prepare the agenda, document all meeting proceedings, and distribute minutes to attendees.

In conjunction and in support of the biweekly Committee meetings, the Engineer of Construction with the Port Authority Resident Engineer will conduct safety inspections. The SSM and supervisory representatives of the contractor and representatives of the WTC Site Safety Committee may attend. The committee will review and discuss all current life safety issues associated with the project and finalize a biweekly safety update for presentation during the upcoming meeting.

1.11 WTC Site Safety Communications

At a minimum weekly, or as directed otherwise by the Port Authority Resident Engineer, safety inspections will be conducted and documented by the Site Safety Committee members, competent persons of the contractor and each subcontractor. The Site Safety Committee will be documenting the inspection and identifying all safety and health issues. Such noted deficiencies will be annotated with a timeframe and corrected within the timeframe as approved by the Port Authority Resident Engineer. Copies of the inspection reports will be distributed to the Port Authority Resident Engineer, the contractor, and the members of the WTC Site Safety Committee. Each subcontractor

On a weekly basis, the SSM will provide the Port Authority Resident Engineer with the following safety update documentation:

- a) Weekly occupational and safety reports as stipulated in Subchapter 27-01 entitled "Rules and Regulations" of the NYCBC;
- b) A written summary of all outstanding and corrected safety and health violations;
- c) Updated training documents and equipment inspection reports;
- d) All revised Job Hazard Analyses;
- e) Updated and new regulatory plans and programs;
- f) Accident/incident reports and investigations;
- g) Copies of Tool Box Talks, and safety classes and meetings minutes;
- h) Report on performance against established site safety goals and objectives.

SECTION 2.0 TRAINING

It is the Port Authority's intention to maintain a healthy and safe work environment and high performance of work within and in the vicinity of the WTC Site. All contractors, subcontractors, their supervisors and employees must therefore comply with the safety requirements before performing work at the WTC Site. Each contractor and subcontractor shall be responsible for the development and implementation of such a safety program and shall familiarize all site supervisors and employees with the objectives and requirements of the Program, including specific safety precautions and awareness requirements for working on an operating rail rapid transit system and the provisions of the WTC Site Safety Plan. In addition, all site supervisors and employees should be advised of the consequences of non-compliance available to the Port Authority Resident Engineer for noncompliance.

It is the Port Authority's intention to also maintain a secure work environment of work within and in the vicinity of the WTC Site. All contractors, subcontractors, supervisors and employees shall complete security orientation training and obtain a WTC ID or Vehicle Pass enabling them to perform work at the WTC Site. The contractor and subcontractor shall be responsible for enrolling staff that will be working at the WTC Site in the training program.

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The SSM shall maintain onsite, and make available to the Port documentation and logs that include the date, name of instructor, agendas, sheets and a list of attendees with their job titles, trades and WTC. WTC Site training shall consist of, but not be limited to, the following:

- a) The recognition, avoidance, and control of actual or potential worksite conditions;
- b) PATH On Track Safety Training for working on or adjacent to the transit system;
- c) Hazard communications training in the labeling, handling, storage, and disposal of hazardous materials, chemicals, products, and combustibles; toxic, caustic, pressurized, cryogenic, explosive chemical products material safety data sheet shall be maintained at the worksite, and made available to all workers during all shifts;
- d) The selection, use, limitations, inspection, maintenance, and use of personal protective equipment (PPE);
- e) Fire prevention and response training including the recognition of proper fire extinguishers to be used in the event of fire and response procedures;
- f) The selection, use, erection, inspection, maintenance, disassembly, and requirements for the use of ladders, scaffolds, and aerial lift platforms, aerial ladders, articulating boom platforms, vertical ladders, etc.);
- g) Flagman training for roadway closures and traffic and pedestrian control;
- h) The use, inspection, and maintenance of all equipment, machinery, tools, pneumatically driven tools, hydraulic power tools, powder actuated tools in accordance with applicable manufacturer's specifications;
- i) PPE required for the worker and material fall protection;
- j) Requirements of the WTC Site Safety Program, and approved disciplinary actions for worker safety infractions.

SECTION 3.0 EMERGENCY ACTION/FIRE PR
PREVENTION PLANS

The SSM shall prepare a WTC Site Emergency Action Plan (EAP) for approval by the Port Authority Resident Engineer, and provide routine updates so that the information contained therein is always current. This plan shall be reviewed by the Port Authority Police, the Port Authority Resident Engineer, and the Site Safety Committee, and at a minimum address the following:

1. Responses to medical emergencies and releases of blood;
2. Summoning and coordinating emergency medical services;
3. Coordination with PATH;
4. Construction site fire protection, prevention and response;
5. Storage of chemicals, flammable and combustible liquids and gases;
6. Emergency ingress and egress locations and meeting points;
7. Site evacuation procedures;
8. Maintenance of ingress, egress and exit pathways;
9. Elimination of fire hazards;
10. Housekeeping and debris removal;
11. Procedures to account for employees following an evacuation;
12. Emergency notifications and alarm systems. A general alarm, such as horns, sirens, etc, shall be installed to initiate a evacuation. Workers shall be informed of the signal type and meaning and shall evacuate in a safe orderly manner upon the activation of the alarm;
13. Responses to chemical and petroleum spills and releases, structural failures and collapses;
14. Responses to high wind conditions, lightning, snow, and ice.

SECTION 4.0 WORKSITE HAZARD ASSESSMENTS

4.01 Performance of Job Hazard Analysis

The SSM and the competent persons for the contractor and each subcontractor performing work at the worksite shall identify those job functions that require the use of a Job Hazard Analysis (JHA). The document must identify the hazards associated with each work task and the controls to be used to avoid the hazards. Prior to the start of any work, the JHA must be reviewed and approved by the Port Authority Resident Engineer. At a minimum, the JHA form shall be based on the OSHA Publication # 3071: Job Hazard Analysis, Revised 2000, shall be developed with the effectiveness, understanding and the cooperation of all parties, the JHA shall be reviewed with input from the workers, and discussed with the work crew prior to the start of any work. The competent person and the SSM shall maintain copies of each JHA for the duration of the work.

4.02 Preparation of Required Regulatory Plans and Programs

Based upon the nature and scope of the work, the SSM shall establish and implement safety plans as specified in 29 CFR Part 1926, and ensure that such controls are implemented as contained in the approved HASP.

The SSM and the competent person for each subcontractor performing work shall determine when occupational exposure assessments are required for the work. Hazards such as noise, silica dust, metals, fumes, carbon monoxide, and respirable particulates, etc. The SSM shall arrange all such monitoring during the work. Each affected employee shall be notified in writing of the results.

The SSM shall ensure that all exposure monitoring is performed using approved methods and methodologies, i.e., OSHA and National Institute of Occupational Safety and Health (NIOSH) methods, and that the sampling frequency and results are representative of the work. The sampling instrumentation used shall be properly calibrated.

Samples collected shall be submitted to a laboratory maintaining a current certification, licensing, and current certifications, e.g., American Industrial Hygiene Association (AIHA) certification.

The results of these exposure assessments shall be compared to the Threshold Limit Values (TLVs) for Airborne Contaminants For Construction, 29 CFR 1926.55 Appendix A, and other applicable accepted and recognized exposure limits.

specifications. All inspections shall be conducted regularly and the report forwarded to the Port Authority Resident Engineer.

Prior to each use, the competent person for the contractor and each subcontractor shall ensure that the employee's personal fall arrest system (full body harness, connectors, lanyards, lifelines, and anchorage points) is properly inspected and that the system has the required tensile strength and load bearing capacity.

4.04 Ionizing Radiation

Contractors or subcontractors who perform activities using sources of ionizing radiation, such as X-rays must comply with the requirements of 29 CFR Part 192, the provisions of the Nuclear Regulatory Commission's Standards for the Control of Radioactive Material (10 CFR Part 20) and the New York State Department of Environmental Conservation (12 NYCRR Part 38). In particular, regulated sources must be securely stored, properly labeled and leak tested. Operator manual handling equipment users must be competent and specially trained in the proper use of the equipment.

4.05 Waste Management

All waste generated on site shall be properly stored, sorted, contained, and disposed of on a daily basis.

SECTION 5.0 HEALTH AND SAFETY REQUIREMENTS

The contractor and each subcontractor performing work shall be required to prepare and implement the requisite programs, plans, and procedures for the protection of worker health and safety, and to comply with all applicable Federal, State, and local rules, regulations, and ordinances. In addition to regulatory compliance, all site-specific requirements shall be followed.

5.01 General Duty Clause

The contractor and all subcontractors, workers and employees performing work shall comply with the requirements of the OSHA, Section 5 (a) and (b): General Duty Clause.

- 2) Shall comply with occupational safety and health standards OSHA.

Section (b): The contractor and all subcontractors:

- 1) Shall comply with occupational safety and health standards, regulations, and orders issued pursuant to OSHA which affect actions and conduct.

5.02 Record Keeping and Reporting Occupational Injuries

The contractor and each subcontractor performing work shall maintain records and posting consistent with the requirements specified in OSHA 29 CFR 1904.

5.03 General Safety and Health Provisions

The contractor and each subcontractor shall comply with the requirements of 29 CFR 1926, Subpart C: General Safety and Health Provisions.

5.04 Occupational Health and Environmental Controls

The contractor and each subcontractor shall comply with the requirements of 29 CFR 1926, Subpart D: Occupational Health and Environmental Controls. The following mandatory specific worksite requirements:

- a) For hand washing purposes, all temporary lavatories shall provide facilities with running hot and cold or tepid potable water, or a sanitizing agent. Hand wash stations providing running hot and cold or tepid water are permitted providing they are located in close proximity of the work area. A sign must be provided;
- b) A break area furnished with tables, chairs, hand wash station, first aid kit, lights, and trash containers must be provided;
- c) Trash, refuse, and construction debris shall not be allowed to accumulate for more than one day in areas of assembly, such as but not limited to break rooms, storage areas, and each jobsite location. A sufficient amount of trash receptacles must be provided.

- e) Provisions for the quick flushing of the eye shall be provided

5.05 Personal Protective Equipment

The contractor and each subcontractor shall comply with the requirements of 29 CFR 1926, Subpart E: Personal Protective and Life Saving Equipment, in addition to the mandatory specific worksite requirements:

- a) The minimal personal protective equipment requirements for all workers shall be hard hats, reflective safety vests, work boots, and eye protection. Eye protection shall be required when working on or adjacent to PATH track areas and structures.
- b) The SSM and the competent person for the contractor performing work shall select and issue all PPE identified in the safety analysis. Safety analyses shall be documented, maintained at the task site, and available to all workers.
- c) All selected PPE shall comply with the most recent American National Standards Institute (ANSI) requirements;
- d) Full-length pants and shirts with sleeves that cover the entire torso shall be worn at all times within the WTC Site.

5.06 Fire Protection and Prevention

The contractor and each subcontractor shall comply with the requirements of 29 CFR 1926 Subpart F: Fire Protection and Prevention, in addition to the mandatory specific worksite requirements. The contractor and the SSM shall be responsible for compliance and maintenance of fire safety. Fire safety shall not be the responsibility of subcontractors.

- a) Flammable and combustible liquids shall only be stored and transported in 2, or 5-gallon Type I and II safety cans with spring loaded covers and flame protection, or, in the alternative, United States Department of Transportation (DOT) approved containers.
- b) All safety cans and containers shall be protected from fire, falling objects. Appropriate color-coding and permanent labeling such as "Kerosene" or "Diesel" on the can to designate their contents shall be provided.

- d) At a minimum, an actively charged 20-B: C fire extinguisher mounted in plain view, with unobstructed access within 25 feet of and combustible liquid storage & use locations.
- e) During construction, a 2-A rated fire extinguisher shall be mounted adjacent to each stairway; an additional 2-A rated fire extinguisher shall be provided one for each 1500 square feet of building area, with a maximum travel distance not to exceed 75 feet.
- f) At least half of the distributed fire extinguishers shall be 2-A rated fire extinguishers with a classification of B: C, or multiple classification. All other fire extinguishers shall be rated not less than 20-B.
- g) Buckets and/or water supply are not acceptable alternatives to fire extinguishers.
- h) Pressurized water can extinguishers, if used, shall be provided with a freeze solution in areas open to ambient temperatures during construction.
- i) Appropriate, material-specific extinguishers shall be provided in areas specifically noted above.
- j) All self-propelled equipment (forklifts, cranes, rollers, etc.) shall be equipped with appropriate portable fire extinguishers.
- k) A sufficient number of portable extinguishers shall be stored in areas of proper distribution. Used or defective extinguishers shall be replaced with new units immediately after use or discovery of the defect. The services of an approved fire extinguisher contractor is recommended for periodic maintenance.
- l) All fire extinguishers shall be mounted off the floor, clearly visible location where necessary, and have unobstructed access to them.
- m) Fire extinguishers shall be maintained in a state of readiness. Annual tests and maintenance shall be not less than that required by NFPA standards (NFPA 10 - Standard for Portable Fire Extinguishers and NYC Fire Prevention Code).
- n) The SSM and the competent person for the contractor and erector shall post "No Smoking Signs" as necessary in all areas where

being constructed. A designated refuse area shall be established awaiting pickup. All combustible materials must be removed from the construction and the worksite on a daily basis.

- p) Active stairways, aisles, and all egress pathways shall remain clear of the storage of debris, combustible materials, flammable liquids, cylinders, and equipment.

5.07 Signage

The contractor and each subcontractor shall comply with the requirements of 1926, Subpart G: Signs, Signals, and Barricades.

5.08 Materials Handling

The contractor and each subcontractor shall comply with the requirements of 1926 Subpart H: Materials Handling, Storage, Use, and Disposal, in addition to the mandatory specific worksite requirements:

- a) The designated competent person for each work crew using ropes, natural and synthetic fiber rope, nylon/polyester/polypropylene ropes, shackles, eye-bolts, and hooks for the hoisting, lifting, supporting, and moving of materials shall at a minimum, inspect, maintain, and store the equipment at a frequency consistent with 29 CFR Part 1926.251: Rigging and Hoisting; Handling;
- b) The designated competent person shall provide documentation (daily, routine, and annual), maintain a copy of the inspection report, and provide a copy of the inspection report to the SSM.

5.09 Hand and Power Tool Use

The contractor and each subcontractor shall comply with the requirements of 1926, Subpart I: Tools – Hand and Power, in addition to the following worksite requirements:

- a) Prior to the performance of work, the designate competent person shall inspect all hand and power tools to ensure that workers

- b) Prior to use, the designate competent person shall ensure that the person is trained and proficient in the use, inspection, and maintenance of all electrical tools, pneumatically driven tools, hydraulic power tools, and powder actuated tools in accordance with applicable manufacturer's specifications;
- c) As referenced in 29 CFR Part 1926.300(b)(4)(iv), each contractor shall additionally evaluate the types of power tools noted;
- d) All power tools shall be inspected by the designated competent person to ensure switches are operational, and all power cords are firmly attached;
- e) To prevent displacement, all pneumatic airlines and hoses shall be secured to the other end and the tool through the use of whip lines, cotter pins, or other securing mechanism.

5.10 Welding and Cutting Operations

The contractor and each subcontractor shall comply with the requirements of 29 CFR 1926, Subpart J: Welding and Cutting, in addition to the following worksite requirements:

- a) At no time will free standing, unsecured compressed gas cylinders be stored on Site;
- b) A label indicating ownership shall be affixed to each compressed gas cylinder identifying the contractor as the cylinder user;
- c) All compressed gas cylinders shall either be secured by chains to a welder's handcart, or stored and secured by chains within storage cages;
- d) Storage cages shall be identified and labeled according to their contents;
- e) Compressed gas cylinders shall not be secured to building structural columns, scaffolds, ladders/stair towers, guardrails, or other vertical bar;
- f) All compressed gas cylinders when not in use shall be stored vertically with the cap in place;

immediate vicinity, and all locations that could be impacted by combustibles. Combustible materials and flammable liquids and gases shall be removed from the vicinity, or protected in-place. The fire watch shall remain at the location until there is no potential for combustible material ignition. The fire watch shall not perform any other duties when acting as a fire watch;

- i) During welding and cutting operations, surrounding employees shall be protected from spark and glare through the use of welders shields;
- j) Welding clamps shall not be connected to any electrical system or other component;
- k) For each individual torch operation, a Cutting/Welding Permit shall be issued from the Port Authority Resident Engineer prior to the start of the operation. Prior to all torch operations, the SSM shall submit the FDN to the Resident Engineer for the welder, and fire watch to the Port Authority Resident Engineer for approval;
- l) Compressed gas cylinders shall not be stored in direct sunlight or in locations where they cannot be seen or subject to impact.

5.11 Electrical

The contractor and each subcontractor shall comply with the requirements of NFPA 70E, 1926, Subpart K: Electrical, in addition to the following mandatory requirements:

- a) On a daily basis, prior to the performance of each shift, the contractor shall inspect all extension cords, power cords, plug and cord assemblies. Damaged or defective cords, plugs, outlets, and tools shall be removed from service.
- b) Extension cords with missing ground plugs must be removed from service and discarded;
- c) All extension cords shall be connected to in-line ground fault circuit interrupters. A competent person shall test each line to verify that it is grounded before use.

5.12 PATH Operational Safety Conditions and Precautions

or stand on switch rods, until the switch is properly authorized to be is securely clamped so that it cannot be moved.

Caution must also be exercised around train stop mechanisms, and of apparatus, which may move at any time. During winter weather cond switch heaters may be turned on, causing the heater rods, switch rods be hot and potentially cause burns if touched. Red sleeves are attached when the train stop heaters are turned on.

Entrance to any Power Signals & Communications (PS&C) f authorization and accompaniment by PS&C personnel. Any person (relay room, bungalow, high tension feeder room, wayside signal c particular care to avoid inadvertent contact with energized con apparatus that may cause electric shocks and burns resulting in pers death.

Impedance bonds are large black metal units mounted on the ties be generally at signal locations where there are insulated rail joints. safety precautions must be exercised before disconnecting any cable the impedance bonds, due to the presence of potentially dangerous Also, the internal tuning capacitors and secondary coil of the imped potential of 150 volts or higher.

Where the contractor's work is on or adjacent to the PATH ROW, subcontractor is required to annually pass the PATH's On Track Sa documentation and certify that the firm's employees has taken and course encompasses the On Track Safety Program, personnel communications, safety rules and procedures, emergency signals, PATH's On Track Safety Program is contained within Appendix II Rules.

- a) Access onto the PATH system tracks must be coordinated in a Authority Resident Engineer.
- b) As determined by the Port Authority Resident Engineer, the access onto the tracks will require annual mandatory PATH C in accordance with FRA regulations prior to commencing with
- c) Schedule and perform the Work in the sequence shown on th such a manner as not to delay, endanger, or interfere with PA extent feasible the scheduled sequence and the times of the

equipment and materials from such areas, within 1/2 hour of operations and stand by, if necessary, until directed by the Engineer to resume operations in such areas.

- d) Take all precautions necessary for protection of persons and property from dust and debris generated by operations, concrete mixing or placement operations which may stain, soil or damage property, or injury to persons. Erect waterproof, fire-resistant, UL labeled tarpaulins with flaps or other protective enclosures as approved by the Engineer.
- e) The contractor and each subcontractor shall conform to the following:
 - 1. Do not enter upon PATH Right-of-Way unless a Port Authority Engineer in Charge (EIC) and the PATH flagmen assigned to the work are present.
 - 2. Do not permit material, equipment, or other objects to be stored on or adjacent to the PATH Right-of-Way.
 - 3. All personnel on or adjacent to the PATH ROW are required to wear a valid Roadway Worker Protection Certification card on their person at all times for inspection by the EIC.
- f) Provide sound suppression devices on gasoline and diesel powered equipment and pneumatic tools as required to maintain noise levels within limits specified in 29 CFR Part 1926 OSHA. Maintain noise suppression devices in proper operating condition throughout the time of use. Make adjustments and repair as required to maintain noise within limits specified in 29 CFR Part 1926.52, Table D-2.
- g) Do not store combustible products or flammable materials on or adjacent to the PATH ROW.
- h) At all times while performing Work, require workers to wear safety vests, eye protection, hard hats and boots with non-slip soles. Safety vests shall have a visible reflective surface of not less than 1000 square inches on front and back.
- i) Do not burn or bury debris of any type on PATH property or adjacent to the PATH ROW, down sewers or into waterways.
- j) Construction Site Conditions and Performance in Tunnels and

2. Use of liquids having a flashpoint below 73 degrees F or 100 degrees F is prohibited, unless specifically approved by the Resident Engineer.
3. Provide and operate air-moving equipment when fumigations are in progress. During such operations provide air quality monitoring for toxicity (PPM), oxygen deficiency and combustible gas.

k) PATH Rail Transportation:

Under no circumstances will the contractor or any subcontractor use PATH passenger trains to transport personnel, materials or equipment in connection with the performance of the Work.

l) PATH Flagger Services:

Flaggers are required for the following operations in connection with the Work:

1. Work within or closer than 10 feet to the PATH Right-of-Way.
2. Work that requires crossing or obstruction of tracks;
- ~~3.4.~~ Use of PATH rail transportation or contractor's rail transportation;
- ~~4.5.~~ Work that in any way interferes with or interrupts PATH operations;
5. Work, which, in the sole discretion of the Port Authority Resident Engineer, requires flaggers for safety purposes.

m) Traction Power and Existing Utilities:

1. The contractor's attention is called to the fact that there are electric lines and rails for PATH traction power at or near the Work and no representation is made that such lines and rails shall be energized during performance of the Work of the Contractor. The Contractor shall take all necessary precautions to protect his personnel and equipment by his operations from injury from such high voltage electric lines. Such lines and rails will remain energized for PATH traction power until shut-off is approved by the Port Authority Resident Engineer.

of the affected systems, as approved by the Port Authority. Coordinate with the Port Authority Resident Engineer for any work otherwise affecting any operating system, utility or service.

3. Shut-off and turn-on of traction power or existing communication service will be performed by PATH;
4. Notify the Port Authority Resident Engineer of requirements.

n) PATH On-Track Safety Program:

PATH requires that all contractor and subcontractor personnel working in the track area at any time be certified by successfully completing the "PATH ON-TRACK SAFETY PROGRAM" in compliance with the Rules and Regulations of the Federal Railroad Administration (FRA) Regulation 49 CFR PART 214, Subpart C, entitled "SAFETY PROTECTION". Contractor personnel not certified under this program are not permitted to enter the PATH track area. On a monthly basis, PATH will conduct a four-hour certification class, which includes a certification test for personnel representing the contractor. The contractor's supervisory staff must attend, train and certify all additional contractor personnel that may be required under the Contract. A letter certifying that the listed contractor personnel have completed the "PATH ON-TRACK SAFETY PROGRAM" and, that they understand and will comply with all requirements of FRA rules, shall be submitted to the Manager, System Safety and Security Division at One PATB Plaza, New York, NY 10038-07306, Tenth Floor, within 48 hours of such training. Only personnel who have received such letter will be permitted to enter the track area.

5.13 Scaffolding – Support, Suspended, Aerial

The contractor and each subcontractor shall comply with the requirements of FRA Regulation 1926 Subpart L: Scaffolds and Scaffolding Systems, in addition to the specific worksite requirements:

- a) Only a trained work crew under the supervision of a competent person is permitted to erect, use, modify, move, or dismantle any support or aerial scaffold;
- b) The SSM shall maintain a list of the names and training experience of all contractor and subcontractor workers and/or employees competent to erect, use, modify, move, or dismantle any support or aerial scaffold.

and scaffolding system, or aerial lift complies with all applicable standards acceptable for use;

- d) The competent person for the work crew erecting, using, dismantling a scaffold and a scaffolding system, or using an aerial lift shall use a checklist, keep a copy of the completed checklist at the work site, and attach a safety sign or tag to the SSM with a copy;
- e) At a minimum, on a weekly basis, the competent person for the work crew using, dismantling a scaffold and scaffolding system, or an aerial lift shall attach a notification sign or tag to the scaffold or system indicating the date of inspection.

5.14 Fall Protection

The contractor and each subcontractor shall comply with the requirements of 1926 Subpart M: Fall Protection, in addition to the following minimum requirements:

- a) All workers and/or employees on a walking/working surface (including side or edge which is equal to or greater than six feet above the ground, but not limited to wells, pits, excavations, holes, wall openings, hoist areas, material loading/off loading areas) shall be protected through the use of guardrails, personal fall arrest, safety nets, or covers;
- b) Prior to each use, the competent person for the contractor and subcontractor shall ensure that his employee's personal fall arrest system (full body harness, Dee rings, snap hooks, lanyards, lifelines, and anchorages) shall be inspected, in good condition, and have the required tensile strength and capacity;
- c) All workers and employees walking or working at any height shall be protected from falling process or piece of equipment shall be protected from falling through the use of guardrails, personal fall arrest, or safety nets;
- d) All workers and employees exposed to falling objects shall wear a hardhat, and be protected from falling objects through the use of safety nets, canopies, or restricted access;
- e) Personal fall arrest shall be required for all workers and employees

- f) A Qualified Person as defined by 29 CFR Part 1926.32 shall inspect, and maintain the system as designed;
- g) The SSM for the contractor and the competent person for subcontractor performing work on site shall develop an emergency rescue plan for the event a worker who experienced a fall wearing a personal fall protection system is to be rescued.

5.15 Cranes, Derricks, Hoists, Elevators and Conveyors

The contractor and each subcontractor shall comply with the requirements of 29 CFR 1926, Subpart N: Cranes, Derricks, Hoists, Elevators, and Conveyors, and the Chapter entitled "Rules and Regulations" of the NYCBC, in addition to the following mandatory specific worksite requirements:

- a) The contractor shall maintain a copy of the Certificate of Approval for Operation issued by the Cranes and Derricks Division of the Department of City Planning of the City of New York, and copies of all current licenses for performing work on the WTC Site;
- b) In addition, the contractor must submit an application for Inspection on approved Building Department forms to the Chief Building Inspector for review and approval. The contractor must also submit to the Chief Building Inspector safety testing in accordance with the NYCBC in the presence of the Chief Building Inspector, Resident Engineer and the SSM. All testing results will be maintained on file by the SSM for inspection by the I&SD-RM;
- c) If deemed necessary, the contractor shall prepare and submit a Safety Plan and Procedure to the Port Authority Resident Engineer for review and approval in accordance with the requirements of the NYCBC.

5.16 Motor Vehicle and Mechanical Equipment

The contractor and each subcontractor shall comply with the requirements of 29 CFR 1926, Subpart O: Motor Vehicles, Mechanized Equipment, and Material Handling Equipment, in addition to the following mandatory specific worksite requirements:

- a) Each operator of motor vehicles on the WTC Site shall

- displayed on each side of the vehicle. Markings can be painted on the vehicle;
- c) All vehicles must be properly insured and documentation upon request. Signs shall be sufficient size to be readable. Minimum, vehicle signs shall contain:
 - 1. Company Name
 - 2. Company Address
 - 3. Company Telephone Number
 - d) The contractor will furnish, at their own expense, quality necessary to control the work traffic, unless otherwise directed by Resident Engineer. Flagmen shall be provided with appropriate equipment;
 - e) All vehicles with obstructed view to the rear, and all other vehicles shall be equipped with a functioning back-up alarm;
 - f) Employee owned vehicles and/or equipment shall be properly designated by the Port Authority Resident Engineer. All vehicles/equipment are subject to removal. The Port Authority shall be responsible for costs respective of towing fees, vehicle damage and/or any other action;
 - g) All construction equipment windshields and side windows shall be unbroken. Safety equipment such as head, tail, brake, and chain shall be in good repair, clean and tested daily, or at the beginning of each shift;
 - h) All operators of construction equipment shall be properly licensed and use that equipment by the SSM. Copies of certifications shall be maintained in file onsite by the SSM and available upon request to Resident Engineer;
 - i) Vehicles used to transport personnel shall have seats firmly secured to the number of individuals to be carried. All passengers shall be required to utilize a manufacturer installed restraint device. Standing passengers in vehicles is prohibited.

5.17 Excavations

The contractor and each subcontractor shall comply with the requirements of 1926 Subpart P: Excavations, in addition to the following mandatory requirements:

- a) No subsurface penetrations, core drilling, pilot holes, or other operations are to be performed before either the Port Authority or utility performs a mark-out. All underground utilities shall be protected for the duration of the operation;
- b) The competent person for each crew performing excavation shall be present at the worksite at all times when workers are in a trench;
- c) A means of access and egress once the excavation or trench is formed shall be provided, and depending upon the soil classification shall provide cave-in protection when the depth reaches 5 feet, and when the depth of the trench or excavation equals or exceeds 6 feet;
- d) Establish a warning system to protect workers within the excavation from vehicles;
- e) All overhead hoisting operations that could produce material falling into the excavation or trench shall be evaluated and the necessary measures be taken;
- f) At a minimum, on a daily basis prior to the performance of excavation following an incident that possibly could affect the integrity of the excavation, the competent person for each crew performing excavation shall inspect the excavation, protective system, egress ways, and shoring. Inspections shall be documented, with a copy maintained at the worksite and provided to the SSM;
- g) Prior to the commencement of any trench work, a plan showing the width and depth of the trenching is to be submitted to the Engineer for review and approval. If trench shoring or shielding is required, it shall be prepared and stamped by a licensed NYS Professional Engineer;
- h) Open trenches, excavations, and stockpiled material at the close of

Working within a covered trench or excavation without propping it is prohibited.

5.18 Concrete and Masonry Work

The contractor and each subcontractor shall comply with the requirements of 1926 Subpart Q: Concrete and Masonry Construction.

5.19 Steel Erection

The contractor and each subcontractor shall comply with the requirements of 1926, Subpart R, in addition to the following mandatory specific work:

- a) Multiple erection loads (Christmas treeing) is prohibited;
- b) The raising or lowering of loads above workers, pedestrian traffic, or other workers is strictly prohibited;
- c) Personal platforms must have a positive-lock latch with a safety assembly, or provide a cable between the master links and ball;
- d) When working at a height equal to or greater than fifteen feet, 100 percent tie-off is required.

5.20 Underground Construction, Caissons, Cofferdams

The contractor and each subcontractor shall comply with the requirements of 1926, Subpart S.

5.21 Demolition

The contractor and each subcontractor shall comply with the requirements of 1926 Subpart T: Demolition, in addition to the following mandatory requirements:

- a) Prior to the demolition of any structure, the subcontractor shall submit a Demolition Plan to the SSM, and Port Authority

inspection. A copy of the inspection report shall be provided to the Authority Resident Engineer for review and approval. At a minimum, the contractor shall address the following:

1. Verify the location and condition of any remaining utilities to be removed prior to demolition, all active utilities and services need to be properly isolated, re-located, or guarded;
2. Verify the stability of the existing, and adjacent structures. All structures must be properly braced, shored, and supported to prevent collapse;
3. Identify personal and debris fall hazards, and establish safety measures suitable for each phase of the demolition;
4. Identify if waste chutes will be used, and if used their proper installation, and maintenance;
5. Identify the protective measures to be provided for the public and adjacent roadways, buildings and other structures in accordance with the provisions of Subchapter 19 of the NYCBC.

5.22 Power Distribution

The contractor and each subcontractor shall comply with the requirements of 24 NYCRR 206 Subpart V: Power Transmission and Distribution.

5.23 Rollover Protective Structures; Overhead Protection

The contractor and each subcontractor shall comply with the requirements of 24 NYCRR 206, Subpart W: Rollover Protective Structures; Overhead Protection.

5.24 Stairways and Ladders

The contractor and each subcontractor shall comply with the requirements of 24 NYCRR 206, Subpart X: Stairways and Ladders, in addition to the following worksite requirements:

- c) Access and egress ways and landings to and from each ladder tower shall remain unobstructed and in good repair;
- d) Self-supporting and non self-supporting stairways and ladders shall be maintained in their manufactures designed and specified positions;
- e) The use of extension ladder portions shall be prohibited.

5.25 Hazard Communications

The Site Safety Manager shall establish a Hazard Communications Plan in accordance with the OSHA standard 29 CFR Part 1910.1200 for multi-employer sites, in addition to the mandatory specific worksite requirements:

- a) All chemical containers shall be properly labeled to identify the contents;
- b) All chemical containers shall be properly stored and transported;
- c) Material Safety Data Sheets (MSDS) for each chemical product used shall be maintained onsite by the SSM, and shall be available to all workers on all shifts, the Port Authority Resident Engineer, WTC Site Facility Manager, and the PAPD.

SECTION 6.0 ENVIRONMENTAL CONTROLS

6.01 Abrasive Blasting

Prior to any abrasive blasting or surface cleaning operations, excluding the competent person for the work crew performing the operation shall develop a plan to address the following:

- a) Respiratory and personal protective equipment required;
- b) Work area isolation and ventilation required;
- c) Type of equipment to be used and the blasting agent;
- d) Dust control and debris containment/collection methods to be used.

6.02 Diesel Emission Mitigation

The contractor and each subcontractor shall minimize all air-borne diesel-powered equipment and vehicles at all times during the project. Non-Road (e.g., backhoes, bull dozers, cranes, excavation machines) diesel-powered equipment, including stationary (e.g., generators, compressors) with horsepower greater than 50 HP shall incorporate diesel emission controls. In addition, all such equipment and engines shall comply with local regulations applicable to exhaust emission controls and safety. The equipment to be employed are to consist of the following:

a) Ultra-Low Sulfur Diesel (ULSD) Fuel:

All diesel-powered Non-Road equipment to be used in the project with a rated horsepower greater than or equal to 50 HP shall use ULSD fuel used without engine modification or fuel compartment flush. The fuel shall contain an average sulfur content of no more than 15 ppm, measured over a 30-day month period. In the event that the contractor can clearly demonstrate compliance with an average sulfur content of not more than 15 ppm is not achieved, a waiver may be granted by the Port Authority Resident Engineer if the fuel has become available, or an approved equivalent is available. The Authority Resident Engineer to satisfy the intent of this Section shall collect monthly samples of the ULSD fuel used during the project. The samples shall include, but are not limited to: ASTM D6920 – 03 “Total Sulfur in Diesel Distillates, Reformulated Gasolines, Diesels, Biodiesels, and Gasolines by Oxidative Combustion and Electrochemical Detection” or ASTM D6920 – 03 “Method for Total Sulfur in Liquid Aromatic Hydrocarbons and Gasolines by Oxidative Combustion and Electrochemical Detection.”

The ULSD shall be obtained from any distributor capable of supplying the fuel of this Section. All ULSD fuel shall be dispensed directly from either a dedicated on-site fuel storage facility or segregated storage. In the case of onsite storage, all such facilities shall comply with all applicable Codes pertaining to the storage, containment and dispensing of fuel. The implementation must be submitted and approved by the Port Authority Resident Engineer.

A listing of ULSD fuel suppliers is included on the following page:

ULSD Suppliers:

b) Diesel Emissions Control Technologies:

All Non-Road diesel-powered equipment with a rated horsepower that Control Devices (devices) utilizing the best available technology devices may consist of Diesel Oxidation Catalysts (DOCs), Diesel Particulate Filters (DPFs), is on site for a period of greater than 20 calendar days. Emissions combinations thereof, or any other available technology capable of maximally reducing the emission of pollutants from such engines. Such reductions are to be targeted primarily to particulate matter (PM) and secondarily on the reduction of nitrogen oxides and shall in no event result in an increase in the emissions of other pollutants. Such devices shall be contained in the U.S. Environmental Protection Agency's Verified Retrofit Technology List, the list of California Air Resources Board Verifications, or as accepted by the Port Authority Resident Engineer. For maximal level of pollutant reductions intended under this section, for more information, refer to the following websites:

EPA's Verified Technology List:

<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>

California Air Resources Board Verified
<http://www.arb.ca.gov/diesel/verdev/level1.htm>

Vendors of such technologies include: Cleaire, Engel, Fleetguard Emission Solutions, Donaldson, Engine Control, and other approved equal.

c) Diesel Construction Equipment Age Requirements:

In order to facilitate the application of verified emission control technology on diesel-powered Non-Road equipment with a rated horsepower greater than 20 and used on site for a minimum of 20 calendar days for the purpose of a manufacture model year greater than or equal to 1994.

d) Diesel Emissions Mitigation Plan For Non-Road and Construction Equipment:

Diesel Emission Mitigation Plan (the "DEM Plan") shall be prepared and submitted to the Port Authority Resident Engineer for review and approval prior to the use of any diesel-powered engines, including Non-Road Construction Equipment. The DEM Plan shall identify all engines and vehicles to be utilized on the Port of Work, whether owned by, operated by or on the behalf of the Port Authority, that rented by the Port Authority as the rental agency of the contractor.

with devices. The contents of this plan shall specifically address the Subsections presented below:

1. *Work Zone Creation*: The contractor shall establish On-Road (trucks) staging zones for the off-loading and loading of materials at the construction site. Such zones shall be located to minimize exposure to emissions from diesel engines and vehicles on sensitive receptors and buildings. In addition, the contractor shall ensure that diesel powered equipment shall be located away from the fresh air intakes of sensitive receptors. Port Authority Resident Engineer;
2. *Diesel Engine Idling Policy*: The idling time of Non-Road Vehicles shall be limited to three (3) consecutive minutes, as determined by the Port Authority Resident Engineer, except as follows:
 - a) When an On-Road Vehicle is forced to remain idling due to traffic conditions or mechanical difficulties over which the contractor has no control;
 - b) When it is necessary to operate heating, cooling or other equipment to accomplish the intended use of the vehicle; installation and operation of such equipment is necessary;
 - c) To bring the vehicle to the manufacturer's recommended operating temperature. In this event, the temperature shall be as indicated in the Diesel Emission Mitigation Plan;
 - d) When the outdoor ambient temperature is below 40 degrees Fahrenheit;
 - e) When the vehicle is being actively worked on for maintenance.

6.03 Dust Mitigation

The contractor and each subcontractor shall control fugitive dust at all times, 7 days per week, including non-working hours, weekends, and holidays. The contractor shall implement measures for mitigating fugitive dust particulate dispersions from the construction activities. The contractor shall ensure the performance of Work, such as earth moving and demolition activities, shall be performed in accordance with the following:

- a) The spraying of a (non-hazardous, biodegradable) dust suppressant.

The contractor and each subcontractor shall comply with all F regulations applicable to the control and mitigation of fugitive dust di shall submit a Dust Control Plan ("DC Plan") to the Port Authority review and approval to address the specific measures contained in this DC Plan shall also be provided to each subcontractor who shall be provisions of his subcontract with the contractor. The DC Plan information for responsible individual(s) from the contractor with 2 availability, and who have been vested with the authority to imp mitigation measures identified in the DC Plan. The DC Plan mu procedures for all such controls and measures as approved by the Engineer, and be job specific to address all anticipated Work acti fugitive dust dispersions (e.g., demolition, saw-cutting, pavement mil

6.04 Noise And Vibration Abatement

Where practicable, the contractor and each subcontractor shall s activities to avoid and/or minimize any adverse acoustic noise or vib sensitive receptors as determined by the Port Authority Residen sensitive receptors presently include the Millennium Hotel on Church on Vesey Street, Multi Family Residential Structure on the corner Broadway and residential buildings along the south side of Liberty St requirements are as follows:

- a) In the event that the Port Authority Resident Engineer deter may or has exceeded the noise thresholds specified in T Authority Resident Engineer may direct the contractor to imp abatement measures deemed appropriate by the Port Auth and/or as specified and approved in the contractor's Noise Plan (the "NCA Plan"):

Table 1: Noise Limitation Thresholds For Sensitive Receptor Sites – Re sites shall be restricted to the following levels:

TIME	
Weekdays, 7AM to 4 PM	
All Other Times	

- b) The contractor shall comply with all appropriate Federal, state and local laws, rules and regulations applicable to noise control and mitigation. The contractor shall describe his intended mitigation procedures and methods to be used during the performance of Work. One (1) original and one (1) copy of the NCA Plan and revisions are to be submitted to the Port Authority Resident Engineer. A copy of the NCA Plan and all revisions shall be provided to the contractor at the commencement of his work. The subcontractor shall be required to comply with the requirements of the approved NCA Plan in all subcontract with the contractor. The NCA Plan shall include the following:
1. Means and methods for the implementation of all noise control measures;
 2. Design drawings of noise abatement enclosures and barriers, prepared and stamped by a Licensed Professional Engineer in the State of New York;
 3. Description of physical noise mitigation materials, including manufacturer and its specifications. All such materials shall be approved by the Port Authority Resident Engineer;
 4. Catalogue cuts and technical data sheets of construction equipment to be used during Work;
 5. The qualified acoustical firm procured by the contractor to provide noise monitoring services for the creation and implementation of the NCA Plan.
- c) To ensure compliance with this Section, the contractor shall procure a qualified acoustical firm to provide assistance in the creation and implementation of the NCA Plan, and to provide noise monitoring on site. Each employee who will actually perform measurements or monitoring shall receive appropriate training, and have demonstrated experience in the implementation of mitigation techniques for similar types of construction projects. Such employees shall have within the preceding five years been actively consulting on at least three projects of similar size and complexity involving specific noise control and abatement initiatives, preferably in the construction industry. Submit to the Port Authority Resident Engineer for review and approval the qualifications of the firm and employees as stipulated above.
- d) The contractor shall continuously monitor the actual noise levels during construction activities to ensure compliance with the noise limits set forth herein. The Port Authority will monitor noise levels at known locations and other locations deemed appropriate by the Port Authority Resident Engineer for compliance. When noise level measurements exceed the allowed limits, the contractor shall cease all construction activities and implement corrective measures to ensure compliance.

that a conflict between the contractor's sound level measurement and the Port Authority, the Port Authority's noise level measurements

SECTION 7.0 DISCIPLINARY ACTIONS

The following policy shall be implemented regarding disciplinary actions for employees who violate or disregard the requirements of the WTC approved contractor and subcontractor Health and Safety Plans. The nature of the infraction and its impact on the safety and health of other workers in the environment shall be evaluated, and disciplinary action shall be taken by the supervisor and Contractor as deemed appropriate by the Port Authority. Workers who may request the advise from the SSD and the SSM.

- a) Site workers whose conduct creates, created, or contributed to a safety situation as referenced in 29 CFR 1903.13: Inspections, Penalties - Imminent Danger, or who knowingly allowed an unsafe condition to exist will be removed from the site, barred from returning to the site, and their WTC Identification credentials revoked;
- b) Site workers who fail to comply with the safety and health requirements of the Site Safety Program and approved contractor and subcontractor Health and Safety Plans shall be notified verbally by the SSM. The SSM shall document the conversation, and forward a written copy describing the infraction to the contractor and/or subcontractor employing the worker, and the Port Authority. If the worker is again determined to be non-compliant for a second time, the employee will be removed from the site, barred from returning to the site, and their WTC Identification credentials revoked.

APPENDIX C

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION**

MASTER AGREEMENT FOR "LOWER MANHATTAN RECOVERY G

**For Federal Transit Administration Agreements under
the 2001 Emergency Supplemental Appropriations Act for Recovery
Terrorist Attacks on the United States, Public Law 107-117,
the National Defense Authorization Act for Fiscal Year 2002,
Fiscal Year 2002 Department of Defense Appropriations Act,
Fiscal Year 2002 Department of Transportation and Related Agencies
Public Law 107-206; the Consolidated Appropriations Resolution
the Robert T. Stafford Disaster Relief and Emergency Assistance
42 U.S.C. § 5121-5206; and/or other Federal enabling**

N.B. This Agreement is based on the standard FTA Master Agreement which is in grants and cooperative agreements. Inapplicable provisions of that agreement are Agreement and left in place for the benefit of Recipients who also receive funds under Laws who are familiar with the section numbers.

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UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION

LOWER MANHATTAN RECOVERY MASTER AGREEMENT

The following terms and conditions apply to the Federal assistance authorized by the 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to Terrorist Attacks on the United States, Public Law 107-38; the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107; the Fiscal Year 2002 Department of Defense Appropriations Act, Public Law 107-117; the Fiscal Year 2002 Department of Transportation and Related Agencies Appropriations Act, Public Law 107-206; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Law 93-288; and/or other Federal enabling legislation administered by FTA.

This Agreement includes a comprehensive listing of requirements applicable to the various Projects that will be funded under the authorities listed above. Not every provision of this Agreement will apply to every Project for which FTA provides Federal financial assistance through a Grant Agreement. The type of Project, the federal statute authorizing financial assistance for the Project, and the legal status of the Recipient as a "State" or "local government" will determine which requirements apply. Requirements that do not apply will not be enforced. The provisions of this Agreement will continue to apply to the Project unless or until modified or superseded by subsequent Federal requirements or Agreements.

Thus, in consideration of the mutual covenants, promises, and representations herein, FTA and the Recipient agree as follows:

Section 1. Definitions.

a. Application means the electronically signed and dated request for Federal financial assistance, including any amendment thereto, with all explanatory, supporting, and supplementary documents filed with and accepted or approved by the FTA by or on behalf of the Recipient.

b. Approval, Authorization, Concurrence, Waiver means a written statement (transmitted electronically or in hard copy) by a Federal Government official authorized to permit the Recipient to perform or omit an action required by this Grant Agreement, which action may not be performed or omitted without such permission. Unless stated otherwise, an approval, authorization, concurrence, or waiver permitting the performance or omission of a specific action does not constitute permission to perform or omit other similar actions. **Oral permissions or interpretations have no legal force or effect.**

c. Approved Project Budget means the most recent statement, approved by the FTA, of the costs of the Project, the maximum amount of Federal assistance for which the Recipient is currently eligible, the specific tasks (including specified contingencies) covered, and the estimated cost of each task. As used in the "Approved Project Budget," the term "Scopes" means categories and the term "Scope Level Codes" means category codes. Although "Scopes" and "Scope Level Codes" generally indicate the type of activities encompassed by the Project, the data listed under "Scopes" and "Scope Level Codes" (for example), do not necessarily reflect, and are not intended to be treated as, prima facie evidence of the precise limits or boundaries of a Project, unless stated otherwise. Consequently, the data listed under "Scopes" and "Scope Level Codes" will not always constitute the precise parameters of the scope of the Project. FTA reserves the right to consider other information in determining the "Scope of the Project" when that term is used for legal purposes.

d. Environmental Protection Agency (EPA) is the Federal agency with primary authority to promulgate and enforce legislation to protect the environment.

e. Federal Government means the United States of America, including any executive department or agency thereof.

f. Federal Transit Administration (FTA) is the Federal agency designated to award funds and oversee implementation of the project. Any reference to the Urban Mass Transportation Administration is deemed a reference to the Federal Transit Administration.

g. Federal Transit Administrator also designates the former Urban Mass Transportation Administrator. Any reference in law, map, regulation, document, paper, or other record of the United States to the Urban Mass Transportation Administrator is deemed a reference to the Federal Transit Administrator.

h. "FEMA" is the Federal entity with primary authority to provide federal assistance following a Presidentially-declared major disaster or emergency. It is part of the Emergency Preparedness and Response Directorate of the Department of Homeland Security.

- i. FHWA is the acronym for the Federal Highway Administration, an operating administration of the U.S. Department of Transportation (U.S.DOT).
- j. FTA is the acronym for the Federal Transit Administration, an operating administration of the U.S. Department of Transportation (U.S. DOT).
- k. Grant Agreement means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project in which FTA does not take an active role or retain substantial control, in accordance with the requirements of 31 U.S.C. § 6304. The Grant Agreement consists of the FTA Award establishing the specific parameters of the Project, an Execution statement signed by the Recipient, and may include other Special Conditions or Requirements. This Master Agreement is incorporated by reference and made part of the Grant Agreement.
- l. Local Government includes a public transit authority, as well as a county, municipality, city, town, township, special district, council of governments (whether or not incorporated as a private nonprofit organization under State law), regional or interstate government entity, or any agency or instrumentality thereof. For purposes of the New York Recovery funding program, the Port Authority of New York and New Jersey, the New York Mass Transit Administration, and the City of New York are considered local governments.
- m. Lower Manhattan Recovery Office (LMRO) is an FTA office with responsibility for carrying out the Lower Manhattan Recovery projects.
- n. Project means the activity or activities (task or tasks) listed in Project Description, the Approved Project Budget, and any modifications stated in the Conditions to the Grant Agreement applicable to the Project
- o. Recipient means the entity that receives Federal assistance directly from FTA to support the Project. The term "Recipient" includes each FTA "Grantee." Except as FTA permits otherwise, the Recipient is the entire legal entity even if only a single organization within that entity is designated as the Recipient in the Grant Agreement. Unless expressly stated otherwise, in the case of a Recipient that is a consortium, partnership, or similar multi-party entity, each participant in, member of, or party to that consortium, partnership, or multi-party entity is treated as a "Recipient" for purposes of compliance with applicable requirements of this Grant Agreement.
- p. Secretary means the U.S. DOT Secretary, including his or her duly authorized designee.
- q. Subagreement means an agreement through which a Recipient awards financial assistance derived from FTA to the subrecipient as defined below. The term "subagreement" also includes the term "subgrant," but does not include the term "third party subcontract."
- r. Subrecipient means any entity that receives Federal assistance awarded by a FTA Recipient, rather than FTA directly. The term "subrecipient" also includes the term "subgrantee," but does not include "third party contractor" or "third party subcontractor."

- s. Third Party Contract means a contract or purchase order awarded by the Recipient or subrecipient to a vendor or contractor, financed in whole or in part with Federal assistance awarded by FTA.
- t. Third Party Subcontract means a subcontract at any tier entered into by the third party contractor or third party subcontractor, financed in whole or in part with Federal assistance originally derived from FTA.
- u. Transit means transportation by a conveyance, either publicly or privately owned, that provides regular and continuing general or special public transportation to the public, but does not include school bus, charter, or sightseeing transportation. The term "transit" also includes "mass transportation" and "public transportation."

Section 2. Project Implementation.

a. General Requirements.

(1) Project Description. The Recipient shall perform the work described in its Application which is incorporated by reference in the approved Grant.

(2) Effective Date. The effective date of this Agreement is the date on which the FTA Authorized Official signs it.

(3) Recipient's Capacity. The Recipient will maintain or acquire sufficient legal, financial, technical, and managerial capacity to plan, manage, and complete the Project, and provide for the use of Project facilities and equipment, to comply with the terms of the Grant Agreement, the Approved Project Budget, the Project schedules, the Recipient's annual certifications and assurances to FTA, and all applicable Federal laws, executive orders, regulations, directives, and published policies governing this Project.

(4) Completion Dates. The Recipient agrees to complete the Project in a timely manner. Milestone dates and other Project completion dates for the Project are to be treated as good faith estimates rather than precise obligations, except where otherwise provided.

b. U.S. DOT Administrative Requirements. The Recipient acknowledges that Federal administrative requirements differ based on the type of entity receiving Federal assistance: A Recipient that is a State or a local government will comply with U.S. DOT regulations, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments," 49 C.F.R. Part 18.

c. Application of Federal, State, and Local Laws and Regulations.

(1) Federal Laws and Regulations. Federal law or specific laws authorizing Project approval control Project implementation. Implementing regulations, policies, and related administrative practices applicable on the effective date of this Grant may be modified after the

date when the Recipient executes the Grant Agreement, and might apply to this project. New Federal laws, regulations, policies, and administrative practices may be promulgated after the date when the Recipient executes the Grant Agreement, and might apply to this project. The most recent of such Federal requirements will govern the administration of the Project at any particular time, unless FTA issues a written determination otherwise. All standards or limits within this Lower Manhattan Recovery Master Agreement are minimum requirements, unless modified by FTA.

(2) State, Territorial, and Local Law. In instances when a Federal statute or regulation pre-empts State, local, or territorial law, the Recipient must abide by the Federal statute or regulation. Otherwise, no provision of this Agreement shall require the Recipient to observe or enforce compliance with any provision, perform any other act, or do any other thing in contravention of State, territorial, or local law. If any provision herein would require the Recipient to violate State, territorial, or local law, the Recipient will notify FTA immediately in writing in order that appropriate action may be taken

d. Recipient's Primary Responsibility to Comply with Federal Requirements. Irrespective of participation by other parties in the Project, and unless notified otherwise in writing by the FTA, the Recipient is ultimately responsible for compliance with all Federal requirements applicable to this Project.

e. Recipient's Responsibility to Extend Federal Requirements to Other Entities. The Recipient is responsible for extending all applicable Federal requirements to all parties participating in the implementation of the Project.

f. No Federal Government Obligations to Third Parties. Absent the Federal Government's express written consent, the Federal Government shall not be subject to any obligations or liabilities to any subrecipient, any third party contractor, or any other person not a party to the Grant Agreement in connection with the performance of the Project. Notwithstanding that the Federal Government may have concurred in or approved any solicitation, subagreement, or third party contract, the Federal Government has no obligations or liabilities to any party, including any subrecipient or any third party contractor.

g. Changes in Project Performance (i.e., Disputes, Breaches, Defaults or Litigation). The Recipient will notify FTA immediately of any change in local law, conditions (such as its legal, financial, or technical capacity), or any other event that may significantly affect the Recipient's ability to perform the Project in accordance with the terms of the Grant Agreement. In addition, the Recipient will notify FTA immediately of any current or prospective major dispute, breach, default, or litigation that may affect the Federal Government's interests in the Project or the Federal Government's administration or enforcement of Federal laws or regulations. The Recipient will inform FTA before naming the Federal Government as a party to litigation for any reason, in any forum.

Section 3. Ethics.

a. Code of Ethics. The Recipient will maintain a written code or standards of conduct that shall govern the performance of its officers, employees, board members, or agents engaged in the award or administration of third party contracts or subagreements supported by Federal assistance. This code or standards of conduct shall provide that the Recipient's officers, employees, board members, or agents may neither solicit nor accept gratuities, favors, or anything of monetary value from any present or potential contractor or subrecipient. The Recipient may set *de minimis* rules where the financial interest is not substantial, or the gift is an unsolicited item of nominal intrinsic value. This code or standards shall also prohibit the Recipient's officers, employees, board members, or agents from using their respective positions for a purpose that constitutes or presents a real or apparent personal or organizational conflict of interest or personal gain. As permitted by State or local law or regulations, the code or standards shall include penalties, sanctions, or other disciplinary actions for violations by the Recipient's officers, employees, board members, or their agents, or by contractors or subrecipients or their agents.

(1) Personal Conflicts of Interest. The Recipient's code or standards of conduct will prohibit the Recipient's employees, officers, board members, or agents from participating in the selection, award, or administration of a third party contract or subagreement supported by Federal funds if a real or apparent conflict of interest would be involved. Such a conflict would arise when any of the following parties has a financial or other interest in the entity selected for award: (a) an employee, officer, board member, or agent; (b) any member of his or her immediate family; (c) his or her partner; or (d) an organization that employs, or intends to employ, any of the above.

(2) Organizational Conflicts of Interest. The Recipient's code or standards of conduct will include procedures for identifying and preventing real and apparent organizational conflicts of interest. An organizational conflict of interest exists when the nature of the work to be performed under a proposed third party contract or subagreement may, without some restrictions on future activities, result in an unfair competitive advantage to the third party contractor or subrecipient or impair its objectivity in performing the contract work.

b. Debarment and Suspension. The Recipient will itself comply, and assure the compliance of each third party contractor and subrecipient at any tier, with Executive Orders Nos. 12549 and 12689, "Debarment and Suspension," 31 U.S.C. § 6101 note, and U.S. DOT regulations, "Governmentwide Debarment and Suspension (Nonprocurement)," within 49 C.F.R. Part 29. Recipients, third party contractors and subrecipients will review the Excluded Parties Listing System at <http://epls.arnet.gov> before entering into any contracts.

c. Bonus or Commission. The Recipient affirms that it has not paid, and agrees not to pay, any bonus or commission to obtain approval of its Federal assistance application for the Project.

d. Lobbying Restrictions. The Recipient will itself comply and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with U.S. DOT regulations, "New Restrictions on Lobbying," 49 C.F.R. Part 20, modified as necessary by 31 U.S.C. § 1352.

e. Employee Political Activity. The Recipient will comply with the provisions of the Hatch Act, 5 U.S.C. §§ 1501 - 1508, 7324 - 7326, and U.S. Office of Personnel Management regulations, "Political Activity of State or Local Officers or Employees," 5 C.F.R. Part 151. Note that, in accordance with 23 U.S.C. § 142(g), the Hatch Act does not apply to a nonsupervisory employee of a transit system or of any other agency or entity performing related functions receiving FTA assistance to whom the Hatch Act would otherwise apply.

f. False or Fraudulent Statements or Claims. The Recipient certifies or affirms the truthfulness and accuracy of each statement it has made, it makes, or it may make in connection with the Project covered by the Grant Agreement pursuant to the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§ 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31 and 18 U.S.C. § 1001.

Section 4. Federal Financial Assistance.

FTA will provide Federal financial assistance for the Project in an amount up to one hundred percent (100%) of the eligible project costs consistent with the approved Project scope and budget.

Section 5. Local Share.

If the Recipient provides a local share for the Project, the Recipient agrees as follows:

a. Restrictions on the Source of the Local Share. Except as permitted otherwise by Federal law, the Recipient agrees to provide sufficient funds that, together with the Federal financial assistance awarded, will ensure payment of the actual cost of each Project activity covered by the Grant Agreement. The Recipient agrees that no local share funds provided will be derived from receipts from the use of Project facilities or equipment, revenues of the transit system in which such facilities or equipment are used, or other Federal funds, except as permitted by law.

b. Duty to Obtain the Local Share. Unless FTA otherwise approves, the Recipient agrees to complete all proceedings necessary to provide the local share of the Project costs at or before the time those funds are needed to meet Project expenses.

c. Calculation of the Local Share. Unless FTA expressly approves otherwise in writing, the Recipient agrees that the local share will apply to each Project activity in the Grant Agreement.

d. Completion of Project with Local Funds. If the Project expenses exceed the approved Project budget, additional funds to complete the Project must be made available from non-federal sources.

Section 6. Approved Project Budget.

The Recipient will prepare a Project budget which, upon approval by FTA, is designated the

"Approved Project Budget." The Recipient will incur obligations and make disbursements of Project funds only as authorized in the latest Approved Project Budget. The latest Approved Project Budget is incorporated herein by reference and made part the Grant Agreement for the Project.

An amendment to the Approved Project Budget requires the issuance of a formal amendment to the Grant Agreement, except that re-allocation of funds among budget items or fiscal years that does not increase the total amount of the Federal financial assistance awarded may be made in accordance with applicable Federal regulations and directives. Prior FTA approval is required when funds are to be transferred from non-construction to construction categories or vice versa or when, in non-construction grants, cumulative transfers of funds between total direct cost categories exceed ten percent of the total budget.

The Recipient shall obtain prior written approval for any budget revision that would result in the need for additional funds. Award of additional Federal financial assistance requires a new Approved Project Budget.

If a Recipient estimates that it will have unobligated funds remaining after the end of the performance period, the recipient should report this to FTA at the earliest possible time and ask for disposition instructions.

Section 7. Accounting Records.

a. Project Accounts. The Recipient will establish and maintain for the Project either a separate set of accounts, or separate accounts within the framework of an established accounting system, that can be identified with the Project, in accordance with applicable Federal regulations and other requirements that FTA may impose. The Recipient agrees that all checks, payrolls, invoices, contracts, vouchers, orders, or other accounting documents related in whole or in part to the Project shall be clearly identified, readily accessible and available to FTA upon its request, and, to the extent feasible, kept separate from documents not related to the Project.

b. Funds Received or Made Available for the Project. The Recipient will deposit, in a financial institution, all advance Project payments it receives from the Federal Government and record in the Project Account all amounts provided by the Federal Government in support of the Project and all other funds provided for, accruing to, or otherwise received on account of the Project (Project funds) in accordance with applicable Federal regulations and other requirements FTA may impose.

c. Documentation of Project Costs and Program Income. The Recipient will support all costs charged to the Project, including any approved services contributed by the Recipient or others, with properly executed payrolls, time records, invoices, contracts, or vouchers describing in detail the nature and propriety of the charges. The Recipient also will maintain accurate records of all program income derived from implementing the Project, except certain income determined by FTA to be exempt from the general Federal program income requirements.

d. Checks, Orders, and Vouchers. The Recipient will refrain from drawing checks, drafts, or orders for goods or services to be charged against the Project Account until it has received and filed a properly signed voucher describing in proper detail the purpose for the expenditure.

Section 8. Reporting, Record Retention, and Access.

a. Types of Reports. The Recipient will submit to FTA the reports specified in this Agreement, the Lower Manhattan Recovery Program Guidance and any other reports the Federal Government may require.

b. Format Requirements for Reports. All reports and other documents or information intended for public availability developed in the course of the Project and required to be submitted to FTA must be prepared and submitted in electronic and or hard copy formats as FTA may require. Electronic submissions must comply with the electronic accessibility requirements of Subsection 12.g, and Section 15.s of this Lower Manhattan Recovery Master Agreement. FTA may require records to be submitted in other formats.

c. Timing of Filing Reports. The Grantee shall electronically submit financial reports (Financial Status Report) and milestone reports to FTA within thirty (30) calendar days after the end of each quarter of the performance period (normally the Federal fiscal quarter). Reports are due by January 31, April 30, July 31, and December 31, unless notified otherwise in writing by FTA.

d. Record Retention. The Recipient will maintain intact and readily accessible data, documents, reports, records, contracts, and supporting materials relating to the Project as the Federal Government may require during the course of the Project and for three years thereafter from the date of transmission of the final expenditure report.

e. Access to Records of Recipients and Subrecipients. Upon request, the Recipient will permit, and require its Subrecipients to permit, the U.S. Secretary of Transportation, the Comptroller General of the United States, and, to the extent appropriate, the State, or their authorized representatives, to inspect all Project work, materials, payrolls, and other data, and to audit the books, records, and accounts of the Recipient and its Subrecipients pertaining to the Project.

f. Project Closeout. Project closeout does not alter the reporting and record retention requirements of this Section 8 of this Lower Manhattan Recovery Master Agreement.

Section 9. Payments.

a. Recipient's Request for Payment. To obtain a Federal assistance payment for the Project from FTA, the Recipient will:

- (1) Submit to FTA all financial and progress reports required to date by this Agreement, and

(2) Identify the source(s) of financial assistance provided for the Project from which the payment is to be derived.

b. Payment by FTA. FTA will make all payments through the Automated Clearing House (ACH) method of payment, regardless of the amount involved but not before execution of this Agreement.

(1) Electronic Clearing House Operation Payments. If payment is made through the FTA Electronic Clearinghouse Operation (ECHO) using an ECHO Control Number, the Recipient will comply with: FTA's ECHO requirements that implement U.S. Department of Treasury Circular 1075, Part 205, "Withdrawal of Cash from the Treasury for Advances Under Federal Grants and Other Programs;" Treasury Financial Manual, Vol. 1, Part 6, Chapter 2000; the ECHO System Operations Manual, "Guidelines for Disbursements" used for FTA Projects; and the requirements of this Subsection 9.b(1). If the Recipient fails to comply with the following requirements of this Subsection 9.b (1), the Federal Government may revoke the unexpended portion of Federal assistance awarded for the Project.

(a) The Recipient may draw down cash only when an expense is incurred and cash is needed for immediate disbursement required for Project purposes. Unless provided otherwise by Federal law or regulation, the Recipient will expend all Federal funds obtained under the Project for Project purposes no later than three (3) working days after receiving those funds. If the Recipient fails to expend those Federal assistance funds within three (3) working days of their receipt or fails to return those funds to FTA within a reasonable period, or fails to establish procedures to minimize the time elapsing between cash advances and the disbursement, the Federal Government may revoke or temporarily suspend the Recipient's ECHO Control Number and the Recipient's access to the ECHO System. In addition, a Recipient's failure to adhere to these requirements may result in other remedies or penalties authorized by Federal law or regulation.

(b) The Recipient will report its cash disbursements and balances promptly in compliance with Federal requirements.

(c) The Recipient will provide for control and accountability for all Project funds consistent with Federal requirements and procedures for use of the ECHO system.

(d) The Recipient will not draw down funds for a Project in an amount exceeding the sum obligated by the Federal Government or the current available balance for that Project.

(e) The Recipient will draw down funds only for allowable and eligible Project costs.

(f) The Recipient will refrain from drawing down Federal assistance until needed for disbursement.

(g) The Recipient will notify the LMRO when a single draw down will exceed \$50 million three days before the drawdown is anticipated.

(h) The Recipient will remit interest to the Federal Government on any Federal assistance prematurely drawn down, irrespective of whether that Federal assistance has been deposited in an interest-bearing account. A debt for any premature draw down of Federal assistance funds does not qualify as a "claim" covered by the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720. Thus, the interest provisions of this Subsection 9.b (1)(h) of this Lower Manhattan Recovery Master Agreement, rather than the interest provisions of the Debt Collection Act of 1982, as amended, will determine amount of interest due on any debt for Federal assistance prematurely drawn down. A Recipient that is a State or State instrumentality will remit interest to the Federal Government calculated as provided by U.S. Department of Treasury regulations, "Rules and Procedures for Funds Transfers," 31 C.F.R. Part 205 that implement section 5(b) of the Cash Management Improvement Act of 1990, as amended, 31 U.S.C. § 6503(b). Interest on any debt that a State or state instrumentality may incur for Federal assistance prematurely drawn down does not qualify for the interest exemption of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 and 3717.

(2) Requisition. If the requisition method of payment is used, the Recipient will:

(a) Complete and submit the "Payment Information Form - ECHO-ACH Payment System," Revised 10/92, to FTA's Accounting Division, and

(b) Complete and submit Standard Form 270, "Request for Advance or Reimbursement," to the FTA LMRO.

Upon receiving a request for payment and adequate supporting information, FTA will approve payment by direct deposit, provided that the Recipient is in compliance with the requirements of the Grant Agreement, has satisfied FTA that the Federal funds requested are needed in that requisition period, and is making adequate progress toward Project completion. After these requirements have been fulfilled, the Federal Government may reimburse the apparent allowable costs incurred (or to be incurred in the requisition period), not to exceed the maximum amount of Federal funds payable through the Federal fiscal year of that requisition, as set forth in the Approved Project Budget for the Project.

c. Costs Reimbursed. Project costs, to be eligible for Federal participation, must:

(1) Conform to the Project Description, the Approved Project Budget, and all other terms of the Grant Agreement,

(2) Be necessary in order to accomplish the Project,

(3) Be reasonable for the goods or services purchased,

(4) Be actual net costs to the Recipient (*i.e.*, the price paid minus any refunds, rebates, or other items of value received by the Recipient that have the effect of reducing the cost actually incurred, excluding program income),

(5) Be incurred for work performed after the Effective Date of the Grant Agreement, unless

the Federal Government has provided otherwise in writing,

(6) Be satisfactorily documented,

(7) Be treated consistently in accordance with accounting principles and procedures approved by the Federal Government for the Recipient, and with accounting principles and procedures approved by the Recipient for its contractors,

(8) Be eligible under Federal law, regulation, or guidelines for Federal participation,

(9) Comply with the provisions of OMB Circular A-87, Revised, "Cost Principles for State and Local Governments," and

(10) Comply with 44 CFR Subchapter D, Subparts G, H and I and implementing policies and administrative guidance if funding for the Project is authorized by the Stafford Act.

d. Bond Interest and Other Financing Costs. To the extent permitted in writing by FTA, bond interest and other similar financing costs are allowable. FTA's participation in Project interest costs will be limited to an amount that does not exceed the most favorable financing terms reasonably available for the Project at the time of borrowing. For projects funded with FEMA funds, financing costs are not an allowable cost.

e. Excluded Costs:

(1) In determining the amount of Federal assistance FTA will provide, FTA will exclude the following:

(a) Any Project cost incurred by the Recipient before the Effective Date of the Grant Agreement or Amendment thereto, unless otherwise permitted by Federal law or regulation, or unless an authorized FTA official states in writing to the contrary;

(b) Any cost that is not included in the latest Approved Project Budget;

(c) Any cost for goods or services received in connection with a third party contract or other arrangement required to be, but has not been, concurred in or approved in writing by the Federal Government;

(d) Any ordinary governmental or nonproject operating cost;

(e) Any cost ineligible for FTA participation as required by Federal law, regulation, or guidelines for Federal participation.

(2) The Federal Government will not make a final determination about the eligibility of any cost until an audit of the Project has been completed.

f. Federal Claims, Excess Payments, Disallowed Costs, including Interest.

(1) Recipient's Obligation to Pay. Upon notification to the Recipient that specific amounts are owed to the Federal Government, whether for Federal claims for funds recovered from third parties or elsewhere, for excess payments, or for disallowed costs, the Recipient will remit to the Federal Government promptly the amounts owed, including any interest due.

(2) Amount of Interest Due. The Recipient agrees that the amount of interest due depends on whether the Federal Government treats the principal portion of the debt as a Federal claim or as a debt owed to the Federal Government. Thus, Recipient will pay interest calculated as follows:

(a) Federal Claims against the Recipient. The Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720, exempts State governments and units of general local government from the obligation to pay interest on claims pursued by the Federal Government under that Act, 31 U.S.C. §§ 3701 and 3717. Interest on claims against other parties will be calculated in accordance with the interest provisions of U.S. Treasury/U.S. DOJ regulations, "Standards for the Administrative Collection of Claims," at 31 C.F.R. § 901.9(i).

(b) Excess Payments. A debt for any excess payment does not qualify as a "claim" for purposes of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720; Accordingly, interest on any debt for excess payments does not qualify for the interest exemption for State and local governments at 31 U.S.C. §§ 3701 and 3717. Thus, the Recipient will pay common law prejudgment interest and related charges for excess payments made by the Federal Government, as permitted by U.S. Treasury/U.S. DOJ regulations, "Standards for the Administrative Collection of Claims," at 31 C.F.R. § 901.9(i).

(c) Disallowed Costs. A debt for any disallowed cost does not qualify as a "claim" for purposes of the Debt Collection Act of 1982, as amended, 31 U.S.C. §§ 3701 through 3720; thus the interest exemption for State governments and units of general local government provided by that Act will not apply to interest on the debt for the disallowed cost. Accordingly, a Recipient that is a State government or a unit of general local government agrees that interest on any debt for a disallowed cost does not qualify for the interest exemption for State and local governments at 31 U.S.C. §§ 3701 and 3717. Thus, the Recipient will pay common law prejudgment interest and related charges for excess payments made by the Federal Government, as permitted by 31 C.F.R. § 901(i).

g. De-obligation of Funds. The Recipient agrees that the Federal Government may de-obligate unexpended Federal funds before Project closeout.

h. Duplication of Benefits. Pursuant to Section 312 of the Stafford Act, 42 U.S.C. § 5155, the Recipient is liable to the United States for the receipt of any financial assistance for the Project to the extent such assistance duplicates benefits available to the Recipient from another source, including insurance.

Section 10. Project Completion, Audit, Settlement, and Closeout.

a. Project Completion. Within ninety (90) calendar days following Project completion or termination by the Federal Government, the Recipient will submit a final Financial Status Report (either electronically or on Standard Form 269A), a certification of Project expenses, and third party audit reports, as applicable.

b. Audit Requirements.

(1) Audit of Recipients. The Recipient will have the financial and compliance audits required by the Single Audit Act Amendments of 1996, 31 U.S.C. §§ 7501 *et seq.*, performed in accordance with OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations," and the OMB A-133 Compliance Supplement provisions for the Department of Transportation, March, 2002, and any further revision or supplement thereto. Project closeout will not alter the Recipient's audit responsibilities. Audits will be conducted in accordance with U.S. General Accounting Office, "Government Auditing Standards."

(2) Audit Costs. Audit costs for Project administration and management are allowable to the extent authorized by OMB Circular A-87, Revised, OMB Circular A-21, Revised, OMB Circular A-122, Revised, or 48 C.F.R. Chapter I, Subpart 31.2, whichever is applicable.

c. Funds Due the Federal Government. The Recipient will remit to the Federal Government any excess payments made to the Recipient, any costs disallowed by the Federal Government, and any amounts recovered by the Recipient from third parties or from other sources, as well as any interest required by Subsection 9.f (2)(b) of this Agreement.

d. Project Closeout. Project closeout occurs when FTA notifies the Recipient that FTA has closed out the Project, and then either forwards the final Federal assistance payment or acknowledges that the Recipient has remitted the proper refund. Project closeout by FTA does not invalidate any continuing obligations imposed on the Recipient by the Grant Agreement or by the Federal Government's final notification or acknowledgment.

Section 11. Right of the Federal Government to Terminate.

Upon written notice, the Federal Government may suspend or terminate all or part of the Federal financial assistance provided herein if the Recipient has violated the terms of the Grant Agreement, or if the Federal Government determines that the purposes of the statute authorizing the Project would not be adequately served by the continuation of Federal financial assistance for the Project. Any failure to make reasonable progress on the Project or other violation of the Grant Agreement that endangers substantial performance of the Project shall provide sufficient grounds for the Federal Government to terminate the Grant Agreement. Termination of any Federal financial assistance for the Project will not invalidate obligations properly incurred by the Recipient before the termination date, to the extent those obligations cannot be canceled. If, however, the Federal Government determines that the Recipient has willfully misused Federal assistance funds by failing to make adequate progress, failing to make reasonable and

appropriate use of the Project real property, facilities, or equipment, or has failed to comply with the terms of the Grant Agreement, the Federal Government reserves the right to require the Recipient to refund the entire amount of Federal funds provided for the Project or any lesser amount as the Federal Government may determine. Expiration of any Project time period established for the Project does not, by itself, constitute an expiration or termination of the Grant Agreement.

Section 12. Civil Rights.

The Recipient will comply with all applicable civil rights statutes and implementing regulations including, but not limited to, the following:

a. Nondiscrimination in General. The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier under the Project with 42 U.S.C. §5151, which requires the distribution of supplies, the processing of applications, and other relief and assistance activities in an equitable and impartial manner, without discrimination on the grounds of race, color, religion, nationality, sex, age, or economic status, and with 49 U.S.C. §5332, which prohibits discrimination on the basis of race, color, creed, national origin, sex, or age, and prohibits discrimination in employment or business opportunity.

b. Nondiscrimination -- Title VI of the Civil Rights Act. The Recipient will comply, and assures the compliance of each third party contractor and each subrecipient at any tier under the Project, with all requirements prohibiting discrimination on the basis of race, color, or national origin of Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000d *et seq.*, and U.S. DOT regulations, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation--Effectuation of Title VI of the Civil Rights Act," 49 C.F.R. Part 21.

c. Equal Employment Opportunity. (1) The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with all requirements of Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e. Accordingly, the Recipient agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, sex, disability, age, or national origin. The Recipient will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, sex, disability, age, or national origin. Such action shall include, but not be limited to, employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

(2) Equal Employment Opportunity Requirements for Construction Activities. With respect to activities deemed by the U.S. Department of Labor (U.S. DOL) to qualify as "construction," the Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with all applicable EEO requirements of U.S. DOL regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive

Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000(e) note,) and any Federal statutes, executive orders, regulations, and Federal policies affecting construction undertaken as part of the Project.

d. Contracting with Small and Minority Firms, Women's Business Enterprise and Labor Surplus Area Firms. Pursuant to Executive Order 12432 as implemented by 49 CFR § 18.36(e), Recipient and its subrecipients will take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.

e. Nondiscrimination on the Basis of Sex. The Recipient will comply with all applicable requirements of Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. §§ 1681 *et seq.*, with U.S. DOT regulations, "Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance," 49 C.F.R. Part 25, and with any implementing directives that U.S. DOT or FTA may promulgate, which prohibit discrimination on the basis of sex.

f. Nondiscrimination on the Basis of Age. The Recipient will comply with all applicable requirements of the Age Discrimination Act of 1975, as amended, 42 U.S.C. §§ 6101 *et seq.*, and implementing regulations, which prohibit employment and other discrimination against individuals on the basis of age.

g. Access Requirements for Persons with Disabilities. The Recipient will comply with all applicable requirements of section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps, with the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 *et seq.*, which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments to that Act, and with the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 *et seq.*, which requires that buildings and public accommodations be accessible to persons with disabilities, including any subsequent amendments to that Act. In addition, the Recipient will comply with all applicable requirements of the following regulations and any subsequent amendments thereto:

(1) U.S. DOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 C.F.R. Part 37;

(2) U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27;

h. Drug or Alcohol Abuse - Confidentiality and Other Civil Rights Protections. The Recipient will comply with confidentiality and other civil rights protections of the Drug Abuse Office and Treatment Act of 1972, as amended, 21 U.S.C. §§ 1174 *et seq.*, with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended, 42 U.S.C. §§ 4581 *et seq.*, and with the Public Health Service Act of 1912, as amended, 42 U.S.C. §§ 290dd-3 and 290ee-3, and any subsequent amendments to these acts.

i. Access to Services for Persons with Limited English Proficiency. The Recipient will comply

with guidance set forth in Executive Order No. 13166, "Improving Access to Services for Persons with Limited English Proficiency," August 11, 2000, 42 U.S.C. § 2000d-1 note, and with the requirements and provisions of U.S. DOT Notice, "DOT Guidance to Recipients on Special Language Services to Limited English Proficient (LEP) Beneficiaries," 66 Fed. Reg. 6733 *et seq.*, January 22, 2001.

j. Environmental Justice. The Recipient will comply with the policies of Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 42 U.S.C. § 4321 note.

k. Other Nondiscrimination Statutes. The Recipient will comply with applicable requirements of other nondiscrimination statute(s) that may apply to the Project.

Section 13. Planning and Private Enterprise.

a. Not Applicable.

b. Not Applicable.

c. Infrastructure Investment. During the implementation of the Project, the Recipient will take into consideration the recommendations of Executive Order No. 12803, "Infrastructure Privatization," 31 U.S.C. § 501 note, and Executive Order No. 12893, "Principles for Federal Infrastructure Investments," 31 U.S.C. § 501 note.

Section 14. Preference for United States Products and Services.

a. Not Applicable.

b. Not Applicable.

c. Fly America. The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for the Project unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

Section 15. Procurement.

a. Federal Standards. The Recipient will comply with 49 CFR § 18.36.

b. Not Applicable.

c. FTA Technical Review. The Recipient will permit FTA to review and approve the Recipient's technical specifications and requirements, to the extent FTA believes necessary to ensure proper Project administration.

d. Exclusionary or Discriminatory Specifications. The Recipient will refrain from using any

Federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications. 49 CFR §18.36(c).

e. Not Applicable.

f. Clean Air and Clean Water. The Recipient will include in third party contracts and subgrants exceeding \$100,000 adequate provisions to ensure that Project participants report the use of facilities placed or likely to be placed on U.S. EPA's "List of Violating Facilities," refrain from using violating facilities, report violations to FTA and the Regional EPA Office, and comply with the inspection and other applicable requirements of:

(1) Section 306 of the Clean Air Act, as amended, 42 U.S.C. § 7414, and other applicable provisions of the Clean Air Act, as amended, 42 U.S.C. §§ 7401 *et seq.*; and

(2) Section 508 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1368, and other provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 *et seq.*

g. Preference for Recycled Products. To the extent applicable, the Recipient will comply with U.S. EPA's "Comprehensive Procurement Guidelines for Products Containing Recovered Materials," 40 C.F.R. Part 247, implementing section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962, and otherwise provide a competitive preference for products and services that conserve natural resources and protect the environment and are energy efficient.

h. Geographic Restrictions. The Recipient will refrain from using any State or local geographic preference, except those expressly mandated or encouraged by Federal statute such as in 42 U.S.C. § 5150, 44 CFR § 206.10, which allows preference to local firms "to the extent feasible and practicable."

i. Architectural, Engineering, Design, or Related Services. Recipients may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services consistent with 49 CFR §18.36(d)(3)(v).

j. Force Account. Where the total amount of force account work to be performed under the grant is greater than \$10,000,000, FTA prior review of the Recipient's force account plan and justification is required. The Recipient is directed to the section of Force Account in the LMRO Program Guidance for further guidance.

k. Award to Other than the Lowest Bidder. A Recipient may award a third party contract to a party other than the lowest bidder, when such an award furthers objectives consistent with the purposes of 49 CFR §18.36 and any implementing directives, circulars, manuals, or other guidance FTA may issue. (See 49 CFR §18.36(b)(8) and §18.36(d)(2)(E).)

l. Not Applicable.

m. Bonding. The Recipient will comply with the requirements in 49 CFR §18.36(h) as may be modified by LMRO Program Guidance issued by FTA.

n. Not Applicable.

o. Access to Third Party Contract Records. The Recipient will require its third party contractors and third party subcontractors to provide access by the FTA, FEMA and the Comptroller General of the United States, or their duly authorized representatives, any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transactions, as per 49 CFR 18.36§(i)(10).

p. National Intelligent Transportation Systems Architecture and Standards. The Recipient will use its best efforts to ensure that any Intelligent Transportation System solutions used in its Project do not preclude interface with other Intelligent Transportation Systems in the Region. (See FTA Notice, "FTA National ITS Architecture Policy on Transit Projects" 66 Fed. Reg. 1455 *et seq.*, January 8, 2001 and other FTA Program Guidance that may be issued.)

q. Not Applicable.

r. Neutrality in Labor Relations. To the extent permitted by law, the Recipient will comply with Executive Order No. 13202, "Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal and Federally Funded Construction Projects," Executive Order No. 13202, February 17, 2001, as amended by Executive Order No. 13208, April 6, 2001, 41 U.S.C. § 251 note, which among other things, prohibits including requirements for affiliation with a labor organization as a condition for award of any contract or subcontract for construction or construction management services.

s. Electronic and Information Technology. Electronic and information technology procured under this Project will meet the applicable accessibility standards of section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and Architectural and Transportation Barriers Compliance Board regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

t. Use of Local Firms and Individuals. Pursuant to 42 U.S.C. § 5150 and any implementing regulation, in the expenditure of FEMA funds for debris clearance, distribution of supplies, reconstruction, and other major disaster or emergency assistance activities which may be carried out by contract or agreement with private organizations, firms, or individuals, the Recipient will give preference, to the extent feasible and practicable, to those organizations, firms and individuals residing or doing business primarily in the area affected by a major disaster or emergency.

Section 16. Not Applicable.

Section 17. Patent Rights.

a. General. If any invention, improvement, or discovery of the Recipient or any of its third party contractors is conceived or first actually reduced to practice in the course of or under the Project, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the Recipient will notify FTA immediately and

provide a detailed report.

b. Federal Rights. The rights and responsibilities of the Recipient, and those of each third party contractor at any tier and each subrecipient at any tier, pertaining to that invention, improvement, or discovery will be determined in accordance with applicable Federal laws, regulations, including any waiver thereof.

Section 18. Rights in Data and Copyrights.

a. Definition. The term "subject data" used in this section means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the Project. Examples include, but are not limited to: computer software, standards, specifications, engineering drawings and associated lists, process sheets, manuals, technical reports, catalog item identifications, and related information. "Subject data" does not include financial reports, cost analyses, or similar information used for Project administration.

b. General Requirement. Except for its own internal use, the Recipient may not publish or reproduce "subject data" whether in whole or in part, in any manner or form, nor may the Recipient authorize others to do so, without the prior written consent of the Federal Government, unless the Federal Government has previously released or approved the release of such data to the public.

c. – h. Requirements condensed into a. & b. above.

Section 19. Use of Real Property, Equipment, and Supplies.

a. Use of Project Property. The Recipient will use Project real property, equipment, and supplies for appropriate Project purposes (which may include joint development purposes that generate program income, both during and after the award period used to support transit activities) for the duration of the useful life of that property, as required by FTA. Should the Recipient unreasonably delay or fail to use Project property during the useful life of that property, the Recipient may be required to return the entire amount of the Federal assistance expended on that property. The Recipient further will notify FTA immediately when any Project property is withdrawn from Project use or when Project property is used in a manner substantially different from the representations the Recipient has made in its Application or the Project Description for the Grant Agreement for the Project.

b. General Federal Requirements. A Recipient that is a State or a local government will comply with property management standards of 49 C.F.R. §§ 18.31 through 18.34, including any amendments thereto, and other applicable guidelines or regulations the Federal Government may issue. In addition, the Recipient will comply with FTA's established reimbursement requirements for premature dispositions of certain Project equipment (*i.e.*, when Project equipment is withdrawn from appropriate use before the expiration of the equipment's useful life established by FTA), as explained in Subsection 19.g of this Lower Manhattan Recovery Master Agreement.

c. Maintenance. The Recipient will maintain Project real property and keep equipment in good operating order, in compliance with any guidelines, directives, or regulations FTA may issue.

d. Records. The Recipient will keep satisfactory records regarding the use of Project real property, equipment, and supplies, and submit to the FTA upon request such information as may be required to assure compliance with Section 19 of this Agreement.

e. Encumbrance of Project Property. The Recipient will maintain satisfactory continuing control of Project real property or equipment. Thus, absent written authorization by FTA permitting otherwise:

(1) Written Transactions. The Recipient will refrain from executing any transfer of title, lease, lien, pledge, mortgage, encumbrance, third party contract, grant anticipation note, alienation, or any other obligation that in any way would affect the Federal interest in any Project real property or equipment.

(2) Oral Transactions. The Recipient will refrain from obligating itself in any manner to any third party with respect to Project real property or equipment.

(3) Other Actions. The Recipient will refrain from taking any action that would either adversely affect the Federal interest or impair the Recipient's continuing control of the use of Project real property or equipment.

f. Transfer of Project Property.

(1) Federal Government Direction. The Federal Government may direct the disposition of, and even require the Recipient to transfer title to, any real property, equipment, or supplies financed with Federal assistance made available for the Grant Agreement.

(2) Leasing Project Property to Another Party. If the Recipient leases any Project asset to another party, the Recipient will retain ownership of the leased asset, and assure that the lessee will use the Project asset appropriately, either through a "Lease and Supervisory Agreement" between the Recipient and lessee, or another similar document. Upon request by FTA, the Recipient will provide a copy of any relevant documents.

g. Disposition of Project Property. With prior FTA approval, the Recipient may sell, transfer, or lease Project property and use the proceeds to reduce the gross project cost of other eligible capital transit projects. FTA may establish the useful life for Project property: The Recipient will use Project property continuously and appropriately throughout that useful life.

(1) Project Property Whose Useful Life Has Expired. When the useful life of Project Property has expired, the Recipient will comply with FTA's disposition requirements.

(2) Project Property Prematurely Withdrawn from Use. For property withdrawn from appropriate use before its useful life has expired, the Recipient agrees as follows:

(a) Notification Requirement. The Recipient will notify FTA immediately when any Project real property, equipment, or supplies are prematurely withdrawn from appropriate use, whether by planned withdrawal, misuse, or casualty loss.

(b) Calculating the Fair Market Value of Prematurely Withdrawn Project Property. The Federal Government retains a Federal interest in the fair market value of Project property prematurely withdrawn from mass transportation use. The amount of the Federal interest in the property shall be determined on the basis of the ratio of the Federal assistance awarded by the Federal Government for the property to the actual cost of the Property. The fair market value of property prematurely withdrawn from use will be calculated as follows:

1. Equipment and Supplies. Unless otherwise determined in writing by FTA, fair market value shall be calculated by straight-line depreciation of the equipment or supplies, based on the useful life of the equipment or supplies established or approved by FTA. In addition, the fair market value of equipment and supplies shall be the value immediately before the occurrence prompting the withdrawal of that property from use. In the case of equipment or supplies lost or damaged by fire, casualty, or natural disaster, the fair market value shall be calculated on the basis of the condition of that property immediately before the fire, casualty, or natural disaster, irrespective of the extent of insurance coverage. As authorized by 49 C.F.R. § 18.32(b), a State may use its own disposition procedures, provided that those procedures comply with the State's laws.

2. Real Property. The fair market value of real property shall be determined either by competent appraisal based on an appropriate date approved by the Federal Government, as provided by 49 C.F.R. Part 24, or by straight line depreciation, whichever is greater.

3. Exceptional Circumstances. The Federal Government may require the use of another method of determining the fair market value of property. In unusual circumstances, the Recipient may request that another reasonable valuation method be used including, but not limited to, accelerated depreciation, comparable sales; or established market values. In determining whether to approve such a request, the Federal Government may consider any action taken, omission made, or unfortunate occurrence suffered by the Recipient with respect to the preservation or conservation of Project property withdrawn from appropriate use.

(c) Obligations to the Federal Government. Unless otherwise approved in writing by the Federal Government, the Recipient will remit to the Federal Government the Federal interest in the fair market value of Project real property, equipment, or supplies prematurely withdrawn from appropriate use. In the case of fire, casualty, or natural disaster, the Recipient may fulfill its responsibilities with respect to the Federal interest remaining in the damaged equipment or supplies by either:

1. Investing an amount equal to the remaining Federal interest in like-kind equipment or supplies that are eligible for assistance within the scope of the Project that provided financial assistance for the damaged equipment or supplies; or

2. Returning to the Federal Government an amount equal to the remaining Federal interest in the damaged property.

h. Insurance Proceeds. If the Recipient receives insurance proceeds as a result of damage or destruction to the Project property, the Recipient will:

(1) Apply those insurance proceeds to the cost of replacing the damaged or destroyed Project property taken out of service, or

(2) Return to the Federal Government an amount equal to the remaining Federal interest in the damaged or destroyed property.

i. Transportation - Hazardous Materials. The requirements of Research and Special Programs Administration, "Shippers - General Requirements for Shipments and Packagings," 49 C.F.R. Part 173, apply to the transportation of hazardous materials.

j. Misused or Damaged Project Property. If any damage to Project real property, equipment, or supplies results from abuse or misuse of that property occurring with the Recipient's knowledge and consent, the Recipient will restore that real property or equipment to its original condition or refund the value of the Federal interest in the damaged property, as the Federal Government may require.

k. Obligations After Project Closeout Project closeout will not alter the Recipient's property management obligations of Section 19 of this Agreement and applicable Federal regulations and other FTA requirements or directives.

Section 20. Insurance.

a. Minimum Requirements. At a minimum, the Recipient will comply with the insurance requirements normally imposed by the laws, regulations, and ordinances imposed by its State and local governments. This includes, but is not limited to, the Recipient's obtaining all necessary environmental liability insurance.

b. Flood Hazards. To the extent applicable, the Recipient will comply with the flood insurance purchase requirements of section 102(a) of the Flood Disaster Protection Act of 1973, 42 U.S.C. § 4012a(a), with respect to any Project activity involving construction or acquisition having an insurable cost of \$10,000 or more.

c. FEMA Requirements. For assistance received pursuant to the Stafford Act, including Section 406, 42 U.S.C. § 5172, the Recipient agrees to comply with 42 U.S.C. § 5154 and 44 CFR Part 206, Subpart I, to obtain and maintain insurance reasonable and necessary to protect against future loss from the type of hazard that caused the major disaster.

Section 21. Relocation.

When relocation of individuals or businesses is required, the Recipient will comply with the following requirements:

- a. Relocation Protections. The Recipient will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. §§ 4601 *et seq.*; and U.S. DOT regulations, "Uniform Relocation and Real Property Acquisition for Federal and Federally Assisted Programs," 49 C.F.R. Part 24, which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally assisted programs. These requirements apply to all interests in real property acquired for Project purposes regardless of Federal participation in purchases.
- b. Nondiscrimination in Housing. The Recipient will comply with Title VIII of the Civil Rights Act of 1968, as amended, 42 U.S.C. §§ 3601 *et seq.* and Executive Order No. 12892, "Leadership and Coordination of Fair Housing in Federal Programs: Affirmatively Furthering Fair Housing," 42 U.S.C. § 3608 note, when carrying out its responsibilities to provide housing used to meet Federal relocation requirements.
- c. Prohibition Against Use of Lead-Based Paint. In undertaking construction or rehabilitation of residence structures on behalf of individuals affected by land acquisition in connection with the Project, the Recipient will refrain from using lead-based paint in accordance with Section 401(b) of the Lead-Based Paint Poisoning Prevention Act, 42 U.S.C. § 4831(b).

Section 22. Real Property.

- a. Land Acquisition. The Recipient will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. §§ 4601 *et seq.*; and U.S. DOT regulations, "Uniform Relocation and Real Property Acquisition for Federal and Federally Assisted Programs," 49 C.F.R. Part 24. These requirements apply to all interests in real property acquired for Project purposes regardless of Federal participation in purchases.
- b. Covenant Assuring Nondiscrimination. The Recipient will include a covenant in the title of the real property acquired for the Project to assure nondiscrimination during the useful life of the Project.
- c. Recording Title to Real Property. To the extent required by FTA, the Recipient will record the Federal interest in the title of real property.
- d. FTA Approval of Changes in Real Property Ownership. The Recipient will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from FTA.

Section 23. Construction.

- a. Drafting, Review, and Approval of Construction Plans and Specifications. The Recipient will comply with FTA requests pertaining to the drafting, review, and approval of construction plans and specifications.
- b. Supervision of Construction. The Recipient will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms to the approved plans and specifications.
- c. Construction Reports. The Recipient will provide progress reports and such other information as may be required by FTA or the State.
- d. Project Management. The FTA will manage the Project consistent with the FTA Project Management and Oversight Regulation applicable to major capital investments. (See 49 CFR Part 633.)
- e. Seismic Safety. The Recipient will comply with the Earthquake Hazards Reduction Act of 1977, as amended, 42 U.S.C. §§ 7701 *et seq.*, Executive Order No. 12699, "Seismic Safety of Federal and Federally-Assisted or Regulated New Building Construction," 42 U.S.C. § 7704 note, and implementing U.S. DOT regulations, "Seismic Safety," 49 C.F.R. Part 41, (specifically, 49 C.F.R. § 41.117).
- f. Minimum Standards for Public and Private Structures. Pursuant to the Stafford Act at 42 U.S.C. § 5176, and any implementing regulation, the Recipient will ensure that any repair or construction to be financed pursuant to this agreement will be in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards.

Section 24. Employee Protections.

- a. Construction Activities. The Recipient will comply, and assures the compliance of each third party contractor at any tier and each subrecipient at any tier, with the following employee protection requirements for construction employees:

- (1) Davis-Bacon Act, as amended, 40 U.S.C. §§ 276a - 276a(7), requiring compliance with the Davis-Bacon Act, and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

- (2) Contract Work Hours and Safety Standards Act, as amended, particularly with the requirements of section 102 of the Act, 40 U.S.C. §§ 327 - 332; and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts

Subject to the Contract Work Hours and Safety Standards Act), 29 C.F.R. Part 5; and with section 107 of the Act, 40 U.S.C. § 333, and U.S. DOL regulations, "Safety and Health Regulations for Construction," 29 C.F.R. Part 1926; and

(3) Copeland "Anti-Kickback" Act, as amended, 18 U.S.C. § 874 and 40 U.S.C. § 276c, and U.S. DOL regulations, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in part by Loans or Grants from the United States," 29 C.F.R. Part 3.

b. Activities Not Involving Construction. The Recipient will comply, and assure the compliance of each third party contractor and each subrecipient at any tier, with any applicable employee protection requirements for nonconstruction employees of section 102 of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. §§ 327 - 332, and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

c. Activities Involving Commerce. The Recipient will comply with the provisions of the Fair Labor Standards Act, 29 U.S.C. §§ 201 *et seq.*, applies to employees performing Project work involving commerce.

d. Not Applicable.

Section 25. Environmental Requirements.

The Recipient recognizes that many Federal and State laws imposing environmental and resource conservation requirements may apply to the Project. The Recipient also recognizes that U.S. EPA, FHWA and other Federal agencies have issued, and in the future are expected to issue, regulations, guidelines, standards, orders, directives, or other requirements that may affect the Project. Thus, the Recipient will comply, and assures the compliance of each subrecipient and each third party contractor, with any such Federal requirements as the Federal Government may now or in the future promulgate. Listed below are requirements of particular concern to FTA and the Recipient.

a. Environmental Protection. Federal assistance is contingent upon the Recipient's facilitating FTA's compliance with all applicable requirements and implementing regulations of the National Environmental Policy Act of 1969, as amended, (NEPA) 42 U.S.C. §§ 4321 *et seq.* (as interpreted by 42 U.S.C. 5159); Executive Order No. 11514, as amended, "Protection and Enhancement of Environmental Quality," 42 U.S.C. § 4321 note; and Council on Environmental Quality regulations pertaining to compliance with the National Environmental Policy Act of 1969, as amended, 40 C.F.R. Part 1500 *et seq.* For purposes of NEPA, FTA is designated as Lead Agency.

b. Air Quality. The Recipient will comply with all applicable regulations, standards, or orders implementing the Clean Air Act, as amended, 42 U.S.C. §§ 7401 *et seq.* In addition:

(1) The Recipient will comply with the applicable requirements of the U.S. EPA

regulations, "Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act," 40 C.F.R. Part 51, Subpart T; and "Determining Conformity of Federal Actions to State or Federal Implementation Plans," 40 C.F.R. Part 93. To support the requisite air quality conformity finding for the Project, the Recipient will implement each air quality mitigation or control measure incorporated in the Project. The Recipient further agrees that any Project identified in an applicable State Implementation Plan (SIP) as a Transportation Control Measure will be wholly consistent with the design concept and scope of the Project described in the SIP.

(2) U.S. EPA also imposes requirements implementing the Clean Air Act, as amended, that may apply to transit operators, particularly operators of large transit bus fleets. Accordingly, the Recipient will comply with the following U.S. EPA regulations to the extent they are applicable to the Project: "Control of Air Pollution from Motor Vehicles and Motor Vehicle Engines," 40 C.F.R. Part 85; "Control of Air Pollution from New and In-Use Motor Vehicles and New and In-Use Motor Vehicle Engines: Certification and Test Procedures," 40 C.F.R. Part 86; and "Fuel Economy of Motor Vehicles," 40 C.F.R. Part 600.

(3) The Recipient will comply with the notification of violating facilities requirements of Executive Order No. 11738, "Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans," 42 U.S.C. § 7606 note.

c. Clean Water. The Recipient will comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 *et seq.* In addition:

(1) The Recipient will protect underground sources of drinking water consistent with the provisions of the Safe Drinking Water Act of 1974, as amended, 42 U.S.C. §§ 300f *et seq.*

(2) The Recipient will comply with the notification of violating facilities requirements of Executive Order No. 11738, "Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans," 42 U.S.C. § 7606 note.

d. Use of Public Lands. The Recipient will refrain from using publicly owned land from a park, recreation area, or wildlife or waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from a historic site of national, State, or local significance for the Project unless FTA makes the specific findings required by 49 U.S.C. § 303.

e. Wild and Scenic Rivers. The Recipient will comply with the Wild and Scenic Rivers Act of 1968, as amended, 16 U.S.C. §§ 1271 *et seq.* relating to protecting components of the national wild and scenic rivers system.

f. Coastal Zone Management. The Recipient will assure Project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972, as

amended, 16 U.S.C. §§ 1451 *et seq.*

g. Wetlands. The Recipient will facilitate compliance with the protections for wetlands in accordance with Executive Order No. 11990, as amended, "Protection of Wetlands," 42 U.S.C. § 4321 note.

h. Floodplains. The Recipient will facilitate compliance with the flood hazards protections in floodplains in accordance with Executive Order No. 11988, as amended, "Floodplain Management" 42 U.S.C. § 4321 note.

i. Endangered Species. The Recipient will comply with protections for endangered species of the Endangered Species Act of 1973, as amended, 16 U.S.C. §§ 1531 *et seq.*

j. Historic Preservation. The Recipient will facilitate compliance with the Federal historic and archaeological preservation requirements of section 106 of the National Historic Preservation Act, as amended, 16 U.S.C. § 470f; of Executive Order No. 11593, "Protection and Enhancement of the Cultural Environment," 16 U.S.C. § 470 note; and of the Archaeological and Historic Preservation Act of 1974, as amended, 16 U.S.C. §§ 469a *et seq.* as follows:

(1) In accordance with U. S. Advisory Council on Historic Preservation regulations, "Protection of Historic and Cultural Properties," 36 C.F.R. Part 800, the Recipient will consult with the State Historic Preservation Officer concerning investigations to identify properties and resources included in or eligible for inclusion in the National Register of Historic Places that may be affected by the Project, and will notify FTA of any affected properties.

(2) The Recipient will comply with all Federal requirements to avoid or mitigate adverse effects on those historic properties.

1. Mitigation of Adverse Environmental Effects. Should the Proposed project cause or result in adverse environmental effects, the Recipient agrees to take all reasonable measures to minimize those adverse effects, as required by 23 C.F.R. Part 771 and 49 C.F.R. Part 622. The Recipient will comply with all environmental mitigation measures that may be identified as commitments in applicable environmental documents (*i.e.*, environmental assessments, environmental impact statements, memoranda of agreement, and documents required by 49 U.S.C. § 303) and will comply with any conditions the Federal Government might impose in a finding of no significant impact or a record of decision. Those mitigation measures are incorporated by reference and made part of this Grant Agreement. Deferred mitigation measures will be incorporated by reference and made part of the Grant Agreement as soon as agreement with the Federal Government is reached. Those mitigation measures agreed upon may not be modified or withdrawn without the express written approval of the Federal Government.

Section 26. Energy Conservation.

The Recipient will comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and

Conservation Act, 42 U.S.C. §§ 6321 *et seq.*

Sections 27. - 29 Not Applicable.

Section 30. Metric System.

The Recipient will use the metric system of measurement in its Project activities, pursuant to the Metric Conversion Act, as amended by the Omnibus Trade and Competitiveness Act, 15 U.S.C. §§ 205a *et seq.*; Executive Order No. 12770, "Metric Usage in Federal Government Programs," 15 U.S.C. § 205a note; and other U.S. DOT or FTA regulations, guidelines, and policies. To the extent practicable and feasible, the Recipient will accept products and services with dimensions expressed in the metric system of measurement.

Section 31. Substance Abuse.

- a. Drug-Free Workplace. The Recipient will comply with U.S. DOT regulations, "Drug-Free Workplace Requirements (Grants)," 49 C.F.R. Part 29, Subpart F, as modified by 41 U.S.C. §§ 702 *et seq.*
- b. Not Applicable.

Section 32. Not Applicable.

Section 33. Seat Belt Use.

Pursuant to Executive Order No. 13043, "Increasing Seat Belt Use in the United States," April 16, 1997, 23 U. S. C. § 402 note, the Recipient is encouraged to adopt on-the-job seat belt use policies and programs for its employees when operating company-owned, rented, or personally-operated vehicles and include this provision in third party contracts, third party subcontracts, and subagreements entered into under this Project.

Section 34. Protection of Sensitive Security Information.

To the extent applicable, the Recipient will comply with section 101(e) of the Aviation and Transportation Security Act, 49 U.S.C. § 40119(b), and U.S. Transportation Security Administration regulations, "Protection of Sensitive Security Information," 49 C.F.R. Part 1520, and any implementing regulations, requirements or guidelines, that the Federal Government may issue.

Sections 35. 43 Not Applicable.

Section 44. Disputes, Breaches, Defaults, or Other Litigation.

FTA has a vested interest in the settlement of any dispute, breach, default, or litigation involving the Project. Accordingly:

- a. Notification to FTA. The Recipient will notify FTA of any current or prospective major dispute, breach, default, or litigation that may affect the Federal Government's interests in the Project or the Federal Government's administration or enforcement of Federal laws or regulations. If the Recipient seeks to name the Federal Government as a party to litigation for any reason, in any forum, the Recipient will inform FTA before doing so.
- b. Federal Interest in Recovery. The Federal Government retains the right to a proportionate share, based on the percentage of the Federal share awarded for the Project, of proceeds derived from any third party recovery, except that the Recipient may return any liquidated damages recovered to its Project Account in lieu of returning the Federal share to the Federal Government.
- c. Enforcement. The Recipient will pursue all legal rights provided within any third party contract.
- d. FTA Concurrence. FTA reserves the right to concur in any compromise or settlement of any claim involving the Project and the Recipient.
- e. Alternative Dispute Resolution. FTA encourages the Recipient to use alternative dispute resolution procedures, as may be appropriate.
- f. Indemnification. Pursuant to 42 U.S.C. § 5173, the Recipient will, in the case of debris or wreckage removal from private property, indemnify the Federal Government against any claim arising from such removal.

Section 45. Amendments to the Project.

A change in Project conditions causing an inconsistency with the terms of the Grant Agreement will require an amendment to the Grant Agreement signed by the original signatories. A change in the fundamental information submitted in its Application will also require an Amendment to its Application or the Grant Agreement.

Section 46. FTA's Electronic Award and Management System.

Except as otherwise permitted by FTA, the Recipient will use FTA's electronic award and management system to submit information and reports to FTA. FTA, however, reserves the right to determine the extent to which the Recipient may use FTA's electronic award and management system to execute legal documents pertaining to FTA Projects.

Section 47. Information Obtained Through Internet Links.

This Agreement may include electronic links to Federal statutes, regulations, directives, guidance, and other documents. FTA does not guarantee the accuracy of information accessed through such links. Accordingly, information obtained through any electronic link within this Master Agreement does not represent an official version of a Federal statute, regulation, requirement, guidance, or document, and might be inaccurate. Thus, information obtained through such links is neither incorporated by reference nor made part of this Agreement. The Federal Register and the Code of Federal Regulations are the official sources for regulatory information pertaining to the Federal Government.

Section 48. Severability.

If any provision of this Agreement is held invalid, the remainder of the Agreement shall not be affected, if that remainder would continue to conform to the requirements of applicable law.



APPENDIX D

GUIDANCE

U.S. Department of
Transportation
**Federal Transit
Administration**

August 21, 2003

Subject: LMRO THIRD PARTY CONTRACTING REQUIREMENTS

1. **PURPOSE.** This document sets forth the requirements a grantee must adhere to in the solicitation, award and administration of its third party contracts funded by the FTA/FEMA grants for the Lower Manhattan Recovery projects. These requirements are based on the common grant rules, Federal statutes, Executive Orders and their implementing regulations, and FTA policy. This document is based on FTA Circular 4220.1E. Inapplicable provisions of that circular are marked "Not Applicable" in this document and are left in place for the benefit of grantees who also receive funds authorized under the Federal Transit Laws who are familiar with the section numbers.
2. **NOT APPLICABLE**
3. **REFERENCES.**
 - a. Federal Transit Laws, 49 U.S.C. Chapter 53 – definitions only.
 - b. 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to Terrorist Attacks on the United States, Public Law 107-38; the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107; the Fiscal Year 2002 Department of Defense Appropriations Act, Public Law 107-117; the Fiscal Year 2002 Department of Transportation and Related Agencies Appropriations Act, Public Law 107-206; the Consolidated Appropriations Resolution, 2003, Public Law 208-7; the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, 42 U.S.C. § 5121-5206.
 - c. Sections 4001 and 1555 of the Federal Acquisition Streamlining Act of 1994, 41 U.S.C. § 403(11) and 40 U.S.C. § 481(b), respectively,
 - d. 49 C.F.R. part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments.
 - e. 49 C.F.R. part 19, Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations.
 - f. Executive Order 12612, "Federalism," dated 10-26-87.
 - g. Not Applicable.
 - h. LMRO Master Agreement.
 - i. Appendix D, Best Practices Procurement Manual.

4. **APPLICABILITY**. This guidance applies to all FTA grantees and subgrantees that contract with outside sources under the joint FTA/FEMA assistance programs for the Lower Manhattan Recovery projects. These requirements do not apply to procurements undertaken in support of capital projects completely accomplished without FTA or FEMA funds.
5. **POLICY**. FTA's role in grantee procurements is reflective of Executive Order 12612, **Federalism** which directs Federal agencies to refrain from substituting their judgment for that of their recipients unless the matter is primarily a Federal concern and to defer, to the maximum extent feasible, to the States to establish standards rather than setting national standards.
 - a. **Grantee Self-Certification**. Since most FTA grantees have experience with the third party contracting requirements of the "common grant rules" (49 C.F.R. parts 18 and 19), the LMRO will rely primarily on grantees' "self-certifications" that their procurement system meets FTA/FEMA requirements to support the required finding that a grantee has the technical capacity to comply with Federal procurement requirements. All grantees must "self certify" as part of the Annual Certification/Assurance Process.

The LMRO will monitor compliance with this guidance as part of its routine oversight responsibilities and if it becomes aware of circumstances that might invalidate a grantee's self-certification, the LMRO will investigate and recommend appropriate measures to correct whatever deficiency may exist.
 - b. **Review of Third Party Contracts**. The LMRO relies on the validity of each grantee's self-certification and on periodic, post-grant reviews rather than on a pre-award review of third party contracts to ensure that grantees comply with Federal requirements and standards. Grantees are still free to request FTA's pre-award review of their procurements as part of the LMRO's technical assistance program. Conversely, if the LMRO requests to review the record of a particular procurement, grantees must make their procurement documents available for the LMRO's pre-award (or post-award) review.
 - c. **Procurement System Reviews**. The LMRO will fully review and evaluate the performance of grantees in carrying out grant programs with specific reference to their compliance with statutory and administrative requirements. Accordingly, the LMRO will perform a baseline procurement system review as part of its on-going oversight responsibility and may recommend "best practices" in order to assist the grantee in improving its procurement practices. In such cases, the LMRO will identify such recommendations as "advisory."
 - d. **Procurement Technical Assistance**. The LMRO will provide procurement training and technical assistance as requested to enable the grantees to better understand and meet LMRO requirements.
 - e. **Contract Clauses and Provisions**. The LMRO Master Agreement, issued annually and incorporated into each grant, lists many but not all the FTA/FEMA and other

crosscutting Federal requirements applicable to LMRO grantees. Many of these requirements are related to grantee procurements. Further explanations and interpretations of this guidance is can be found in the footnotes of FTA Circular 4220.1E. Suggested wording for contract clauses and provisions are available in FTA's "Best Practices Procurement Manual" available on the FTA website at fta.dot.gov.

f. Not Applicable.

6. **DEFINITIONS.** All definitions in 49 U.S.C. §5302 are applicable to this guidance. The following additional definitions are provided:

- a. "Best Value" is a selection process in which proposals contain both price and qualitative components, and award is based upon a combination of price and qualitative considerations. Qualitative considerations may include technical design, technical approach, quality of proposed personnel, and/or management plan. The award selection is based upon consideration of a combination of technical and price factors to determine {or derive} the offer deemed most advantageous and of the greatest value to the procuring agency.
- b. "Design-Bid-Build" refers to the project delivery approach where the grantee commissions an architect or engineer to prepare drawings and specifications under a design services contract, and separately contracts for at-risk construction, by engaging the services of a contractor through sealed bidding or competitive negotiations.
- c. "Design-Build" refers to a system of contracting under which one entity performs both architectural/engineering and construction under one contract.
- d. "FEMA" is the Federal entity with primary authority to provide federal assistance following a Presidentially-declared major disaster or emergency. It is part of the Emergency Preparedness and Response Directorate of the Department of Homeland Security.
- e. "FTA" refers to the Federal Transit Administration
- f. "Grantee" means the public or private entity to which a grant or cooperative agreement is awarded by the joint FTA/FEMA effort. The grantee is the entire legal entity even if only a particular component of the entity is designated in the assistance award document.

For the purposes of this circular, "grantee" also includes any subgrantee of the grantee. Furthermore, a grantee is responsible for assuring that its subgrantees comply with the requirements and standards of this guidance, and that subgrantees are aware of requirements imposed upon them by Federal statutes and regulations.

- g. Lower Manhattan Recovery Office (LMRO) refers to the FTA office with responsibility for carrying out the Lower Manhattan Recovery projects.

- h. "Piggybacking" is an assignment of existing contract rights to purchase supplies, equipment, or services.
- i. "State" means any of the several states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, any territory or possession of the United States, or any agency or instrumentality of a State exclusive of local governments. "State" does not include any public and Indian housing agency under the United States Housing Act of 1937.
- j. "Tag-on" is defined as the addition of work (supplies, equipment or services) that is beyond the scope of the original contract that amounts to a cardinal change as generally interpreted in Federal practice by the various Boards of Contract Appeals. "In scope" changes are not tag-ons.
- k. "Third party contract" refers to any purchase order or contract awarded by a grantee to a vendor or contractor using Federal financial assistance awarded by FTA.

7. **GENERAL PROCUREMENT STANDARDS APPLICABLE TO THIRD-PARTY PROCUREMENTS.**

- a. Conformance with State and Local Law. Grantees and subgrantees shall use their own procurement procedures that reflect applicable State and local laws and regulations, provided that the procurements conform to applicable Federal law, including the requirements and standards identified in this circular. If there is no State law on a particular aspect of procurement, then Federal contract law principles will apply.
- b. Contract Administration System. Grantees shall maintain a contract administration system that ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.
- c. Written Standards of Conduct. Grantees shall maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer, agent, immediate family member, or Board member of the grantee shall participate in the selection, award, or administration of a contract supported by FTA/FEMA funds if a conflict of interest, real or apparent, would be involved.

Such a conflict would arise when any of the following has a financial or other interest in the firm selected for award:

- (1) The employee, officer, agent, or Board member,
- (2) Any member of his/her immediate family,
- (3) His or her partner, or
- (4) An organization that employs, or is about to employ, any of the above.

The grantee's officers, employees, agents, or Board members will neither solicit nor accept gifts, gratuities, favors, or anything of monetary value from contractors, potential contractors, or parties to subagreements. Grantees may set minimum rules when the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by state or local law or regulations, such standards of conduct will provide for penalties, sanctions, or other disciplinary action for violation of such standards by the grantee's officers, employees, or agents, or by contractors or their agents.

- d. Ensuring Most Efficient and Economic Purchase. Grantee procedures shall provide for a review of proposed procurements to avoid purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase.

Where appropriate, an analysis will be made of lease versus purchase alternatives and any other appropriate analysis to determine the most economical approach.

- e. Intergovernmental Procurement Agreements.

- (1) Grantees are encouraged to utilize available state and local intergovernmental agreements for procurement or use of common goods and services. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included, whether in the master intergovernmental contract or in the grantee's purchase document.
- (2) Grantees are also encouraged to jointly procure goods and services with other grantees. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included in the resulting joint solicitation and contract documents.
- (3) Grantees may assign contractual rights to purchase goods and services to other grantees if the original contract contains appropriate assignability provisions. Grantees who obtain these contractual rights (commonly known as 'piggybacking') may exercise them after first determining the contract price remains fair and reasonable.

- f. Use of Excess Or Surplus Federal Property. Grantees are encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property, whenever such use is feasible and reduces project costs.
- g. Use of Value Engineering in Construction Contracts. Grantees are encouraged to use value engineering clauses in contracts for construction projects.
- h. Awards to Responsible Contractors. Grantees shall make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration shall be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

- i. Written Record of Procurement History. Grantees shall maintain records detailing the history of each procurement. At a minimum, these records shall include:
- (1) the rationale for the method of procurement,
 - (2) selection of contract type,
 - (3) reasons for contractor selection or rejection, and
 - (4) the basis for the contract price.
- j. Use of Time and Materials Type Contracts. Grantees will use time and material type contracts only:
- (1) After a determination that no other type of contract is suitable; and
 - (2) If the contract specifies a ceiling price that the contractor shall not exceed except at its own risk.
- k. Responsibility for Settlement of Contract Issues/Disputes. Grantees alone will be responsible in accordance with good administrative practice and sound business judgment for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the grantee of any contractual responsibility under its contracts.
- The LMRO will not substitute its judgment for that of the grantee or subgrantee, unless the matter is primarily a Federal concern. Violations of the law will be referred to the local, State, or Federal authority having proper jurisdiction.
- l. Written Protest Procedures. Grantees shall have written protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding protests to the LMRO. All protest decisions must be in writing. A protester must exhaust all administrative remedies with the grantee before pursuing a protest with the FTA.
- Reviews of protests by FTA will be limited to:
- (1) a grantee's failure to have or follow its protest procedures, or its failure to review a complaint or protest; or
 - (2) violations of Federal law or regulation.
- An appeal to FTA must be received by the LMRO within five (5) working days of the date the protester learned or should have learned of an adverse decision by the grantee or other basis of appeal to the LMRO.
- m. Contract Term Limitation. Grantees are expected to be judicious in establishing and extending contract terms no longer than minimally necessary to accomplish the purpose of the contract. Additional factors to be considered include competition, pricing, fairness and public perception. Once a contract has been awarded, an

- extension of the contract term length that amounts to an out of scope change will require a sole source justification
- n. Revenue Contracts. Revenue contracts are those third party contracts whose primary purpose is to either generate revenues in connection with a transit related activity, or to create business opportunities utilizing an FTA-funded asset. FTA requires these contracts to be awarded utilizing competitive selection procedures and principles. The extent of and type of competition required is within the discretionary judgment of the grantee.
 - o. Tag-ons. The use of tag-ons is prohibited and applies to the original buyer as well as to others as defined in paragraph 6f.
 - p. Piggybacking. Piggybacking is permissible when the solicitation document and resultant contract contain an assignability clause that provides for the assignment of all or a portion of the specified deliverables as originally advertised, competed, evaluated, and awarded. If the supplies were solicited, competed and awarded through the use of an indefinite-delivery-indefinite-quantity (IDIQ) contract, then both the solicitation and contract award must contain both a minimum and maximum quantity that represent the reasonably foreseeable needs of the party(s) to the solicitation and contract. If two or more parties jointly solicit and award an IDIQ contract, then there must be a total minimum and maximum.
 - q. E-Commerce. E-Commerce is an allowable means to conduct procurements. If a grantee chooses to utilize E-Commerce, written procedures need to be developed and in place prior to solicitation and all requirements for full and open competition must be met in accordance with this circular.

8. COMPETITION.

- a. Full and Open Competition. All procurement transactions will be conducted in a manner providing full and open competition. Some situations considered to be restrictive of competition include, but are not limited to:
 - (1) Unreasonable requirements placed on firms in order for them to qualify to do business;
 - (2) Unnecessary experience and excessive bonding requirements;
 - (3) Noncompetitive pricing practices between firms or between affiliated companies;
 - (4) Noncompetitive awards to any person or firm on retainer contracts;
 - (5) Organizational conflicts of interest. An organizational conflict of interest means that because of other activities, relationships, or contracts, a contractor is unable, or potentially unable, to render impartial assistance or advice to the grantee; a contractor's objectivity in performing the contract work is or might be otherwise impaired; or a contractor has an unfair competitive advantage;

- (6) Specifying only a “brand name” product instead of allowing “an equal” product to be offered without listing its’ salient characteristics.

Grantees may define the salient characteristics in language similar to the following:

- (a) ‘Original Equipment Manufacturer (OEM) part #123 or approved equal that complies with the original equipment manufacturer’s requirements or specifications and will not compromise any OEM warranties’; or
- (b) ‘Original Equipment Manufacturer part #123 or approved equal that is appropriate for use with and fits properly in [describe the bus, engine, or other component the part must be compatible with] and will not compromise any OEM warranties’; and

- (7) Any arbitrary action in the procurement process.

- b. Prohibition Against Geographic Preferences. Grantees shall conduct procurements in a manner that prohibits the use of statutorily or administratively imposed in-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. This does not preempt State licensing laws. However, geographic location may be a selection criterion in procurements for architectural and engineering (A&E) services provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.
- c. Written Procurement Selection Procedures. Grantees shall have written selection procedures for procurement transactions. All solicitations shall:
- (1) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description shall not, in competitive procurements, contain features that unduly restrict competition. The description may include a statement of the qualitative nature of the material, product, or service to be procured and when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a “brand name or equal” description may be used as a means to define the performance or other salient characteristics of a procurement. The specific features of the named brand which must be met by offerors shall be clearly stated.
- (2) Identify all requirements that offerors must fulfill and all other factors to be used in evaluating bids or proposals.
- d. Prequalification Criteria. Grantees shall ensure that all lists of prequalified persons, firms, or products that are used in acquiring goods and services are current and include enough qualified sources to ensure maximum full and open competition.

Also, grantees shall not preclude potential bidders from qualifying during the solicitation period, which is from the issuance of the solicitation to its closing date.

9. **METHODS OF PROCUREMENT.** The following methods of procurement may be used as appropriate:

- a. **Procurement by Micro-Purchases.** Micro-purchases are those purchases under \$2,500. Purchases below that threshold may be made without obtaining competitive quotations. There should be equitable distribution among qualified suppliers and no splitting of procurements to avoid competition. (The Davis-Bacon Act applies to construction contracts above \$2,000.) Minimum documentation is required: A determination that the price is fair and reasonable and how this determination was derived. The other requirements of paragraph 7(i) do not apply to micro-purchases.
- b. **Procurement by Small Purchase Procedures.** Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that cost more than \$2,500 but do not cost more than the simplified acquisition threshold fixed at 41 U.S.C. § 403(11) (currently set at \$100,000). If small purchase procedures are used, price or rate quotations shall be obtained from an adequate number of qualified sources.
- c. **Procurement By Sealed Bids/Invitation For Bid (IFB).** Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming to all the material terms and conditions of the invitation for bids, is the lowest in price.
 - (1) In order for sealed bidding to be feasible, the following conditions should be present:
 - (a) A complete, adequate, and realistic specification or purchase description is available;
 - (b) Two or more responsible bidders are willing and able to compete effectively for the business;
 - (c) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price; and
 - (d) No discussion with bidders is needed.
 - (2) If this procurement method is used, the following requirements apply:
 - (a) The invitation for bids will be publicly advertised and bids shall be solicited from an adequate number of known suppliers, providing them sufficient time to prepare bids prior to the date set for opening the bids;

- (b) The invitation for bids, which will include any specifications and pertinent attachments, shall define the items or services sought in order for the bidder to properly respond;
- (c) All bids will be publicly opened at the time and place prescribed in the invitation for bids;
- (d) A firm fixed-price contract award will be made in writing to the lowest responsive and responsible bidder. When specified in bidding documents, factors such as discounts, transportation costs, and life cycle costs shall be considered in determining which bid is lowest;

Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and

- (e) Any or all bids may be rejected if there is a sound documented business reason.
- (3) The sealed bid method is the preferred method for procuring construction if the conditions in paragraph 9c(1) above apply.

d. Procurement by Competitive Proposal/Request for Proposals (RFP). The competitive proposal method of procurement is normally conducted with more than one source submitting an offer, i.e., proposal. Either a fixed price or cost reimbursement type contract is awarded. This method of procurement is generally used when conditions are not appropriate for the use of sealed bids. If this procurement method is used the following requirements apply:

- (1) Requests for proposals will be publicized. All evaluation factors will be identified along with their relative importance;
- (2) Proposals will be solicited from an adequate number of qualified sources;
- (3) Grantees will have a method in place for conducting technical evaluations of the proposals received and for selecting awardees;
- (4) Awards will be made to the responsible firm whose proposal is most advantageous to the grantee's program with price and other factors considered; and
- (5) In determining which proposal is most advantageous, grantees may award (if consistent with State law) to the proposer whose proposal offers the greatest business value to the Agency based upon an analysis of a tradeoff of qualitative technical factors and price/cost to derive which proposal represents the "best value" to the Procuring Agency as defined in Section 6, Definitions. If the grantee elects to use the best value selection method as the basis for award, the solicitation must contain language which establishes that an award will be made on a "best value" basis.

- e. Procurement of Architectural and Engineering Services (A&E). Grantees may use qualifications-based competitive proposal procedures (i.e., Brooks Act procedures) when contracting for A&E services as defined in 40 U.S.C. §541 and 49 U.S.C. §5325(d). Services subject to this method of procurement are program management, construction management, feasibility studies, preliminary engineering, design, architectural, engineering, surveying, mapping, and related services.

Qualifications-based competitive proposal procedures require that:

- (1) An offeror's qualifications be evaluated;
- (2) Price be excluded as an evaluation factor;
- (3) Negotiations be conducted with only the most qualified offeror; and
- (4) Failing agreement on price, negotiations with the next most qualified offeror be conducted until a contract award can be made to the most qualified offeror whose price is fair and reasonable to the grantee.

These qualifications-based competitive proposal procedures should only be used for the procurement of the services listed above. This method of procurement should not be used to obtain other types of services even though a firm that provides A&E services is also a potential source to perform other types of services.

These requirements apply except to the extent the grantee's State adopts or has adopted by statute a formal procedure for the procurement of these services.

- f. Procurement of Design-Bid-Build. Grantees may procure design-bid-build services through means of sealed bidding or competitive negotiations. These services must be procured in a manner that conforms to applicable state and local law, the requirements of this guidance relative to the method of procurement used and all other applicable federal requirements.
- g. Procurement of Design-Build. Grantees may procure design-build services through means of qualifications-based competitive proposal procedures based on the Brooks Act as set forth in Section 9e when the preponderance of the work to be performed is considered to be for architectural and engineering (A&E) services as defined in Section 9e, Qualifications-based competitive proposal procedures should not be used to procure design-build services when the preponderance of the work to be performed is not of an A&E nature as defined in Section 9e, unless required by State law.
- h. Procurement By Noncompetitive Proposals (Sole Source). Sole Source procurements are accomplished through solicitation of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate. A contract change that is not within the scope of the original contract is considered a sole source procurement that must comply with this subparagraph.
- (1) Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids, or competitive proposals and at least one of the following circumstances applies:

- (a) The item is available only from a single source;
 - (b) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;
 - (c) The LMRO authorizes noncompetitive negotiations—e.g., if FTA provides a joint procurement grant or a research project grant with a particular firm or combination of firms, the grant agreement is the sole source approval;
 - (d) After solicitation of a number of sources, competition is determined inadequate; or
 - (e) **NOT APPLICABLE.**
- (2) A cost analysis, i.e., verifying the proposed cost data, the projections of the data, and the evaluation of the specific elements of costs and profit, is required.
- i. **Options.** Grantees may include options in contracts. An option is a unilateral right in a contract by which, for a specified time, a grantee may elect to purchase additional equipment, supplies, or services called for by the contract, or may elect to extend the term of the contract. If a grantee chooses to use options, the requirements below apply:
- (1) **Evaluation of Options.** The option quantities or periods contained in the contractor's bid or offer must be evaluated in order to determine contract award. When options have not been evaluated as part of the award, the exercise of such options will be considered a sole source procurement.
 - (2) **Exercise of Options.**
 - (a) A grantee must ensure that the exercise of an option is in accordance with the terms and conditions of the option stated in the initial contract awarded.
 - (b) An option may not be exercised unless the grantee has determined that the option price is better than prices available in the market or that the option is the more advantageous offer at the time the option is exercised.

10. **CONTRACT COST AND PRICE ANALYSIS FOR EVERY PROCUREMENT**

ACTION. Grantees must perform a cost or price analysis in connection with every procurement action, including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals.

- a. **Cost Analysis.** A cost analysis must be performed when the offeror is required to submit the elements (i.e., labor hours, overhead, materials, etc.) of the estimated cost, (e.g., under professional consulting and architectural and engineering services contracts, etc.).

A cost analysis will be necessary when adequate price competition is lacking and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or on the basis of prices set by law or regulation.

- b. Price Analysis. A price analysis may be used in all other instances to determine the reasonableness of the proposed contract price.
- c. Profit. Grantees will negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. To establish a fair and reasonable profit, consideration will be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.
- d. Federal Cost Principles. Costs or prices based on estimated costs for contracts under grants will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles. Grantees may reference their own cost principles that comply with applicable Federal cost principles.
- e. Cost Plus Percentage of Cost Prohibited. The cost plus a percentage of cost and percentage of construction cost methods of contracting shall not be used.

11. **BONDING REQUIREMENTS**. For those construction or facility improvement contracts or subcontracts exceeding \$100,000, the LMRO may accept the bonding policy and requirements of the grantee, provided the LMRO determined that the policy and requirements adequately protect the Federal interest. The LMRO has determined that grantee policies and requirements that meet the following minimum criteria adequately protect the Federal interest:

- a. A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified;
- b. A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract; and
- c. A payment bond on the part of the contractor. A payment bond is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract. Payment bond amounts determined to adequately protect the federal interest are as follows:

- (1) Fifty percent of the contract price if the contract price is not more than \$1 million;
 - (2) Forty percent of the contract price if the contract price is more than \$1 million but not more than \$5 million; or
 - (3) Two and a half million dollars if the contract price is more than \$5 million.
- d. A Grantee may seek LMRO approval of its bonding policy and requirements if they do not comply with these criteria.

12. PAYMENT PROVISIONS IN THIRD PARTY CONTRACTS.

- a. Advance Payments. FTA does not authorize and will not participate in funding payments to a contractor prior to the incurrence of costs by the contractor unless prior written concurrence is obtained from FTA.
- b. Progress Payments. Grantees may use progress payments provided the following requirements are followed:
 - (1) Progress payments are only made to the contractor for costs incurred in the performance of the contract.
 - (2) The grantee must obtain adequate security for progress payments. Adequate security may include taking title, letter of credit or equivalent means to protect the grantee's interest in the progress payment.

13. LIQUIDATED DAMAGES PROVISIONS. A grantee may use liquidated damages if it may reasonably expect to suffer damages and the extent or amount of such damages would be difficult or impossible to determine.

The assessment for damages shall be at a specific rate per day for each day of overrun in contract time; and the rate must be specified in the third party contract. Any liquidated damages recovered shall be credited to the project account involved unless the LMRO permits otherwise.

14. NOT APPLICABLE.

15. CONTRACT PROVISIONS. All contracts shall include provisions to define a sound and complete agreement. In addition, contracts and subcontracts shall contain contractual provisions or conditions that allow for:

- a. Administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, including sanctions and penalties as may be appropriate. (All contracts in excess of the small purchase threshold.)
- b. Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of \$10,000.)

16. STATUTORY AND REGULATORY REQUIREMENTS. A current but not all inclusive and comprehensive list of statutory and regulatory requirements applicable to

grantee procurements (such as Davis-Bacon Act, Clean Air, etc.) is contained in the LMRO Master Agreement. Grantees are responsible for evaluating these requirements for relevance and applicability to each procurement. Further guidance concerning these requirements and suggested wording for contract clauses may be found in FTA's Best Practices Procurement Manual.

For specific guidance concerning the crosscutting requirements of other Federal agencies, grantees are advised to contact those agencies.

**MEMORANDUM OF AGREEMENT
AMONG
THE FEDERAL TRANSIT ADMINISTRATION
THE NEW YORK STATE HISTORIC PRESERVATION OFFICE
ADVISORY COUNCIL ON HISTORIC PRESERVATION
AND
THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
REGARDING THE
WORLD TRADE CENTER TRANSPORTATION HUB
(WTC PATH TERMINAL AND PEDESTRIAN CONNECTIONS)
IN NEW YORK CITY, NEW YORK**

WHEREAS, the Port Authority of New York and New Jersey ("PANYNJ") proposes to construct a World Trade Center Transportation Hub, consisting of a permanent WTC PATH Terminal and pedestrian connections ("the Project") at the World Trade Center ("WTC") Site, currently bounded by Church, Liberty, West, and Vesey Streets in Manhattan; and

WHEREAS, the previous WTC PATH Terminal facility was destroyed as the result of the terrorist attacks on September 11, 2001, and re-establishment and enhancement of the WTC PATH transportation facility is critical to the long term economic revitalization and growth of Lower Manhattan; and

WHEREAS, a temporary WTC PATH station was constructed by PANYNJ and has been operating since November 23, 2003; and

WHEREAS, PANYNJ is proposing to use funding assistance from the Federal Transit Administration ("FTA") to implement the Project, assistance that renders the Project a Federal undertaking subject to Section 106 of the National Historic Preservation Act ("Section 106"), 16 USC § 470; and

WHEREAS, FTA, as lead agency, in cooperation with PANYNJ, has prepared an Environmental Impact Statement ("EIS") in accordance with the National Environmental Policy Act ("NEPA") to evaluate the Project's potential environmental impacts and consider various project alternatives; and

WHEREAS, FTA has consulted with the New York State Historic Preservation Office ("SHPO") and the Advisory Council on Historic Preservation ("ACHP") about the Project in accordance with the Section 106 regulations (codified at 36 CFR Part 800); and

WHEREAS, FTA, in consultation with SHPO, has determined the Area of Potential Effect ("APE") for the Project as defined in 36 CFR 800.16(d), to be as depicted on the map presented as Exhibit A hereto, and have identified the properties listed in or eligible for inclusion in the National Register of Historic Places ("Historic Properties" and/or "Historic Resources") within that APE (pursuant to 36 CFR 800.4[b]-[d]), and has determined the effects of the Project on the identified Historic Properties in accordance with 36 CFR 800.5; and

WHEREAS, FTA has applied the Criteria of Adverse Effect (36 CFR 800.5[a][1]), in consultation with SHPO, and has determined that implementation of the Project will have an adverse effect on the following Historic Properties within the APE:

- a. WTC Site (Tower Perimeter Column Remnants outlining the footprints of the North Tower and the South Tower and the footprints with Other Column Bases and Infrastructure, E Subway Entrance, East and West Slurry Walls, Steel Beams in Cross Form and Remnants of the Hudson Terminal and the H&M Railroad); and
- b. Hudson River Bulkhead; and

WHEREAS, FTA has applied the Criteria of Adverse Effect (36 CFR 800.5[a][1]), in consultation with SHPO, and has determined that implementation of the Project may have an adverse effect on the following Historic Properties within the APE:

- a. WTC Site: Vehicular Entrance Ramps, Cooling Water Pipes, Southern Projection, Tiebacks, PATH Tunnel Access, South Slurry Wall, Recovery and Construction Ramp, Hudson Tubes, Vehicular Access Ramp (connecting Barclay Street with 7 WTC), North Slurry Wall, 6 WTC, Vehicular Access Ramp to Barclay Street (under 7 WTC), and Restored NYCT No. 1/9 Subway Line;
- b. Barclay-Vesey Building, 140 West Street;
- c. Former East River Savings Bank, 26 Cortlandt Street;
- d. Beard Building, 125 Cedar Street;
- e. 114-118 Liberty Street; and
- f. St. Paul's Chapel and Graveyard, Broadway and Fulton Street; and

WHEREAS, FTA finds, in consultation with SHPO and PANYNJ, that the Project may have adverse effects on archaeological resources yet to be identified within the APE in areas depicted in Exhibit B attached hereto; and

WHEREAS, FTA has applied the Criteria of Adverse Effect (36 CFR 800.5[a][1]), in consultation with SHPO, and has determined that implementation of the Project will result in no adverse effect on the following Historic Properties within the APE:

- a. WTC Site (any elements not included in the foregoing two Whereas clauses);
- b. Federal Office Building/U.S. Post Office, 90 Church Street;
- c. St. Peter's Roman Catholic Church, 22 Barclay Street;
- d. Former St. Peter's School;
- e. 30 Vesey Street;
- f. Old New York Evening Post Building, 20 Vesey Street;
- g. New York County Lawyers' Association, 14 Vesey Street;
- h. Astor Building, 217 Broadway;
- i. Transportation Building, 225 Broadway;
- j. African Burial Ground and the Commons Historic District, bounded by Duane Street, Park Row, Broadway and Center Street;

- k. Former AT&T Company Building, 195 Broadway;
- l. 21-23 Thames Street;
- m. 90 West Street;
- n. Fulton Street IRT Station;
- o. Plaza and subway access from Vesey Street; and
- p. United States Realty Building, 115 Broadway; and

WHEREAS, since early 2002, PANYNJ and the Lower Manhattan Development Corporation ("LMDC") have coordinated with New York State Department of Transportation ("NYSDOT"), FTA, the U.S. Department of Housing and Urban Development ("HUD"), and the Federal Highway Administration ("FHWA") with respect to historic and environmental analyses including Environmental Performance Commitments ("EPC's") (attached hereto as Exhibit C), coordinated Section 106 meetings prior to the execution of a Coordinated Determination of Eligibility ("DOE"), and the execution of a Coordinated DOE itself; and

WHEREAS, PANYNJ, LMDC, NYSDOT and New York Metropolitan Transportation Authority ("MTA") concurred to adhere to certain common commitments set forth in the EPC's, as part of the Environmental Analysis Framework ("EAF") (attached hereto as Exhibit D), that commit to the coordinated analysis of cumulative environmental impacts including Air Quality, Noise and Vibration, Cultural and Historic Resources, Access and Circulation, and Economic Effects; and

WHEREAS, coordinated Section 106 meetings occurred among PANYNJ, LMDC, NYSDOT, FTA, HUD, FHWA and SHPO, which, in addition to soliciting input from the Project's Consulting Parties, developed the framework for a Coordinated DOE; and

WHEREAS, a Coordinated DOE, in consultation with the Project's Consulting Parties, was finalized on March 31, 2004, and concluded that the WTC Site is eligible for inclusion in the National Register of Historic Places; and

WHEREAS, the Coordinated DOE of the WTC Site for the National Register identified elements that contribute to the WTC Site's historic significance; and

WHEREAS, based on the findings in the Coordinated DOE, the federal agencies proceeded with the planning and development of their separate projects under their jurisdiction. Where the Permanent WTC PATH Terminal Project and another project (the WTC Memorial and Redevelopment Plan, Fulton Street Transit Center, or the Route 9A Project) affect a particular element as identified in the DOE, PANYNJ and the appropriate sponsoring agency(s) will coordinate their respective projects such that the effects of the Project on these elements are fully addressed in consultation with SHPO and the Project's Consulting Parties; and

WHEREAS, PANYNJ, during project design, construction, system testing, and the first six months of full operation of the Project, will review and consider all construction plans for redevelopment of the WTC Site that may result in long-term or unanticipated adverse effects on the WTC Historic Property in order to avoid, minimize, or mitigate such effects on historic

properties that may result from multiple projects and their incremental cumulative impacts on the WTC Site as defined in 40 CFR 1508.7; and

WHEREAS, the United States Department of Transportation (“DOT”) is evaluating project alternatives for the reconstruction of a half-mile section of Route 9A (West Street) along the west side of the WTC Site through FHWA; and is proposing construction of the Fulton Street Transit Center, which will have pedestrian connections to the Project through FTA; and has executed a Section 106 Amendment to the 1994 Programmatic Agreement dated October 13, 2004 and attached hereto in Exhibit E; and executed a Section 106 Programmatic Agreement dated September 24, 2004, respectively; and

WHEREAS, LMDC, as a recipient of community development block grant assistance from HUD, is responsible for the planning and execution of the WTC Memorial and Redevelopment Plan, that is the subject of a Programmatic Agreement among LMDC, SHPO and ACHP executed on April 22, 2004 and attached hereto as Exhibit F hereto; and

WHEREAS, these other projects associated with the WTC Site are subject to certain executed Section 106 Agreement document(s) referenced above and this Memorandum of Agreement (“Agreement”) is not intended to amend, modify and/or create additional requirements for those projects under their respective executed Section 106 Agreement document(s); and

WHEREAS, pursuant to that certain Programmatic Agreement; LMDC, in cooperation with PANYNJ, has prepared documentation (“Proposed Removal of Remnants from the Northwest Corner of the World Trade Center Site”) of the Northwest Slab remnants located in the WTC Site and has identified the following resources to be removed from the WTC Site to Hangar 17 at John F. Kennedy International Airport (“Hangar 17”):

- a. smoke-scarred column;
- b. column with blistered paint;
- c. wall section from Level B2 with locational sign;
- d. day-glow handrails; and

WHEREAS, SHPO, on May 24, 2004, has concurred with the “Proposed Removal of Remnants from the Northwest Corner of the World Trade Center Site”; and

WHEREAS, LMDC and PANYNJ, recognized that certain other items were relevant to the WTC Site and shall preserve the wall section with heart and cross graffiti and two steel beams with the name “Levinson” stamped on them, from the Northwest Slab remnants from the WTC Site; and

WHEREAS, PANYNJ is the interim custodian of certain structural materials and other items (hereafter referred to as “off-site artifacts”) removed from the WTC Site and the immediately surrounding area during the post-September 11, 2001 recovery effort and now located in Hangar 17 and other PANYNJ locations; and

WHEREAS, the Project’s key goals and objectives include the following: Create a World-Class, Transportation Facility; Support the Redevelopment of Lower Manhattan; Provide for Improved

Pedestrian Connections; Provide for Advanced Security; Enhance Pre-September 11, 2001 PATH Operations; Support 10-Car PATH Trains in Order to Support Ridership Growth; Minimize Impacts to Temporary PATH Service during Construction; Minimize Impacts to the Local Environment during Construction; and Minimize Construction Cost and Duration; and

WHEREAS, of the different alternatives further evaluated and identified in the EIS, FTA and PANYNJ determined that one alternative is the optimal configuration; and

WHEREAS, FTA and PANYNJ evaluated three alternatives to be carried forward for further study in the Draft EIS, identified as a No Action Alternative, and two alternatives of the optimal configuration: a Terminal with Liberty Plaza Connection Alternative and a Terminal without Liberty Plaza Connection Alternative; and determined that the selected alternative for transit service between New Jersey and Lower Manhattan is the Terminal without Liberty Plaza Connection; and

WHEREAS, this Agreement was developed with appropriate public involvement (pursuant to 36 CFR 800.2[d] and 800.6[a]) both coordinated with the scoping, public review and public hearings conducted to comply with NEPA and its implementing regulations and through public meetings specifically conducted to comply with NHPA and its implementing regulations; and in consultation with the SHPO, ACHP and (pursuant to 36 CFR 800.2[d] and 800.6[a]) more than 70 invited Consulting Parties (identified in Exhibit G hereto); and

WHEREAS, National Park Service ("NPS") may have an ongoing interest in the WTC Site and will be recognized as a Consulting Party in the implementation of this Agreement, and will be provided appropriate documentation to assist in any subsequent evaluation of the WTC Site; and

WHEREAS, the public was provided the opportunity to comment on the Project and the following Project documents, and the public will hereafter be provided with further opportunities to comment on the Project as stipulated further in this Agreement:

1. Scoping document for the preparation of an EIS for the Project pursuant to NEPA and its implementing regulations;
2. Draft EIS for the Project, dated May 2004; prepared pursuant to NEPA;
3. Draft Finding of Effects, distributed June 3, 2004, prepared pursuant to NHPA; and

WHEREAS, on June 4, 2004, by copy of the Draft EIS, the following Native American Tribes have been invited, through the NEPA process, to comment on the Project: the Shinnecock Nation; the Cayuga Nation; the Tuscarora Nation; the Saint Regis Band of Mohawk Indians; the Delaware Nation; the Poospatuck Nation; the Onondaga Indian Nation; the Oneida Indian Nation; the Tonawanda Band of Seneca; and the Stockbridge-Munsee Band of Mohicans. To date, FTA and PANYNJ have received comment from the Shinnecock Nation. An opportunity for further comment will continue as per provisions stated in Stipulation X; and

WHEREAS, the following Native American Tribes have been invited to participate in the Section 106 review: Cayuga Nation, Delaware Nation, Shinnecock Nation Cultural Center and Museum, St. Regis Band of Mohawk Indians, Stockbridge-Munsee Band of Mohicans. To date,

FTA and PANYNJ have received comments from the Shinnecock Nation. An opportunity for further comment will continue as per provisions stated in Stipulation X; and

WHEREAS, in response to Executive Order 133 for the State of New York signed on November 22, 2004, the Lower Manhattan Construction Command Center ("LMCCC") was established to ensure that adverse effects at Lower Manhattan Recovery Projects are minimized, coordinate the work of the participants, institute and implement construction coordination protocols and requirements, and mediate conflicts in schedules.

NOW, THEREFORE, FTA, SHPO, ACHP and PANYNJ, as the signatory parties to this agreement, agree that the Project will be implemented in accordance with the following stipulations to ensure that the effects of the Project on Historic Properties are taken into account.

STIPULATIONS

FTA, as the Federal lead agency, remains responsible for the implementation of the terms of this Agreement and will require, as a condition of any approval of Federal funding for the Project, adherence to the stipulations set forth herein. PANYNJ, the project sponsor, will have the lead in the implementation of each stipulation unless otherwise noted in the stipulation.

I. WORLD TRADE CENTER SITE

Because the WTC Site is located in the APE of the WTC Memorial and Redevelopment Plan as well as in the APE for the Project, PANYNJ shall coordinate treatment of the WTC Site with LMDC.

A. DOCUMENTATION

1. As a measure to address adverse effects to the WTC Site, PANYNJ, prior to removal or alteration of any historic features of the WTC Site in connection with this Project, shall ensure that the WTC Site and its historic features are documented to Level II standards of the Historic American Buildings Survey/Historic American Engineering Record ("HABS/HAER"). This documentation shall consist of large format black-and-white photographs of the Site and historic features, as they currently exist.

The construction fill on the footprints was temporarily removed for the purposes of documentation stipulated by this Agreement, and will be replaced with clean rounded gravel after the documentation in order to protect the footprints and column remnants from ongoing construction. Large-format photographic reproduction of selected drawings of current conditions and of pre-9/11 conditions, and a written history will be prepared and a description of the Site and historic features utilizing information previously generated for the Coordinated DOE for the WTC Site and the Project's EIS. HABS/HAER documentation generated by PANYNJ will be presented as a single submission to SHPO.

2. PANYNJ shall consult with SHPO and HABS/HAER to determine whether particular features warrant measured drawings; any such drawings shall be prepared by an individual

with demonstrated expertise in the preparation of measured drawings to HABS/HAER standards.

3. PANYNJ shall deposit the completed documentation in the following repositories unless otherwise determined by SHPO: (a) New York Historical Society; (b) New York City Public Library; (c) HABS/HAER; and (d) two copies to SHPO with one set to be forwarded to the New York State Archives. The large-format photographs prepared to HABS/HAER standards shall consist of the views itemized on the Schedule of Photographs appended hereto as Exhibit H. One set of the completed documentation will be presented to the WTC Memorial Center.

B. PERIMETER COLUMN REMNANTS OUTLINING NORTH TOWER AND SOUTH TOWER FOOTPRINTS AND THE TOWER FOOTPRINT AREAS AFFECTED

1. In the design and construction of the Project, PANYNJ shall to the maximum extent feasible, preserve in place 84 column base remnants in the North Tower and 39 column base remnants in the South Tower at the existing floor at elevation 242 (58 feet below Sea Level) that outline the footprints of the former Twin Towers at the WTC Site and are not located in the PATH right-of-way.
2. While striving to preserve in place the 84 column base remnants in the North Tower and the 39 column base remnants in the South Tower, up to a total of 16 column bases in the North Tower and up to a total of 3 column bases in the South Tower have the potential to be temporarily or permanently removed. If they are to be removed, they are to be removed as follows:
 - a. *Platform D.* Every effort will be made to avoid removing any column bases, however, up to 5 column bases in the North Tower and up to 3 column bases in the South Tower could be temporarily or permanently removed to construct Platform D. The design of Platform D in the northeast corner area of the North Tower has been modified to move the vertical circulation element to the north and west on the Platform allowing the corner of the North Tower to be symbolically represented in the finish materials on the Platform. A minimum of 5 to a maximum of 7 column bases of the east column line of the North Tower will be visible from Platform D. The viewing area will consist of a glass wall tilted inward from the Platform combined with a mirrored wall along the west wall enabling viewing of the column bases from this area of the Platform. Appropriate signage, graphics, and lighting will complete the viewing area.
 - b. *Platforms B, C, and D.* The locations of column remnants of the South Tower that may be removed or permanently obscured by the Project platforms shall be symbolically represented on these platforms through architectural treatments that will define and differentiate the portions of the infrastructure that are within the Tower footprint areas. These treatments may include color differentiation, texture differentiation, symbolic representation of Tower perimeter column remnants and/or an emblematic marker designating the location of the Historic Resource.

- c. *Project Foundation.* Up to 4 column bases in the North Tower could be temporarily removed by work to install other Project structures and infrastructure. Of the 4 column bases that could be affected by the Project foundation, those column bases that remain in situ undisturbed or are temporarily removed and returned to their original locations will be accessible following the completion of these foundations.
3. Removing column bases, on either a temporary or permanent basis, will be considered only after practical engineering design options pursuant to Stipulations I. B. 2a and 2b, to preserve column bases in place have been exhausted. Column bases that are removed will be returned to their original locations if practical engineering design permits. Permanent removal of column bases will only take place as a last resort, and these column bases will be removed to Hangar 17 pursuant to Stipulation I. H.
4. The proposed east-west pedestrian corridor shall be designed and built in a manner that avoids the column remnants projecting above the concrete slab that outline the north perimeter of the North Tower and place this corridor at least 5 feet outside the North Tower footprint as measured from the center line of each projecting column base to the face of the nearest structural support wall.
5. The temporary PATH track (in addition to the existing 5 tracks) and associated ballast that will be installed on a temporary basis during construction of the Project tracks and platforms shall be removed upon completion of the permanent tracks and platforms to re-expose the North Tower and South Tower perimeter column remnants and portions of the North Tower and South Tower footprints that may be covered by the temporary track and ballast.
6. The total extent of the North Tower footprint at the lowest level, at approximately elevation 242 (58 feet below Sea Level) to be permanently occupied by any portion of the Project will be approximately 1,600 square feet and will not exceed 4% of the North Tower footprint area. The total extent of the South Tower footprint at the lowest level, at approximately elevation 242 (58 feet below Sea Level) to be permanently occupied by any portion of the Project will be approximately 21,615 square feet currently occupied by the WTC PATH facility, plus an additional 2,000 square feet required by the Project, and will not exceed 53% of the South Tower footprint area.
7. The construction fill on the footprints has been temporarily removed for the purposes of documentation of the footprints pursuant to Stipulation I.A. of this Agreement, and will be replaced with clean rounded gravel as required after the documentation in order to protect the footprints and column remnants from ongoing construction. Further treatments may be specified in the Resource Protection Plan.
8. Where treatments are set forth in this Stipulation under I. B. 2, PANYNJ shall follow this process:
 - a. Design plans for the treatments will be developed in consultation with the SHPO and submitted at the preliminary (35%) and pre-final (75%) completion stages for SHPO comment. NPS and Consulting Parties will be given the opportunity to comment on the treatment design plans.

- b. Design plans will be made available, subject to Stipulation IX.D., to the Consulting Parties and the public via the PANYNJ website at www.PANYNJ.gov/pathrestoration (Project website). The Consulting Parties will be informed of the availability of the plans by electronic notification as the plans are posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans. PANYNJ will provide paper copies of such plans to Consulting Parties upon request.
- c. The review of the plans shall focus on the architectural treatments defining and differentiating the portions of the Project within the Tower footprint areas.
- d. If SHPO makes substantive comments during the pre-final design review, SHPO may request the opportunity to concur on the final design.
- e. SHPO will respond within 30 calendar days or earlier to the design plans at each stage of completion as described above.
- f. Prior to approval of submitted plans and specifications, PANYNJ will consider and respond to all comments received from SHPO and Consulting Parties within the specified comments period. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the submitted plans and specifications.

C. E SUBWAY ENTRANCE

- 1. The new pedestrian connection between the Terminal and the MTA/NYCT E Subway shall be designed to incorporate the existing E Subway entrance, in its current location, in a manner that retains existing materials and features of this entrance, including, but not limited to, the handrails, travertine flooring, including the existing steps and doors separating the E train from the pedestrian connection, and overhead signage, to the extent possible and consistent with current building codes and Americans with Disabilities Act requirements. This design will include, at a minimum, a plaque identifying the historic features of the E subway entrance.
 - a. Design plans for treatments will be developed in consultation with the SHPO and submitted at the preliminary (35%) and pre-final (75%) completion stages for SHPO comment. NPS and Consulting Parties will be given the opportunity to comment on the treatment design plans.
 - b. Design plans will be made available to the Consulting Parties and the public via the Project website. The Consulting Parties will be informed of the availability of the plans by electronic notification as the plans are posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans. PANYNJ will provide paper copies of such design plans to Consulting Parties upon request.
 - c. The review of the plans shall focus on the treatment of the existing E Subway entrance.

- d. If SHPO makes substantive comments during the pre-final design review, SHPO may request the opportunity to concur on the final design.
 - e. SHPO will respond within 30 calendar days or earlier to the design plans at each stage of completion as described above.
 - f. Prior to approval of submitted plans and specifications, PANYNJ will consider and respond to all comments received from SHPO and Consulting Parties within the specified comments period. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the submitted plans and specifications.
2. If during construction of the new pedestrian connection between the Terminal and the E Subway, it is determined that the existing E Subway entrance doors need to be removed, then they will be removed in accordance with Stipulation VI below.

D. PENETRATION OF EAST AND WEST SLURRY WALLS FOR THE PROJECT

1. The design for the Project shall provide visibility from within the Terminal to a portion of the East or West Slurry Wall if the following criteria are met: the condition of the slurry wall evokes the image now understood to represent the historic nature of the wall (e.g. Tiebacks are part of the area to be exposed, Tiebacks project beyond the re-stabilized slurry wall); the exposure provided would enable a view of the slurry wall which is clear, recognizable, and respectful of the slurry wall; and the exposure would not pose a safety hazard to the public from exposed finishes of the wall or its components. The design for the East-West Pedestrian Connector shall include a location from which the members of the public using the Connector may, at a minimum, view a plaque and photograph of the West Slurry Wall.
 - a. Design plans for treatments will be developed in consultation with the SHPO and submitted at the preliminary (35%) and pre-final (75%) completion stages for SHPO comment. NPS and Consulting Parties will be given the opportunity to comment on the treatment design plans.
 - b. Design plans will be made available to the Consulting Parties and public via the Project website. The Consulting Parties will be informed of the availability of the plans by electronic notification as the plans are posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans. PANYNJ will provide paper copies of such design plans to Consulting Parties upon request.
 - c. The review of the plans shall focus on the slurry wall mitigation.
 - d. If SHPO makes substantive comments during the pre-final design review, SHPO may request the opportunity to concur on the final design.
 - e. SHPO will respond within 30 calendar days or earlier to the design plans at each stage of completion as described above.

- f. Prior to approval of submitted plans and specifications, PANYNJ will consider and respond to all comments received from SHPO and Consulting Parties within the specified comments period. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the submitted plans and specifications.

E. STEEL BEAMS IN CROSS FORM

PANYNJ shall relocate the steel column and crossbeam mounted on a concrete pedestal and currently situated within the WTC Site near Church Street to Hangar 17 or an alternate location in accordance with Stipulation VI below, where the object will remain in the custody and control of PANYNJ as are other off-site artifacts in Hangar 17 from the WTC Site, pending final disposition of these artifacts in accordance with the rights of the respective owners thereof.

F. RESOURCE PROTECTION PLAN FOR CONSTRUCTION AT WTC SITE

1. To protect historic elements of the WTC Site that are to remain in situ from inadvertent damage during construction activities of this Project within the WTC Site, PANYNJ, in consultation with SHPO and in coordination with LMDC and with (as appropriate) those with certain property interests in the WTC Site, shall develop a WTC Resource Protection Plan ("WTCRPP") for the Project after the Record of Decision for the Project.
2. The WTCRPP will describe in detail the construction procedures of the Project related to Historic Properties and the construction procedures associated with other projects under construction in the vicinity of those Historic Properties. It will also provide, with respect to the Project, for the inspecting and reporting of existing conditions at these historic elements; establish protection procedures; establish a monitoring program; establish and monitor construction methods; and establish methods and materials to be used for any repairs. A historic architect who meets the Secretary of the Interior's professional qualifications standards (48 F.R. 44716) in historic preservation will be part of the design/construction team for the Project and will have the opportunity to review design drawings and specifications for the Project prior to construction in order to prevent damage to Historic Resources.
3. The WTCRPP will empower the historic architect, in consultation with the Chief Engineer of PANYNJ ("Engineer") or the Engineer's designee, to issue "stop work" orders with respect to this Project to prevent any unanticipated damage to Historic Properties, and any recommencement of work shall only be permitted at such time that the Engineer and historic architect determine that the appropriate modifications have been made to the construction technique to assure that no damage will occur to Historic Properties.
4. PANYNJ shall furnish copies of the WTCRPP to SHPO, ACHP, NPS and Consulting Parties for review and comment on the WTCRPP with respect to the Project. NPS and Consulting Parties shall have 21 calendar days in which to comment on the WTCRPP with respect to the Project. SHPO and ACHP shall have 30 calendar days in which to review and comment on the WTCRPP with respect to the Project. Should SHPO and ACHP fail to respond within the 30 calendar day period, PANYNJ may assume

concurrence with the WTCRPP. PANYNJ shall consider all comments on the WTCRPP with respect to the Project received within this review period in preparing the final WTCRPP. The WTCRPP for the Project shall be in place prior to the commencement of construction of the WTC PATH Terminal.

G. CUMULATIVE EFFECTS

1. PANYNJ shall follow the process described below to address previously unanticipated cumulative adverse effects on the Historic Resources on the WTC Site during Project design, implementation, and testing, and the first six months of full operation of the Project that are caused in part by the permanent WTC PATH Terminal project together with other WTC Site project activities that, when considered along with existing conditions as well as reasonably foreseeable future conditions may cause irreversible or long-term adverse effects on qualifying characteristics of the WTC Site that were to be preserved or protected based upon the terms of this Agreement or other executed Section 106 Agreement document(s) associated with the WTC Site.
2. PANYNJ shall request all agencies that are constructing projects within the WTC Site to submit preliminary and pre-final documents to the PANYNJ to allow coordination of the Project activities with such other work and to permit the PANYNJ's assessment of the Project to include the potential for cumulative adverse effects on the WTC Site per I.G.1.
3. PANYNJ and its historic preservation consultant, will consult with SHPO and Lower Manhattan Emergency Preservation Fund (consisting of the following coalition of five preservation groups: Municipal Art Society, National Trust for Historic Preservation, New York Landmarks Conservancy, Preservation League of New York State, and the World Monuments Fund) in assessing whether there is a potential for cumulative adverse effects of the Project and other WTC Site projects per I.G.1.
4. If PANYNJ and SHPO agree that Project plans or completed activities have resulted in or are likely to result in cumulative adverse effects on the WTC Site per I.G.1 of this Agreement; then PANYNJ shall consider measures with respect to the Project to mitigate or minimize such effects, including technical or financial measures for the protection, rehabilitation, or repair and Project design modifications. Disagreements between the PANYNJ and SHPO, including those related to effects findings, will be resolved pursuant to Stipulation X.
5. PANYNJ shall make all appropriate PANYNJ-generated and prepared documentation related to the Project for Section 106 purposes and utilized in consideration of cumulative adverse effects in I.G.4 available to the Consulting Parties and NPS via the Project website. Consulting Parties will be notified of the documentation posting to the Project website via electronic notification. The Consulting Parties and NPS shall have 21 calendar days to comment on the documentation. PANYNJ will provide paper copies of such documentation to Consulting Parties upon request. SHPO, ACHP, and WTC project agencies will respond within 30 calendar days of receipt of all required documentation. Should SHPO, ACHP, or any project agency, fail to respond within 30 calendar days

after receipt of all documentation, it shall be assumed that they have no comments on the proposed action, if any, to minimize or mitigate cumulative adverse effects.

6. The review of the documentation by all parties per I.G.5 shall focus on the historic elements of the WTC Site Historic Property that may be affected by the Project relative to the potential for cumulative adverse effects.
7. PANYNJ, in coordination with other project agencies as appropriate, and SHPO will consider and respond to comments on the Project and its potential for cumulative adverse effects on the WTC Site Historic Property from Consulting Parties and attempt to resolve any concerns about how PANYNJ intends to address cumulative adverse effects per I.G.1 of this Agreement. If PANYNJ, in consultation with SHPO are unable to reach a resolution with the Consulting Parties who have commented pursuant to I.G.5. regarding an adverse effect with respect to the Project and its potential for cumulative adverse effects on the WTC Site Historic Property, the PANYNJ will notify the FTA, and as appropriate, consult with the ACHP, in accordance with Stipulation X.
8. PANYNJ shall comply with other agreement documents referenced in this Agreement and the EIS related to archaeological resource treatment, noise and vibration in the WTC Construction Protection Plan for the Barclay-Vesey Building, Former East River Savings Bank, Beard Building, 114-118 Liberty Street, and St. Paul's Chapel and Graveyard and the WTCRPP when considering cumulative adverse effects on the Historic Properties both on and off of the WTC Site that may result from the Project and other related, approved project undertakings.

H. OFF-SITE ARTIFACTS

PANYNJ shall safeguard all artifacts from the WTC Site that are now or may come to be in its custody and control, pending final disposition of such artifacts in accordance with the rights of the respective owners thereof. This obligation will be fulfilled in consultation with LMDC as specified in Stipulation 4(a)(3) and Stipulation 4(b) of the April 22, 2004 Programmatic Agreement among the ACHP, LMDC and SHPO for the WTC Memorial and Redevelopment Plan. A complete inventory listing of all off-site WTC artifacts in PANYNJ's custody and control as of August 2004 shall be available to the Consulting Parties upon written request to PANYNJ. Additional artifacts may come into the custody and control of PANYNJ, and the listing of these artifacts will be incorporated into the semiannual report to be distributed to the signatory parties and Consulting Parties.

II. HUDSON RIVER BULKHEAD

A. COORDINATION

Because the Hudson River Bulkhead is located in the APE of the proposed reconstruction of West Street (Route 9A) as well as in the APE for the Project, PANYNJ shall coordinate treatment of this Historic Property with FHWA and NYSDOT.

B. LOCATION AND IDENTIFICATION

In consultation with the SHPO, and, as appropriate with NYSDOT, PANYNJ shall develop and implement a plan to locate and identify intact portions of the Hudson River Bulkhead that will be affected by construction of the East-West Pedestrian Connector.

C. TREATMENT

In the event that intact portions of the Hudson River Bulkhead are identified as a result of execution of Stipulation II.B, PANYNJ shall, in consultation with the SHPO and NYSDOT, prepare a treatment plan for those portions of the Hudson River Bulkhead to be affected by the Project.

D. TREATMENT PLAN

1. Design plans for treatments will be developed in consultation with the SHPO and submitted for SHPO comment at the preliminary (35%) and pre-final (75%) completion stages. NPS and Consulting Parties will also be given the opportunity to comment.
2. Design plans will be made available to the Consulting Parties and the public via the Project website. The Consulting Parties will be informed of the availability of the plans by electronic notification as the plans are posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans. PANYNJ will provide paper copies of such design plans to Consulting Parties upon request.
3. The review of the plans shall focus on the Hudson River Bulkhead mitigation.
4. If SHPO makes substantive comments during the pre-final design review, SHPO may request the opportunity to concur on the final design.
5. SHPO will respond within 30 calendar days or earlier to the design plans at each stage of completion as described above. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the submitted plan.
6. PANYNJ will consider and respond to all comments received from SHPO within the specified comment period and Consulting Parties prior to approval of submitted plans and specifications.

III. **BARCLAY-VESEY BUILDING, FORMER EAST RIVER SAVINGS BANK, BEARD BUILDING, 114-118 LIBERTY STREET, AND ST. PAUL'S CHAPEL AND GRAVEYARD**

A. COORDINATION

Because the Historic Properties listed in the title of this Stipulation are located in the APE of the WTC Memorial and Redevelopment Plan as well as in the APE for the Project, PANYNJ shall coordinate treatment of them with LMDC.

The Former East River Savings Bank and St. Paul's Chapel and Graveyard are also located within the APE of the Fulton Street Transit Center. PANYNJ shall therefore coordinate treatment of these Historic Properties with MTA/NYCT.

B. CONSTRUCTION PROTECTION PLAN FOR THE BARCLAY-VESEY BUILDING, FORMER EAST RIVER SAVINGS BANK, BEARD BUILDING, 114-118 LIBERTY STREET, AND ST. PAUL'S CHAPEL AND GRAVEYARD

1. To protect these buildings from project-generated construction vibration from the Project, PANYNJ, in consultation with SHPO and in coordination with LMDC and, as appropriate, with MTA/NYCT, shall develop a Construction Protection Plan ("CPP") for the Project. The CPP will set forth measures for protection and avoidance of structural and architectural damage from the Project for these Historic Properties.
2. The CPP will be based on the requirements laid out in the "New York City Department of Buildings Technical Policy and Procedure Notice ("PPN") #10/88" regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction. The PPN defines an adjacent historic structure as being contiguous to or within a lateral distance of 90 feet from a lot under development or alteration.
3. The CPP will describe in detail the construction procedures of the Project related to Historic Properties and the construction procedures associated with other projects under construction in the vicinity of each of these Historic Properties. With respect to the Project, the CPP will also provide for the inspecting and reporting of existing conditions at these properties; establishing protection procedures; establishing a monitoring program to measure vertical and lateral movement and vibration; establishing and monitoring construction methods to limit vibrations; and establishing methods and materials to be used for any repairs. The CPP shall also specify the implementation of special vibration protection measures to protect these Historic Properties from increased vibration levels associated with construction activities of the Project. For these extremely fragile buildings, these vibration protection measures for the Project shall reduce vibration levels to levels below FTA's vibration damage threshold criterion of 0.12 in/sec (approx 95 VdB). The CPP will provide for a historic architect meeting the Secretary of the Interior's professional qualifications standards (48 F.R. 44716) to work with an engineer with demonstrated comparable expertise in working with historic buildings to supervise implementation of the CPP.
4. The CPP will empower the historic architect, in consultation with the Chief Engineer of PANYNJ ("Engineer") or the Engineer's designee, to issue "stop work" orders with respect to this Project to prevent any unanticipated damage to Historic Properties, and any recommencement of work shall only be permitted at such time that the Engineer and historic architect determine that the appropriate modifications have been made to the construction technique to assure that no damage will occur to Historic Properties.
5. PANYNJ shall furnish copies of the CPP to SHPO, ACHP and Consulting Parties for review and comment with respect to the Project. The Consulting Parties will have 21 calendar days in which to comment on the CPP with respect to the Project. SHPO and ACHP shall respond

within 30 calendar days of the request for review and comment on the CPP with respect to the Project. Should SHPO and ACHP fail to respond within the 30 calendar day period, the PANYNJ may assume concurrence with the CPP. PANYNJ shall consider all comments received with respect to the Project within this review period in preparing the final CPP. The CPP for the Project shall be in place prior to the commencement of construction of the WTC PATH Terminal that could affect fragile buildings in the APE.

IV. ARCHAEOLOGICAL RESOURCES

A. COORDINATION

The areas of potential historic archaeological sensitivity in the Project's APE are former Lots 8-17 on former Block 85 (south side of Vesey Street between Greenwich and Church Streets) and former Lots 5, 6 and 10 on former Block 60 (north side of Liberty Street between Greenwich and Church Streets). Because these areas of potential historic archaeological sensitivity are located in the APE of the WTC Memorial and Redevelopment Plan as well as in the APE for the Project, PANYNJ shall coordinate fulfillment of this Stipulation with SHPO and LMDC. The locations of these archaeologically sensitive areas are shown on the map appended hereto as Exhibit B.

B. LOCATION, IDENTIFICATION, AND EVALUATION

Prior to any Project-related subsurface disturbance at any of the locations that have been determined to be sensitive for historic archaeological resources, PANYNJ shall, in consultation with the SHPO, and LMDC as appropriate, locate, identify, and evaluate the National Register eligibility of any archaeological resources at these locations in accordance with 36 CFR 800.4.

C. TREATMENT PLAN FOR ARCHAEOLOGICAL RESOURCES

1. In the event that FTA, in consultation with SHPO, determines that National Register-eligible archaeological resources will be adversely affected by construction of the Project, PANYNJ shall, in consultation with FTA, SHPO, and LMDC as appropriate, and the Consulting Parties, develop and implement a Treatment Plan for the Project. The Treatment Plan will balance Project (engineering, environmental and economic) and historic preservation concerns while addressing specific research questions. The Treatment Plan and documentation will adhere to the standards established by the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716), including the standards therein for professional qualifications.
2. The Treatment Plan will be made available to the Consulting Parties via the Project website. The Consulting Parties will be informed of the availability of the plan by electronic notification as the plan is posted on the Project website and the Consulting Parties shall have 21 calendar days to comment on the plans.
3. SHPO shall have 30 calendar days in which to comment on the Treatment Plan. If SHPO does not respond within the comment period, PANYNJ may assume that SHPO concurs with the Treatment Plan.

4. The Treatment Plan described above will be posted on the Project website. PANYNJ will provide paper copies of the Treatment Plan to the Consulting Parties upon request.

V. UNANTICIPATED DISCOVERIES OF ARCHAEOLOGICAL RESOURCES AND UNANTICIPATED EFFECTS ON HISTORIC RESOURCES

A. UNANTICIPATED DISCOVERY OF ARCHAEOLOGICAL RESOURCES

In the event that unanticipated archaeological deposits or features are encountered during the construction of the Project, PANYNJ shall immediately implement the procedures described in Exhibit I hereto.

B. UNANTICIPATED EFFECTS ON HISTORIC RESOURCES

In the event that PANYNJ determines that construction of the Project will affect or has affected a Historic Resource in an unanticipated manner other than those identified in Stipulation I.F., PANYNJ shall stop Project construction in the vicinity of the affected resource and shall take reasonable measures with respect to the Project, to avoid harm to the resource until it has consulted with the SHPO to develop a treatment or mitigation plan with respect to the Project. PANYNJ may perform additional measures to secure the job site if it determines that unfinished work in the vicinity of the affected resource will cause major safety or security concerns. Upon notification, SHPO will have 14 calendar days to review and comment on the treatment or mitigation plans. Should SHPO fail to respond within the 14 calendar day period, the PANYNJ may assume concurrence with the treatment plan or mitigation plans. If PANYNJ and SHPO cannot agree on a treatment or mitigation plan, the dispute resolution process set forth in Stipulation X below will be followed.

VI. TEMPORARY RELOCATION OF HISTORIC ELEMENTS OF THE WTC SITE

TEMPORARY RELOCATION OF HISTORIC ELEMENTS

If PANYNJ determines that historic elements (potentially anticipated to be Tower Perimeter Column Remnants and E Subway Entrance of the WTC Site) must be temporarily relocated in order to protect them from damage during construction of the Project, PANYNJ shall:

1. Prior to relocation, notify SHPO and Consulting Parties of the elements requiring temporary relocation.
2. Prior to relocation, consult with their design/construction team historic architect who meets the Secretary of the Interior's professional qualifications standards (48 FR 44716) and in consultation with SHPO, develop a plan for (a) removing the elements in a manner that maintains their integrity of materials and workmanship; (b) safeguarding the removed elements while relocated to Hangar 17 or any other agreed upon location; (c) returning the elements to the WTC Site, based on criteria to be developed by PANYNJ and reviewed by ACHP and SHPO. Elements not returned to the WTC Site will remain in the control and custody of PANYNJ in Hangar 17 or other PANYNJ sites until the final disposition of all

artifacts in PANYNJ's custody has been determined. This determination of custody will take place outside the parameters of this Project.

3. Prior to relocation, SHPO will respond within 30 calendar days or earlier to the plan for temporary relocation and safeguarding of the element or elements. Should SHPO fail to respond within the 30 calendar day period, PANYNJ may assume concurrence with the relocation plan.
4. Prior to the relocation, PANYNJ will consider those comments provided within the specified time frame in finalizing the plans. PANYNJ shall implement the final plan.
5. PANYNJ shall notify SHPO and Consulting Parties in writing when temporarily removed elements have been returned to the WTC Site.
6. The Consulting Parties will be provided updates regarding the above 5 items through electronic notification and the Project website.

VII. MONITORING

SHPO may monitor activities carried out pursuant to this Agreement at its discretion. PANYNJ will cooperate with SHPO with respect to such monitoring activities.

VIII. ADDITIONAL COORDINATION REGARDING NEWLY AFFECTED HISTORIC PROPERTIES

1. If construction activities associated with the Project may affect Historic Properties other than those whose treatments will be coordinated with other agencies as set forth in Stipulations I, II and III of this Agreement, PANYNJ shall determine whether the newly affected Historic Property is within the APE of the WTC Memorial and Redevelopment Plan, the reconstruction of West Street, and/or the Fulton Street Transit Center. If the newly affected Historic Property is not also within the APE of one or more of these projects, PANYNJ will proceed as set forth in Stipulation V.B.
2. If PANYNJ determines that the newly affected Historic Property is also within the APE of one or more of these projects, PANYNJ shall include this information in any notification to the SHPO under Stipulation V.B. and shall invite the relevant project sponsor(s) and respective lead agency to participate in consultation with SHPO to determine the appropriate course of action.

IX. ADMINISTRATION OF THIS AGREEMENT

A. COOPERATION

During implementation of this Agreement, each signatory party agrees to cooperate with the other signatory parties to facilitate the satisfaction of their respective obligations under this Agreement. The signatory parties each agree to work in good faith with the other signatory parties to meet their respective obligations in a timely manner.

B. SUBMITTALS TO SHPO

Unless otherwise specified in this Agreement, PANYNJ shall submit to SHPO all documents, drawings or other materials for which PANYNJ requests review, comment or concurrence.

C. SEMI-ANNUAL STATUS REPORTING

On or before January 31st and June 30th of each year and commencing on January 31, 2006, until the terms of this Agreement have been fulfilled, PANYNJ shall prepare and provide a semi-annual report addressing the following topics:

- Progress in completing Stipulations I through V;
- Any unexpected issues encountered during the preceding six months; and
- Any changes that PANYNJ believes should be made in implementation of this Agreement.

PANYNJ shall make this report available to the signatory parties and Consulting Parties, and will invite Consulting Parties to provide comments to PANYNJ. PANYNJ will respond to comments received and, as appropriate, will provide the signatory parties with how PANYNJ responded to comments and notify the signatory parties if they need to further consider any comments. Any signatory party may request a meeting on the report. The report will also be posted on the Project website.

D. DOCUMENTATION

Notwithstanding any other provision in this Agreement, all documentation to be provided to the signatory parties, Consulting Parties, and the Public shall relate to the historic aspects of the Project as set forth in this Agreement subject to appropriate considerations, such as security concerns.

X. DISPUTE RESOLUTION

A. OBJECTIONS TO PLANS OR REPORTS BY SIGNATORY PARTIES

In the event any signatory party to this Agreement objects to any plan or report presented for the Project pursuant to this Agreement within 30 calendar days of its receipt, or within such other time frame specified in this Agreement, PANYNJ will consult further with the objecting signatory party to seek resolution. If PANYNJ is unable to reach resolution with respect to the Project, it will notify FTA, which in turn will consult with the objecting party to seek resolution with respect to the Project. If FTA determines that the objection cannot be resolved, FTA will invite the ACHP to review all Project documentation relevant to the dispute, including FTA's proposed resolution to an objection. ACHP will provide its comments to FTA within 30 calendar days. FTA will take these comments into account in reaching a final decision concerning the dispute.

Any recommendation or comment by the ACHP will pertain only to the subject of the dispute. The responsibility of the signatory parties to implement all actions pursuant to this Agreement that are not subject to the dispute will remain unchanged.

B. CONSULTING PARTY COMMENTS AND DISPUTE RESOLUTION

1. If PANYNJ receives written objections from any Consulting Party with respect to the Project regarding the treatment of Historic Properties, or on the design of the new structure or measures taken to implement the terms of this Agreement within 30 days of electronic notification of posting of plans, designs, or measures on the Project website, PANYNJ will consult with the objector regarding such objections.
2. PANYNJ shall consult with the objecting Consulting Party within 30 calendar days after receipt of written comments. If PANYNJ and the Consulting Party cannot resolve the matter with respect to the Project, PANYNJ shall notify SHPO and provide copies of the objection. SHPO, as appropriate, shall advise PANYNJ of measures, if any, that could resolve the matter.
3. If PANYNJ in consultation with SHPO cannot resolve the matter with respect to the Project, and PANYNJ and SHPO consider the issue of sufficient importance, PANYNJ and SHPO shall proceed as set forth in Stipulation X.A. above.

XI. AMENDMENT AND TERMINATION

A. AMENDMENT

Notwithstanding any other provision in this Agreement, any signatory party to this Agreement may request that it be amended, whereupon the signatory parties will consult to consider such amendment. PANYNJ will facilitate such consultation within 30 calendar days of such request. Any amendment must be in writing and signed by FTA, ACHP, SHPO and PANYNJ to be effective. The appropriate contacts for the signatory parties are provided in Exhibit J hereto.

B. TERMINATION

This agreement will terminate upon full completion of Project construction and after the first six months of full operation of the Project, or at such time as PANYNJ notifies the other parties in writing that the Project has been terminated.

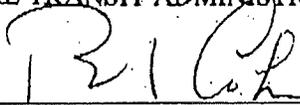
This agreement may be terminated at the request of any of the signatory parties to this Agreement within 30 calendar days of written notification to the other signatory parties. In the event the Agreement is terminated, FTA, in consultation with SHPO, shall comply with 36 CFR Part 800 on a case-by-case basis for each proposed project activity.

Execution of this Agreement by FTA, SHPO, PANYNJ and ACHP and implementation of its terms will be evidence that FTA has taken into account the effect of the Project on Historic Properties, has afforded the ACHP and Consulting Parties an opportunity to comment on the Project and its effects on Historic Properties, and has completed all processes in accordance with Section 106 of the National Historic Preservation Act.

WTC Transportation Hub Section 106 Memorandum of Agreement

Execution and implementation of this Memorandum of Agreement evidences that FTA has satisfied its Section 106 responsibilities for the Project, has taken into account the effects of the Project on historic resource, and has afforded the ACHP an opportunity to comment.

FEDERAL TRANSIT ADMINISTRATION

By: 
Name Bernard Cohen
Title Director, Lower Manhattan Recovery Office

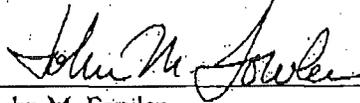
Date: April 19, 2005

WTC Transportation Hub Section 106 Memorandum of Agreement

Execution and implementation of this Memorandum of Agreement evidences that FTA has satisfied its Section 106 responsibilities for the Project, has taken into account the effects of the Project on historic resource, and has afforded the ACHP an opportunity to comment.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____



Date: _____

4/8/05

Name John M. Fowler

Title Executive Director

WTC Transportation Hub Section 106 Memorandum of Agreement

Execution and implementation of this Memorandum of Agreement evidences that FTA has satisfied its Section 106 responsibilities for the Project, has taken into account the effects of the Project on historic resource, and has afforded the ACHP an opportunity to comment.

NEW YORK STATE HISTORIC PRESERVATION OFFICE

By: Paul J. Laudato Date: 4/6/05
Name Paul J. Laudato
Title Deputy State Historic Preservation Officer

WTC Transportation Hub Section 106 Memorandum of Agreement

Execution and implementation of this Memorandum of Agreement evidences that FTA has satisfied its Section 106 responsibilities for the Project, has taken into account the effects of the Project on historic resource, and has afforded the ACHP an opportunity to comment.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: *Kenneth J. Ringler, Jr.* Date: *4/11/05*
Name Kenneth J. Ringler, Jr.
Title Executive Director

LIST OF EXHIBITS

- EXHIBIT A: AREA OF POTENTIAL EFFECT
- EXHIBIT B: MAP OF ARCHAEOLOGICALLY SENSITIVE AREAS WITHIN THE PROJECT APE
- EXHIBIT C: ENVIRONMENTAL PERFORMANCE COMMITMENTS
- EXHIBIT D: ENVIRONMENTAL ANALYSIS FRAMEWORK
- EXHIBIT E: AMENDMENT TO THE 1994 PROGRAMMATIC AGREEMENT DATED OCTÓBER 13, 2004
- EXHIBIT F: PROGRAMMATIC AGREEMENT FOR WORLD TRADE CENTER MEMORIAL AND REDEVELOPMENT PLAN
- EXHIBIT G: LIST OF CONSULTING PARTIES
- EXHIBIT H: SCHEDULE OF PHOTOGRAPHS FOR WORLD TRADE CENTER SITE
- EXHIBIT I: PLAN FOR UNANTICIPATED DISCOVERY OF ARCHAEOLOGICAL FEATURES OR MATERIALS
- EXHIBIT J: CONTACT INFORMATION

APPENDIX F

SCHEDULES OF MINIMUM WAGE RATES

The following are the minimum wage rates required by the Secretary of Labor. The classification may be supplemented and the rates for each classification may be changed from time to time in accordance with the revised rates and classifications issued by the Secretary of Labor.

GENERAL DECISION: NY20030003 02/11/2005 NY3

Date: February 11, 2005

General Decision Number: NY20030003 02/11/2005

Superseded General Decision Number: NY020003

State: New York Construction Types: Building, Heavy, Highway and Residential
 Counties: Bronx, Kings, New York, Queens and Richmond
 Counties in New York.

BUILDING & RESIDENTIAL CONSTRUCTION PROJECTS (includes single family homes and apartments up to and including 4 stories),
 HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Modification Number Publication Date

0	06/13/2003
1	05/14/2004
2	05/28/2004
3	07/16/2004
4	07/23/2004
5	07/30/2004
6	09/24/2004
7	10/01/2004
8	10/15/2004
9	12/03/2004
10	12/24/2004
11	02/11/2005

* ASBE0012-001 01/03/2005

	Rates	Fringes
Asbestos Workers/Insulator includes application of all insulating materials, protective coverings, coatings and finishing to all types of mechanical systems.....	\$ 41.56	23.86
Hazardous Material Handler.....	\$ 24.00	6.20

 BOIL0005-001 09/01/2004

Rates Fringes

Boilermaker..... \$ 41.90 25.55+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Thanksgiving Day, Memorial Day, Independence Day, Labor Day and Good Friday, Friday after Thanksgiving, Christmas Eve Day and New Year's Eve

BRNY0001-001 07/01/2004

	Rates	Fringes
Bricklayer.....	\$ 39.32	18.46
Stonemason.....	\$ 37.36	18.03

BRNY0001-002 07/01/2004

	Rates	Fringes
Pointer, cleaner and caulker...	\$ 33.50	17.10

BRNY0003-001 07/01/2004

	Rates	Fringes
Terrazzo Finisher.....	\$ 38.17	18.55
Terrazzo Worker.....	\$ 39.48	18.55

BRNY0004-001 07/01/2004

	Rates	Fringes
Marble Setter.....	\$ 44.20	16.40

BRNY0020-001 07/01/2004

	Rates	Fringes
Marble Finisher.....	\$ 37.53	17.02

BRNY0024-001 07/01/2004

	Rates	Fringes
MARBLE POLISHERS.....	\$ 34.83	13.48

BRNY0052-001 07/01/2004

	Rates	Fringes
Tile Layer.....	\$ 39.85	18.43

BRNY0088-001 07/01/2004

	Rates	Fringes
Tile Finisher.....	\$ 33.29	15.00

CARP0001-009 07/01/2003

	Rates	Fringes
Carpenters:		
Carpenters & Soft floor layers.....	\$ 38.78	26.05

CARP0740-001 07/01/2003

	Rates	Fringes
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Millwright.....	\$ 37.06	30.46
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 CARP1456-004 07/01/2003

	Rates	Fringes
Dock Builder & Piledrivermen DOCKBUILDERS.....	\$ 37.70	26.05

 CARP1456-005 07/01/2003

	Rates	Fringes
Diver Tender.....	\$ 34.25	26.05
Diver.....	\$ 46.30	26.05

 CARP1536-001 07/01/2003

	Rates	Fringes
Carpenters: TIMBERMEN.....	\$ 34.47	26.05

 ELEC0003-001 05/15/2003

	Rates	Fringes
Electrician		
Electricians.....	\$ 41.00	29.45
Jobbing, and maintenance and repair work.....	\$ 23.80	10.77+a

PAID HOLIDAYS:

a. New Years Day, Martin Luther King, Jr.'s Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Thanksgiving Day, the day after Thanksgiving Day, and Christmas Day

 ELEC1049-001 04/04/2004

QUEENS COUNTY

	Rates	Fringes
Line Construction (Substation and Switching structures pipe type cable installation and maintenance jobs or projects; Railroad electrical distribution/transmission systems maintenance (when work is not performed by railroad employees) Overhead and Underground transmission/distribution line work. Fiber optic, telephone cable and equipment)		
Groundman.....	\$ 21.12	12.60
Heavy Equipment Operator.....	\$ 28.16	12.60
Lineman and Cable Splicer.....	\$ 35.20	12.60
Material Man.....	\$ 30.62	12.60
Tree Trimmer.....	\$ 22.28	7.76

 ELEV0001-002 03/17/2004

	Rates	Fringes
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Elevator Mechanic		
Elevator Constructor.....	\$ 41.10	19.697+a
Modernization and Repair....	\$ 32.95	18.563+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

PAID VACATION: Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 5 years of service, and 6% for employees with less than 5 years of service.

 ENGI0014-001 07/01/2004

	Rates	Fringes
Pavement equipment operator		
Asphalt Plants.....	\$ 35.79	20.75+a
Asphalt roller.....	\$ 42.49	20.75+a
Asphalt spreader.....	\$ 43.67	20.75+a
Power Equipment Operator (HEAVY & HIGHWAY)		
GROUP 1.....	\$ 56.75	20.75+a
GROUP 2.....	\$ 46.63	20.75+a
GROUP 3.....	\$ 48.12	20.75+a
GROUP 4.....	\$ 46.98	20.75+a
GROUP 5.....	\$ 46.03	20.75+a
GROUP 6.....	\$ 44.14	20.75+a
GROUP 7.....	\$ 44.99	20.75+a
GROUP 8.....	\$ 43.67	20.75+a
GROUP 9.....	\$ 42.70	20.75+a
GROUP10.....	\$ 40.82	20.75+a
GROUP11.....	\$ 38.05	20.75+a
GROUP12.....	\$ 38.89	20.75+a
GROUP13.....	\$ 39.22	20.75+a
GROUP14.....	\$ 29.33	20.75+a
GROUP15.....	\$ 27.16	20.75+a
Steel erector		
Compressors, Welding Machines	\$ 30.41	20.75+a
Cranes, Hydraulic Cranes, 2 drum derricks, Forklifts, Boom Trucks	\$ 49.58	20.75+a
Three drum derricks.....	\$ 51.64	20.75+a
Utility Laborer		
Horizontal boring rig.....	\$ 41.47	20.75+a
Off shift compressors.....	\$ 34.29	20.75+a
Utility Compressors.....	\$ 26.99	20.75+a

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

- GROUP 1: Tower crane
- GROUP 2: Backhoes, power shovel, Hydraulic clam shells, moles and machines of a similar type
- GROUP 3: Mine hoists and crane, etc. used as mine hoists
- GROUP 4: Gradalls, keystones, cranes (with digging buckets), bridge cranes, trenching machines, vermeer cutter and machines of a similar nature
- GROUP 5: Piledrivers, derrick boats, tunnel shovels
- GROUP 6: Raise bore drill, and machines of a similar nature
- GROUP 7: Back filling machines, cranes, mucking machines, dual drum pavers
- GROUP 8: Mixers (concrete w/loading attachments), concrete pavers, cableways, land derricks, power house (low pressure units), concrete pumps
- GROUP 9: Concrete plants, well drilling machines, stone crushers double drum hoist, power house (other than above)
- GROUP 10: Concrete mixers
- GROUP 11: Elevators
- GROUP 12: Concrete breaking machine, Hoists (single drum), load masters, locomotive and dinkies over 10 tons
- GROUP 13: Vibratory console
- GROUP 14: Compressors (portable 3 or more in battery), tugger machine (caissons), well point pumps, chum drill
- GROUP 15: Boilers, (high pressure, compressors (portable, single, or 2 in battery, not over 100' apart), pumps (river cofferdam and welding machines (except where arc is operated by members of local 15) push button machines, all engines irrespective of power (power pac) used to drive auxilliary equipment, air, hydraulic etc.

PREMIUMS ON CRANES (Crawler or Truck):

- 100' to 149' boom - add .50
- 150' to 249' boom - add .75
- 250' to 349' boom - add 1.00
- 350' to 450' boom - add 1.50

Premiums for Cranes on Steel Erection:

- 100' to 149' boom - add 1.75
- 150' to 249' boom - add 2.00
- 250' to 349' boom - add 2.25
- 350' to 450' boom - add 2.75
- Tower crane - add 2.00

FOOTNOTE:

a. Paid Holidays: New Year's Day; Lincoln's Birthday; Washington's Birthday; Memorial Day; Independence Day; Labor Day; Veterans Day; Columbus Day; Election Day; Thanksgiving Day; and Christmas Day; provided the employee works one day the payroll week in which the holiday occurs.

ENGI0014-002 07/01/2004

	Rates	Fringes
Power Equipment Operator BUILDING & RESIDENTIAL		
GROUP 1.....	\$ 46.56	20.75+a
GROUP 2.....	\$ 49.36	20.75+a
GROUP 3.....	\$ 45.01	20.75+a
GROUP 4.....	\$ 41.41	20.75+a
GROUP 5.....	\$ 31.43	20.75+a

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

- GROUP 1: Double drum
- GROUP 2: Stone derrick, cranes, hydraulic cranes, boom trucks
- GROUP 3: 4 pole Hoist, Single Drum Hoists
- GROUP 4: Fork lift, house cars, plaster (platform machine), plaster bucket, concrete pump and all other equipment used for hoisting material
- GROUP 5: Compressors, welding machines (cutting concrete work), paint spraying, sand blasting, pumps (with the exclusion of concrete pumps), house car (settlement basis only), all engines irrespective of power (power pac) used to drive auxiliary equipment, air, hydraulic, etc., boilers

- Premiums for Cranes:
- 100'-149' boom - add 1.75
 - 150'-249' boom - add 2.00
 - 250'-349' boom - add 2.25
 - 350'-450' boom - add 2.75
 - Tower cranes add 2.00

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Columbus Day, Election Day, Thanksgiving Day, and Christmas Day, provided the employee works one day in the payroll week in which the holiday occurs

IRON0040-002 07/01/2003
BRONX, NEW YORK, RICHMOND

	Rates	Fringes
Ironworker, Structural.....	\$ 36.20	36.93

IRON0046-003 07/01/2002

	Rates	Fringes
Ironworker METALLIC LATHERS.....	\$ 31.05	23.03

IRON0197-001 07/01/2003

	Rates	Fringes
Ironworker		

STONE DERRICKMAN.....	\$ 35.76	29.07	

IRON0361-002 07/01/2003 KINGS, QUEENS			
	Rates	Fringes	
Ironworkers: (STRUCTURAL).....	\$ 36.20	36.93	

IRON0580-001 07/01/2003			
	Rates	Fringes	
Ironworker, Ornamental.....	\$ 35.65	28.50	

LABO0006-001 07/01/2003			
	Rates	Fringes	
Laborers: BUILDING CONSTRUCTION CEMENT AND CONCRETE WORKERS	\$ 31.50	15.27	

LABO0029-001 07/01/2001			
		Rates	Fringes
Laborers:			
Heavy			
Blasters (hydraulic trac drill).....	\$ 32.08	16.70	
Blasters.....	\$ 31.53	16.70	
Hydraulic Trac Drill.....	\$ 28.38	16.70	
Jackhammers, Chippers, Spaders, Concrete Breakers, All Other Pneumatic Tools, Walk Behind Self-Propelled Hydraulic Asphalt and Concrete Breaker.....	\$ 27.14	16.70	
Powder Carriers.....	\$ 24.50	16.70	
Wagon; Airtrac; Quarry Bar Drill Runners.....	\$ 27.83	16.70	

LABO0078-001 12/01/2003			
		Rates	Fringes
Asbestos Worker ASBESTOS (Removal, Abatement, Encapsulation or Decontamination of asbestos); LEAD; & HAZARDOUS WASTE LABORERS (Hazardous Waste, Hazardous Materials, Biochemical and Mold Remediation, HVAC, Duct Cleaning, Re-spray Fireproofing, etc.....	\$	25.50	6.81

* LABO0079-001 01/01/2005			
	Rates	Fringes	
Laborers Building Construction			

Mason Tenders.....	\$ 28.00	16.39
Demolition Laborers		
Tier A.....	\$ 28.00	14.99
Tier B.....	\$ 17.70	8.95

CLASSIFICATIONS

TIER A: Responsible for the removal of all interior partitions and structural partitions that can consist of sheet rock, block or masonry. Also, all structural slab openings for ducts, mechanical, shafts, elevators, slab openings and exterior walls where the building is not being completely demolished.

TIER B: Responsible for shoveling of debris into containers, pushing containers from the inside to the outside of the building.

LABO0147-001 07/01/2003

	Rates	Fringes
Laborers:		
LABORERS.....	\$ 28.86	30.51
FREE AIR TUNNEL WORKERS: Tunnel Workers (including Maintenance Men, Inside Muck Lock Tenders, Pump Men, Electricians, Cement Finishers, Caulkers, Hydraulic Men, Shield Men, Monorail Operators, Motor Men, Conveyor Men, Powder Carriers, Pan Men, Riggers, Chuck Tenders, Track Men Painters, Nippers, Brakemen, Cable Men, Hose Men, Grout Men, Gravel Men, Form Workers, Concrete Workers, Tunnel Laborers, Mole Nipper (one (1) Mole Sipper per Working Shaft per Shift for up to and including Two (2) Moles)		

LABO0731-001 07/01/2001

	Rates	Fringes
Laborers:		
Building, Heavy and Residential		
UNSKILLED.....	\$ 28.74	14.64
UTILITY LABORER.....	\$ 28.59	14.64
Paid Holidays: Labor Day and Thanksgiving Day		

LABO1010-001 07/01/2001

	Rates	Fringes
Laborers:		
HIGHWAY CONSTRUCTION		
Fence Installer & Repairer.	\$ 28.84	15.55+a
FORMSETTERS.....	\$ 32.04	15.55+a
LABORERS.....	\$ 28.94	15.55+a
Landscape Planting & Maintenance.....	\$ 28.84	15.55+a
Maintenance Safety Surface.	\$ 28.44	15.55+a
Slurry/Sealcoater/Play Equipment Installer.....	\$ 28.69	15.55+a
Small Equipment Operator (Not Operating Engineer)	\$ 28.94	15.55+a
Small Power Tools Operator.	\$ 28.44	15.55+a

FOOTNOTES:

a. PAID HOLIDAYS: Memorial Day, Fourth of July, Labor Day, Columbus Day, Election Day and Thanksgiving Day, provided the employee has worked one (1) day in the calendar week in which the said holiday occurs.

LABO1018-001 07/01/2001

	Rates	Fringes
Laborers		
Asphalt Rakers.....	\$ 32.36	15.55+a
Asphalt Tampers.....	\$ 29.92	15.55+a
Landscape Planting & Maintenance Fence		
Installer/Maintenance.....	\$ 29.81	15.55+a
Line Striping Installers..	\$ 29.56	15.55+a
Play Equipment/Safety Surface Installer.....	\$ 29.31	15.55+a
Screedman/Micropaver.....	\$ 32.73	15.55+a
Shoveler, General Laborers/ All other incidental		
work.....	\$ 29.81	15.55+a
Slurry/Sealcoater.....	\$ 29.31	15.55+a
Small Equipment Operator...	\$ 29.56	15.55+a

FOOTNOTE:

a. Paid Holidays: Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veterans Day, and Thanksgiving Day

PAIN0009-001 05/01/2002

	Rates	Fringes
Glazier.....	\$ 32.20	20.17
All repair and maintenance work on particular building, whenever performed, where the total cumulative contract is under \$100,000.00.		
GLAZIERS.....	\$ 19.05	11.44
Painters:		
Painters, Drywall Finishers, Lead Abatement Worker (Bridge Work).....	\$ 30.25	15.42
Spray, Scaffold and Sandblasting.....	\$ 33.25	15.42

PAIN0806-001 10/01/2004

	Rates	Fringes
Painters:		
Structural steel and Bridge.	\$ 42.00	25.37

PAIN1974-001 07/03/2002

	Rates	Fringes
Painters:		
Drywall Tapers/Pointers.....	\$ 33.82	

PLAS0260-001 07/01/1999
 BRONX, NEW YORK AND RICHMOND COUNTIES:

	Rates	Fringes
Plasterer.....	\$ 27.91	15.55

PLAS0260-002 07/01/1999
 KINGS AND QUEENS COUNTIES

	Rates	Fringes
Plasterer.....	\$ 27.91	15.16

PLAS0530-001 02/04/2004

	Rates	Fringes
Plasterer DRYWALL PLASTERERS.....	\$ 31.00	15.55

PLAS0780-001 07/01/2004

	Rates	Fringes
Cement Mason.....	\$ 40.00	21.10

PLUM0001-001 07/01/2004

	Rates	Fringes
Plumber JOBBING AND ALTERATIONS Any repair and/or replacement of the present plumbing system that does not change the existing roughing.....	\$ 20.97	7.43
PLUMBERS:.....	\$ 41.91	27.30

* PLUM0638-001 12/29/2004

	Rates	Fringes
Plumber SERVICE FITTERS.....	\$ 26.30	2.55
SPRINKLER FITTERS, STEAMFITTERS.....	\$ 41.82	31.07
Service Fitter work shall consist of all repair, service and maintenance work on domestic, commercial and industrial refrigeration, air conditioning and air cooling, stoker and oil burner apparatus and heating apparatus etc., including but not exclusively the charging, evacuation, leak testing and assembling for all machines for domestic, commercial and industrial refrigeration, air conditioning and heating apparatus. Also, work shall include adjusting, including capacity adjustments, checking and repairing or replacement of all controls and start up of all machines and repairing all defects that may develop on any system for domestic, commercial and industrial refrigeration and all air conditioning, air cooling, stoker and oil burner apparatus and heating apparatus regardless of size or type.		

* ROOF0008-003 07/01/2004

	Rates	Fringes
Roofer (including Built Up, Composition and Single Ply)....	\$ 32.08	21.28

SHEE0028-002 07/29/2004

	Rates	Fringes
Sheet metal worker.....	\$ 39.99	28.28

TEAM0282-001 07/01/2004

	Rates	Fringes
Truck drivers:		
TRUCK DRIVERS:		
Asphalt.....	\$ 30.685	23.6025+a+b
Euclids & Turnpulls.....	\$ 31.25	23.6025+a+b
High Rise.....	\$ 32.31 2	3.6525+a+b

FOOTNOTES:

PAID HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veterans' Day (Armistice Day), Thanksgiving Day and Christmas Day. Employees working two (2) days in the calendar week in which a holiday falls are to be paid for such holiday, provided that they shape each remaining workday during such calendar week.

b. VACATION: For each 15 days worked within the contract year an employee will receive one day's vacation with pay with a maximum vacation of 3 weeks per year.

TEAM0813-001 12/01/1998

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 19.49	3.61+a
GROUP 2.....	\$ 19.76	3.61+a
GROUP 3.....	\$ 19.90	3.61+a
GROUP 4.....	\$ 20.23	3.61+a
GROUP 5.....	\$ 20.40	3.61+a
GROUP 6.....	\$ 21.29	3.61+a
GROUP 7.....	\$ 22.40	3.61+a
GROUP 8.....	\$ 19.90	3.61+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr.'s Birthday, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Thanksgiving Day, Christmas Day, Employee's Birthday, Two (2) Personal Days, and any holiday or day of mourning proclaimed as such by the State or Federal Government.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Closed body trucks with self contained loading unit up to and including 22 yard capacity

GROUP 2: Open trucks, rack body or trucks with no self contained mechanical loading device, up to 22 yard capacity. One-container tractor hoist

GROUP 3: 10 wheel, open trucks, container loaders, dino-master, over-cab loaders, rack body trucks, or any trucks 22 yards to and including 25 yards capacity

GROUP 4: Rubbish and garbage trucks, 26 yards to and including 31 yards

GROUP 5: Single axle working non-compactor containers up to 15 yards capacity on rubbish and garbage removal

GROUP 6: Roll-off trucks up to and including 42 yard capacity

GROUP 7: Roll-off truck with more than 42 yard capacity or any tractor trailer trucks

GROUP 8: One-container tractor hoist on construction and alteration debris removal

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue. 3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

APPENDIX G
FTA CONSTRUCTION ATTACHMENT

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1. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION TERMS

This Agreement is anticipated to be partially funded by the Federal Transit Administration, pursuant to the Agreement entitled, “United States of America Department of Transportation Federal Transit Administration – Master Agreement for ‘Lower Manhattan Recovery Grants’, dated May 16, 2003, (“Master Agreement”) which is attached hereto and incorporated herein by reference.

All contractual provisions required by DOT, as set forth in FTA Circular 4220.1E as modified by LMRO Third Party Contracting Requirements, dated August 21, 2003, are attached hereto for reference. Anything to the contrary herein notwithstanding, all FTA-

mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Authority requests which would cause the Authority to be in violation of the FTA terms and conditions.

Each and every provision required by the FTA to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein. If any provision of this Contract shall be such as to effect non-compliance with any FTA requirement, such provision shall not be deemed to form part hereof, but the balance of this Contract shall remain in full force and effect.

2. SEISMIC SAFETY

If this is a contract for the construction of new buildings or additions to existing buildings, the Contractor agrees that any new building or addition to an existing building will be constructed in accordance with standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify compliance to the extent required by the regulation. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance. The completed certification of compliance is to be submitted to the Engineer. The seismic safety standards applicable to this Contract are contained in Section 2312 ICBO Uniform Building Code (UBC), as modified by the Appendix to Title 27, Chapter 1 (Volume 7), of the Administrative Code and Charter of the City of New York at RS 9-6 Earthquake Loads.

3. ENERGY CONSERVATION

The Contractor agrees to comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and Conservation Act, 42 U.S.C. §6321 et seq. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a Subcontractor is in compliance with the requirements of this Section.

4. CLEAN WATER REQUIREMENTS – CONTRACTS EXCEEDING \$100,000

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC §1251 *et seq.*
- B. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.
- C. The Contractor also agrees to include the requirements of this Article in all subcontracts exceeding \$100,000 issued pursuant to this Contract.

5. CERTIFICATION - LOBBYING RESTRICTIONS -CONTRACTS EXCEEDING \$100,000

A. Definitions. As used in this Clause:

"Agency," as defined in 5 U.S.C. 552(f), includes Federal executive departments and agencies as well as independent regulatory commissions and Government corporations, as defined in 31 U.S.C. 9101(1).

"Covered Federal action" means any of the following Federal actions:

1. The awarding of any Federal contract;
2. The making of any Federal grant;
3. The making of any Federal loan;
4. The entering into of any cooperative agreement; and
5. The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization" have the meaning provided in Section 4 of the Indian Self Determination and Education Assistance Act (25 U.S.C. 450B). Alaskan natives are included under the definitions of Indian tribes in that Act.

"Influencing or attempting to influence" means making, with the intent to influence, any communication to or appearance before an officer or employees of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government" means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency" includes the following individuals who are employed by an agency:

- a. An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment;
- b. A member of the uniformed services as defined in section 101(3), title 37, United States Code;
- c. A special government employee as defined in Section 202, title 18, United States Code; and
- d. An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code Appendix 2.

"Person" means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian Organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable Compensation" means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation

for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable Payment" means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient" includes all contractors and subcontractors at any tier in connection with a Federal Contract. The term excludes an Indian Tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly Employed" means, with respect to an officer or employee of a person requesting or receiving a Federal Contract, an officer or employee who is employed by such person for at least one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for one hundred and thirty (130) working days.

"State" means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-state, regional, or interstate entity having governmental duties and powers.

B. Prohibition.

1. Section 1352 of title 31, United States Code provides in part that no appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. The prohibition does not apply as follows:

a. Agency and legislative liaison by own employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B.1.) of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract if the payment is for agency and legislative liaison activities not directly related to a covered Federal Action.

(ii) For purposes of subparagraph B. 2.) a.(i) of this Section, providing any information specifically requested by an agency or Congress is allowable at any time.

(iii) For purposes of subparagraph B. 2.) a.(i) of this Section, the following agency and legislative liaison activities are allowable at any time only where they are not related to specific solicitation for any covered Federal action.

(a) Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sales and service capabilities; and,

(b) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(iv) For purposes of paragraph B. 2)a.(i) of this Section, the following agency and legislative liaison activities are allowable only where they are prior to formal solicitation of any covered Federal action:

(a) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(b) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(c) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Public Law 95-507 and other subsequent amendments.

(iv) Only those activities expressly authorized by subparagraph B. 2)a. of this Section are allowable under subparagraph B. 2)a.

b. Professional and technical services by Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or an extension, continuation, renewal, amendment, or modification of a Federal contract if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.

(ii) For purposes of subparagraph B. 2.) b. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any

professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Only those services expressly authorized by subparagraph B. 2.) b. this Section are allowable under subparagraph B. 2.) b.

c. Reporting for Own Employees.

No reporting is required with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

d. Professional and technical services by Other than Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. 1.) of this Section, does not apply in the case of any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.

(ii) For purposes of subparagraph B. 2.) d. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of

equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(v) Only those services expressly authorized by subparagraph B. 2.) d. of this Section are allowable under subparagraph B. 2.) d.

C. Disclosure.

1. Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a certification entitled "Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352," as set forth in the Appendix to this Attachment that the person has not made, and will not make, any payment prohibited by subparagraph B. of this Clause.

2. Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a disclosure form entitled "Disclosure of Lobbying Activities Pursuant to 31 U.S.C. 1352" (Standard Form-LLL), as set forth in the Appendix to this Attachment, if such person has made or has agreed to make any payment using non-appropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph B. of this Clause if paid for with appropriated funds.

3. Each person shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such

person under subparagraph C.2) of this Section. An event that materially affects the accuracy of the information reported includes:

- a. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
 - b. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or
 - c. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.
4. Any person who requests or receives from a person referred to in subparagraph C.1) of this Section a subcontract exceeding \$100,000 at any tier under a Federal contract shall file a certification, and a disclosure form, if required, to the next tier above.
 5. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in subparagraph C.1) of this Section. That person shall forward all disclosure forms to the Authority.

D. Agreement.

In accepting any contract resulting from this solicitation, the person submitting the offer agrees not to make any payment prohibited by this Clause.

E. Penalties.

1. Any person who makes an expenditure prohibited under subparagraph A of this Clause shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure.
2. Any person who fails to file or amend the disclosure form to be filed or amended if required by the Clause, shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
3. Contractors may rely without liability on the representations made by their Subcontractors in the certification and disclosure form.

F. Cost Allowability.

Nothing in this Clause is to be interpreted to make allowable or reasonable any costs which would be unallowable or unreasonable in accordance with Part 31 of the Federal Acquisition Regulation. Conversely, costs made specifically unallowable by the requirements in this Clause will not be made allowable under any of the provisions of Part 31 of the Federal Acquisition Regulation.

6. ACCESS TO RECORDS AND REPORTS

The Contractor agrees to provide the Authority, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any

books, documents, papers and records of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions. The Contractor also agrees, pursuant to 49 CFR 633.15 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to the Contractor's records and construction sites pertaining to the project.

The Contractor agrees to provide the Authority, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions.

The Contractor shall make available records related to the contract to the Authority, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

The Contractor agrees to maintain all books, records, accounts and reports required under this Contract for a period of not less than three (3) years after final payment is made by the Authority and all other pending matters are closed, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case the Contractor agrees to maintain same until the Authority, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

This requirement is independent of the Authority's requirements for record retention contained elsewhere in the contract documents.

7. FEDERAL CHANGES

The Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement, as they may be amended or promulgated from time to time during the term of this Contract. Contractor's failure to so comply shall constitute a material breach of this Contract. The most recent Federal laws, regulations, policies, and administrative practices apply to this Contract at any particular time, unless FTA issues a written determination otherwise. All standards or limits within the Master Agreement are minimum requirements, unless modified by the FTA.

8. CLEAN AIR REQUIREMENTS – CONTRACTS EXCEEDING \$100,000

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 USC §7401 *et seq.* The Contractor agrees to report each violation to the Authority and understands and agrees

that the Authority will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include the requirements of this Clause in all subcontracts exceeding \$100,000 issued pursuant to this Contract.

9. PREFERENCE FOR RECYCLED PRODUCTS – CONTRACTS EXCEEDING \$10,000

The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recover Act (RCRA), as amended (42.U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

10. NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

The Authority and the Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the Authority, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal Assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provisions.

11. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS.

- A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, apply to its actions pertaining to this Project. The Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the contract or project. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.
- B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under this Contract, financed in whole or in part with Federal assistance, the Federal Government reserves the right to impose the

penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

- C. The Contractor agrees to include the above two clauses in each subcontract related to this Contract. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

12. CERTIFICATION - DEBARMENT AND SUSPENSION – CONTRACTS EXCEEDING \$25,000

This Contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that none of the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its proposal, the Proposer provides the “Certification regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tiered Covered Transactions” as set forth in the Appendix to this Attachment.

In the event that the Contractor has certified prior to award that it is not proposed for debarment, debarred, suspended, or voluntarily excluded from covered transactions by any Federal Department or agency and such certification is found to be false, this Contract may be canceled, terminated or suspended by the Authority and the Contractor will be liable for any and all damages incurred by the Authority because of such cancellation, termination or suspension because of such false certification.

Prior to the award of any Subcontracts or Supplier agreements expected to equal or exceed the Federal procurement small purchase threshold fixed at 10 U.S.C. 253(g) (currently \$25,000), regardless of tier, any prospective Subcontractor or Supplier who has not previously submitted a certification for this Contract must execute and submit to the Contractor a certification in the form in the Appendix to this Attachment which will be deemed a part of the resulting Subcontract and Supplier agreement.

The originals of any Certifications or correspondence relating hereto shall be sent by the Contractor to the Director of Procurement, One Madison Avenue, 7th Floor, New York, NY 10010.

The Contractor shall not knowingly enter into any Subcontracts or Supplier agreements with a person that is proposed for debarment, debarred, suspended, declared ineligible or voluntarily excluded from covered transactions.

As required by FTA, the Contractor and its Subcontractors or Suppliers required to file the certification have a continuing duty to disclose, and shall provide immediate written

notice to the Authority if, at any time, it learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

13. CIVIL RIGHTS

A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, and section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:

i. Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

ii. Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

iii. Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it

will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

C. The Contractor also agrees to include these requirements in each subcontract related to this project, modified only if necessary to identify the affected parties.

14. FLY AMERICA

The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for the Project unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

15. CARGO PREFERENCE – USE OF UNITED STATES CARGO VESSELS

The Contractor herein agrees:

- A. To utilize privately owned United States-flag commercial vessels to ship at least fifty percent (50%) of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- B. To furnish within twenty (20) days following the date of loading for shipments originating within the United States or within thirty (30) working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (1) above to the FTA Administrator and grantee (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20230.
- C. To include these requirements in all subcontracts issued pursuant to this Contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

16. DAVIS-BACON ACT – CONTRACTS EXCEEDING \$2000

The Davis-Bacon and Copeland Acts are codified at 40 USC 3141, *et seq.* and 18 USC 874. The Acts apply to grantee construction contracts and subcontracts that "at least partly are financed by a loan or grant from the Federal Government." 40 USC 3145(a), 29 CFR 5.2(h), 49 CFR 18.36(i)(5). The Acts apply to any construction contract over

\$2,000. 40 USC 3142(a), 29 CFR 5.5(a). 'Construction,' for purposes of the Acts, includes "actual construction, alteration and/or repair, including painting and decorating." 29 CFR 5.5(a). The requirements of both Acts are incorporated into a single clause (*see* 29 CFR 3.11) enumerated at 29 CFR 5.5(a) and reproduced below and are applicable if this Contract is a construction contract (as delineated above) over \$2000.

A. Minimum wages -

(1) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which, if applicable, is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this Section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (1)(ii) of this Section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2)(a) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(iv) With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(c) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs A(2)(ii) (b) or (c) of this Section, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(5)(a) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(c) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs A (2)(ii)(b) or (c) of this Section, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

B. Withholding - The Authority shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and

mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the Authority may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

C. Payrolls and basic records –

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2)(a) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Authority for transmission to the Federal Transit Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the

payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5 and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph C(2)(b) of this Section.

(d) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(3) The Contractor or subcontractor shall make the records required under paragraph C(1) of this Section available for inspection, copying, or transcription by authorized representatives of the Federal Transit Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

D. Apprentices and trainees -

(1) Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any

craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) Trainees - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and

Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) Equal employment opportunity - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

E. Compliance with Copeland Act requirements - The Contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this Contract.

F. Subcontracts - The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

G. Contract termination: debarment - A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

H. Compliance with Davis-Bacon and Related Act requirements - All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this Contract.

I. Disputes concerning labor standards - Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

J. Certification of eligibility -

(1) By entering into this Contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(2) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**17. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT –
CONTRACTS EXCEEDING \$100,000**

The Contract Work Hours and Safety Standards Act applies to grantee contracts and subcontracts under 40 USC 3701(b)(1)(B)(iii) and (b)(2), 29 CFR 5.2(h), 49 CFR 18.36(i)(6) for contracts for construction, and non-construction projects that employ “laborers or mechanics on a public work, where the contract amount is greater than \$100,000.

A. Overtime requirements - No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

B. Violation; liability for unpaid wages; liquidated damages - In the event of any violation of the clause set forth in paragraph A of this Section the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph A of this Section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph A of this Section.

C. Withholding for unpaid wages and liquidated damages - The Authority shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph B of this Section.

D. Subcontracts - The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs A through D of this Section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs A through D of this Section.

18. FEDERAL PRIVACY ACT

The following requirements apply to the Contractor and its employees that administer any system of records on behalf of the Federal Government under any contract:

- A. The Contractor agrees to comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. § 552a. Among other things, the Contractor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Federal Government. The Contractor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract.
- B. The Contractor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

19. TRANSIT EMPLOYEE PROTECTIVE REQUIREMENTS

a) General Transit Employee Protective Requirements. To the extent that FTA determines that transit operations are involved, the Contractor agrees to carry out the transit operations work on the underlying contract in compliance with terms and conditions determined by the U.S. Secretary of Labor to be fair and equitable to protect the interests of employees employed under this Contract and to meet the employee protective requirements of 49 U.S.C. A 5333(b), and U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the letter of certification from the U.S. DOL to FTA applicable to the FTA Recipient's project from which Federal assistance is provided to support work on the underlying contract. The Contractor agrees to carry out that work in compliance with the conditions stated in that U.S. DOL letter. The requirements of this subsection (1), however, do not apply to any contract financed with Federal assistance provided by FTA either for projects for elderly individuals and individuals with disabilities authorized by 49 U.S.C. § 5310(a)(2), or for projects for nonurbanized areas authorized by 49 U.S.C. § 5311. Alternate provisions for those projects are set forth in subsections (b) and (c) of this clause.

b) Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5310(a)(2) for Elderly Individuals and Individuals with Disabilities - If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5310(a)(2), and if the U.S. Secretary of Transportation has determined or determines in the future that the employee protective requirements of 49 U.S.C. § 5333(b) are necessary or appropriate for the state and the public body subrecipient for which work is performed on the underlying contract, the Contractor agrees to carry out the Project in compliance with the terms and conditions determined by the U.S. Secretary of Labor to meet the requirements of 49 U.S.C. § 5333(b), U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the U.S. DOL's letter of certification to FTA, the date of which is set forth Grant Agreement or Cooperative Agreement with the state. The Contractor agrees to perform

transit operations in connection with the underlying contract in compliance with the conditions stated in that U.S. DOL letter.

c) Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5311 in Nonurbanized Areas - If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5311, the Contractor agrees to comply with the terms and conditions of the Special Warranty for the Nonurbanized Area Program agreed to by the U.S. Secretaries of Transportation and Labor, dated May 31, 1979, and the procedures implemented by U.S. DOL or any revision thereto.

(2) The Contractor also agrees to include the any applicable requirements in each subcontract involving transit operations financed in whole or in part with Federal assistance provided by FTA.

20. DRUG OR ALCOHOL ABUSE – CONFIDENTIALITY AND OTHER CIVIL RIGHTS PROTECTIONS

The Recipient will comply with confidentiality and other civil rights protections of the Drug Abuse Office and Treatment Act of 1972, as amended, 21 U.S.C. §§ 1174 *et seq.*, with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, as amended, 42 U.S.C. §§ 4581 *et seq.*, and with the Public Health Service Act of 1912, as amended, 42 U.S.C. §§ 290dd-3 and 290ee-3, and any subsequent amendments to these acts.

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

David B. Eppinger

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1 352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor, , certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 18th of January,
20 06

By: David B. Eppinger Vice President Signature of Authorized Official

Official Name and Title of Authorized Official
David B. Eppinger Vice President



CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned JAMES ABADIE OF BOUIS LEWD LEASE CO, INC.
(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 13th of JANUARY,
2006.

By: James Abadie Signature of Authorized Official
JAMES ABADIE, SENIOR VP, MANAGER IN CHARGE Official Name and Title of Authorized Official
Official

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

Joseph LoCurto

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

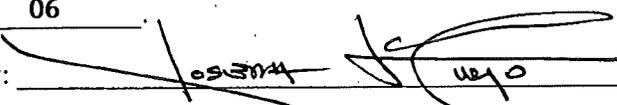
This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

***Slattery Skanska Inc.**

The Contractor, I certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 12th of January,
20 06

By:  Signature of Authorized Official

Joseph LoCurto, President Official Name and Title of Authorized
Official

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

GRANITE CONSTRUCTION NORTHEAST, INC., by Michael F. Donnino

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1 352(c)(I)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.

The Contractor, , certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day 18th of January,
20 06

~~GRANITE CONSTRUCTION NORTHEAST, INC.~~

By: Michael F. Donnino
Michael F. Donnino, Sr. Vice President

Signature of Authorized Official

Official Name and Title of Authorized

Official

STANDARD FORM LLL - DISCLOSURE OF LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

- | | | |
|--|--|---|
| 1. Type of Federal Action:
[] a. contract

b. grant

c. cooperative agreement

_____ d. loan

e. loan guarantee

f. loan insurance | 2. Status of Federal Action:
[] a. bid//offer/application

b. Initial award

c. post-award | 3. Report Type:
[] a. initial filing

b. material change

For Material Change Only:
year quarter

date of last report |
|--|--|---|

- | | |
|---|--|
| 4. Name and Address of Reporting Entity:

Prime Subawardee
Tier____, <i>if known:</i>
Congressional District, <i>if known:</i> | 5. If Reporting Entity in No.4 is a Subawardee, Enter Name and Address of Prime:

Congressional District, <i>if known:</i> |
|---|--|

- | | |
|--|--|
| 6. Federal Department/Agency: | 7. Federal Program Name/Description:
CFDA Number, <i>if applicable:</i> |
| 8. Federal Action Number, <i>if known:</i> | 9. Award Amount, <i>if known:</i>
\$ |

- | | |
|--|---|
| 10. a. Name and Address of Lobbying Registrant
<i>(if individual, last name, first name, MI):</i> | b. Individuals Performing Services <i>(including address if different from No.10a)</i>
<i>(last name, first name, MI):</i> |
|--|---|

11. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more that \$100,000 for such failure.

Signature _____

Print Name

Title

Telephone No.

Date:

INSTRUCTIONS FOR COMPLETION OF DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.
(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER
COVERED TRANSACTIONS PURSUANT TO FTA CIRCULAR
2015.1**

1. The prospective lower tier participant,

Fluor Enterprises, Inc.

certifies, by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day

18th of January

2006

David B. Eppinger

By Signature of
Authorized
Official

David B. Eppinger, Vice President

Name and Title of Authorized Official



CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER
COVERED TRANSACTIONS PURSUANT TO FTA CIRCULAR
2015.1

1. The prospective lower tier participant,

Boris Leas Lease LMS, Inc.
certifies, by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day 13th of January
2006

James Abadie
By Signature of Authorized Official

JAMES ABADIE, SENIOR VP, PRINCIPAL IN CHARGE
Name and Title of Authorized Official

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER
COVERED TRANSACTIONS PURSUANT TO FTA CIRCULAR
2015.1**

1. The prospective lower tier participant,

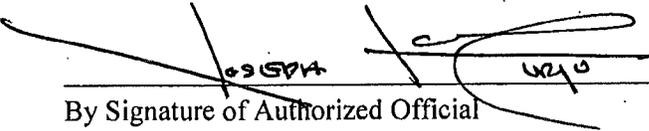
Slattery Skanska Inc.

certifies, by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day
12th of January
20 06


By Signature of Authorized Official

Joseph LoCurto, President
Name and Title of Authorized Official

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER
COVERED TRANSACTIONS PURSUANT TO FTA CIRCULAR
2015.1**

1. The prospective lower tier participant,

GRANITE CONSTRUCTION NORTHEAST, INC.

certifies, by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day

18th of January

20 06

GRANITE CONSTRUCTION NORTHEAST, INC.

BY: Michael Donnino

By Signature of
Authorized
Official

Michael F. Donnino, Sr. Vice President

Name and Title of Authorized Official

**INSTRUCTIONS FOR COMPLETION OF CERTIFICATION REGARDING
DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION -
LOWER TIER COVERED TRANSACTIONS**

1. By signing and submitting this Proposal, the prospective lower tier participant is providing the signed certification set out on the previous page.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Authority may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the Authority if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. The Proposer may contact the Procurement Representative for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Authority.

6. The prospective lower tier participant further agrees by submitting this proposal that it will include the "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.

8. Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under sub-paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, the Authority may pursue available remedies including suspension and/or debarment.

APPENDIX H – NOT USED



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APPENDIX I

MINORITY BUSINESS ENTERPRISES AND WOMEN'S BUSINESS ENTERPRISES

DIRECTORY AND FORMS

The Port Authority has a long-standing practice of making its contract available to as many firms as possible and has taken affirmative steps to encourage Minority Business Enterprises (MBEs) and Women's Business Enterprises (WBEs) to seek business opportunities with it. The Port Authority's on-line Directory of Qualified MBE/WBEs lists the firms that are registered.

The MBE/WBE Directory specifies the firms the Authority has determined to be (1) MBEs/WBEs and (2) experienced in performing work in the trades and contract dollar ranges indicated.

Contractors are provided with an interactive directory and the ability to view and print a current listing of M/WBE contractors. Information may be selected and sorted according to categories, state, dollar range, and type (MBE, WBE, DBE, and SBE).

To view the directory, type in www.panynj.gov/mwbe or go to www.panynj.gov, select Engineering - M/W/S/DBE Information (under Doing Business with the Port Authority), and then select MWBE Qualified Vendor Search. A hard copy is available upon request to the Contract Desk at (973) 792-3935 or contractsdesk@panynj.gov.



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6. Type of Ownership:

- A. Sole Proprietorship
- Partnership
- Corporation

B. The above type of ownership since

_____ Date

C. Date Business Est.:

_____ Month/Year

7. Method of Acquisition (check all applicable):

- Bought Existing Business
- Started New Business
- Secured Franchise
- Secured Concession
- Merger or Consolidation

Other _____

Date of Acquisition: _____

_____ Month/Year

8.a. For Corporations and Partnerships: Complete for all Shareholders, Partners, Directors or Officers.

Name & Position (if no position is held, state "none")	Circle	No. of Shares Owned	% of Voting Shares Owned	Common Or Preferred	Date of Ownership or Employment	Home Address & Telephone No.
Min/Fem						
Min/Fem						
Min/Fem						
Min/Fem						
Min/Fem						

8.b. The present configuration of ownership has existed since

_____ Date

8.c. Total number of shares issued and outstanding:

	<u>Issued</u>	<u>Outstanding</u>
Common	_____	_____
Preferred	_____	_____
Other	_____	_____

9. Number of Employees (average over year):

Full-time

Part-time



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10. Gross Income:

\$ _____
 Current Year ()
 \$ _____
 Last Year ()
 \$ _____
 Previous Year ()

11. List your three largest clients or customers:

Company Name & Contact Person	Address & Telephone No.	Annual Sales/Contracts

12. Have you ever been a Prime Contractor? Yes No

13. List the three largest contracts that your company has entered into during the last year:

Client Name	Contract Dollar Amount	Location of Contract Performance	Contract Duration	Prime Sub. Or Joint Venture

14. Check one item which best describes your major operation. You may check an additional item if your operations consist of two or more fairly equal areas. When two or more items are grouped together, please circle the one most appropriate for you.

- | | |
|--|--|
| <input type="checkbox"/> Agriculture, Forestry, Fishing | <input type="checkbox"/> Wholesale Trade |
| <input type="checkbox"/> Mining | <input type="checkbox"/> Retail Trade |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Finance, Insurance |
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Real Estate |
| <input type="checkbox"/> Transportation | <input type="checkbox"/> General Services |
| <input type="checkbox"/> Electric, Gas, Sanitary Service | <input type="checkbox"/> Professional Services |
| <input type="checkbox"/> Repair Shop | <input type="checkbox"/> Public Administration |
| <input type="checkbox"/> Research & Development | <input type="checkbox"/> Other (explain) |
| <input type="checkbox"/> Communications | _____ |



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15. Describe principal products sold or services offered (please explain):

16.a. Do any principals and/or officers of this company maintain a business relationship or have an ownership interest in any other company?

_____ Yes _____ No

If Yes, provide the following information:

A. Name of Principal	B. Name, Address & Telephone No. of Affiliated Firm	C. Position with Firm
_____	_____	_____
_____	_____	_____
_____	_____	_____

16.b. List any principals and/or officers of this company who are not full-time employees of the company:

16.c. Does this firm share the following with any other firm: (For each "Yes" response, indicate the name and address of the business.)

	<u>Yes</u>	<u>No</u>	<u>Name/Address</u>
1) Office Space	_____	_____	_____
2) Yard Space	_____	_____	_____
3) Equipment (including	_____	_____	_____
4) Office or Field Staff	_____	_____	_____
5) Secretary	_____	_____	_____
6) Estimator	_____	_____	_____
7) Controller	_____	_____	_____
8) Attorney/C.P.A.	_____	_____	_____



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17.a. List all major creditors and types of investments in the applicant company by principals or others: Examples include Cash, Machinery, Equipment, Real Estate, Other (identify).

Name of Source	Type of Investment or Credit	Dollar Value of Investment or Credit

17.b. If your company is owned, in full or in part, by another firm, identify the firm and percent of ownership interest. Include MESBIC's, venture capitalists and other similar investors.

A. Firm Name	B. Address	C. Percent of Ownership

18. If this company was established within the last five years as the result of acquiring an existing business, identify the former Board of Directors and/or Company Principals:

A. Name and Title	B. Circle	C. Home Address & Telephone No.
	Min/Fem/Non-Min.	



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19. Identify those individuals responsible for managerial operations:

	Name and Title	Circle
a.	Financial Decisions	Min/Fem/Non-Min.
b.	Estimating	Min/Fem/Non-Min.
c.	Preparing Bids	Min/Fem/Non-Min.
d.	Negotiating Contracts	Min/Fem/Non-Min.
e.	Negotiating & Signing for Surety and/or Performance Bonding	Min/Fem/Non-Min.
f.	Negotiating & Signing for Insurance	Min/Fem/Non-Min.
g.	Marketing & Sales	Min/Fem/Non-Min.
h.	Hiring & Firing of Personnel	Min/Fem/Non-Min.
i.	Supervisor of Field Operations	Min/Fem/Non-Min.
j.	Purchase of Major Equipment or Supplies	Min/Fem/Non-Min.
k.	Managing & Signing Payroll, Employee Benefits	Min/Fem/Non-Min.
l.	Company Checking Account(s) How many signatures are required? They are	Min/Fem/Non-Min.

20. Has your firm ever been Bonded? Yes No If Yes, specify:

Type of Bonding: _____

Current Bonding Capacity: _____

Bonding Company: _____

Name

Mailing Address

Telephone No.



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21. Identify Bank(s) and Sources of Letter(s) of Credit:

	A. Name	B. Mailing Address	C. Telephone No.
a. Bank(s)			
Letter(s) of			
b. Credit (list sources)			

22. If licensing or accreditation is required to conduct your business, identify:

Type of License/ Accreditation	Issued By	Date Issued	Expiration Date	Holder/Registrant Of License, etc.

23. List major equipment and machinery which is owned/leased by the firm:

Type of Equipment/ Machinery	Owned/Leased	Quantity	Purchase Date	Purchase Price

24. List rented or leased warehouse, plant and office facilities:

Type of Facility	Lessor/Rental Agent	Rented/Leased (specify & Expiration Date	Present Value or Amount of Yearly Lease/Rent Payment	Floor Space (sq. ft.)



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25. Has this firm or any of its principals and/or officers previously applied for Certification as an M/WBE with any agency?

_____ Yes _____ No If Yes, which agency?

	Agency	Date	Agency	Date
a. Certified	_____	_____	_____	_____
b. Denied Decertified	_____	_____	_____	_____
c. by	_____	_____	_____	_____
d. Withdrawn Application	_____	_____	_____	_____

26. Are there any appeals pending on any of the above actions: Yes No

Name of Agency	Date of Appeal	Description of Pending Appeal
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



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27. Check of Supporting Documents:

Submit copies of the following Required Documents according to your Type of Business Ownership. Regardless of business type, check and attach copies of all items that apply in Section D.

<p>A. FOR A CORPORATION - REQUIRED Attach copies of the following:</p> <ol style="list-style-type: none">1. Articles of incorporation, including date approved by State2. Corporation By-Laws3. Minutes of first corporate organization meeting and amendments4. Specimen copy of stock certificate(s) issued5. Stock transfer ledger6. Resumes of the principals of this company showing education, training and employment with dates7. List of current Board of Directors, including ethnicity, gender and effective dates8. Prior three years' federal and state income tax returns including all schedules9. Current financial statements10. Corporate bank signature cards11. Proof of sources of capitalization or investments12. Copies of all issued stock certificates, front and back, as well as next unissued certificate	<p>B. FOR A PARTNERSHIP - REQUIRED Attach copies of the following:</p> <ol style="list-style-type: none">1. Partnership agreement2. Current financial statements3. Prior three years' federal tax returns, including all schedules, if applicable4. Resumes of all partners showing education, training and employment with dates5. Proof of sources of capitalization/investments6. Copy of bank signature cards
	<p>C. FOR A SOLE PROPRIETOR - REQUIRED Attach copies of the following:</p> <ol style="list-style-type: none">1. Copy of Business Certification of DBA filed with County Clerk (if doing business under an assumed name)2. Current financial statements3. Prior three years' federal tax returns, including all schedules, if applicable4. Resumes of owners, superintendents, field and/or office supervisors showing education, training and employment with dates5. Copy of bank signature cards6. Proof of sources of capitalization



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D. FOR ALL APPLICANTS - OTHER DOCUMENTS REQUIRED

1. Copy of all third party agreements (e.g. equipment rental, purchase agreements, management service agreements, etc.)
2. Proof of Small Business Administration 8(a) Certification (copy of all approval letters)
3. Copy of vehicle(s) registration(s)
4. Copy of lease agreements
5. Furnish copies of agreements relating to
 - a. Stock options
 - b. Ownership agreements
 - c. Stockholder agreements
 - d. Stockholder voting rights
 - e. Restriction on the disposal of stock loan agreements
 - f. Facts pertaining to the value of shares
6. Copy of buy-out rights agreements
7. Copy of profit sharing agreements
8. Copy of any certification, decertification or denial of certification documentation
9. Copy of proof of permanent resident alien status
10. You may be required to submit other financial and other data such as cancelled checks and personal income tax returns.

28. Acknowledgements and Verification:

FIRST, this Application form, the supporting documents, and any other information provided in support of the Application are considered part of the Application. The making of any false statements or misrepresentations in the Application may result in the Applicant's disqualification from certification as an MBE or WBE by The Port Authority of New York and New Jersey.

SECOND, the information contained herein is subject to the Port Authority's Freedom of Information Policy as reflected in the resolution adopted by the Committee on Operations of the Port Authority on September 28, 1977.

THIRD, the Port Authority of New York and New Jersey may require proof of minority or woman status in addition to the information disclosed in this Application and a business wishing to be certified as an MBE/WBE by the Agency shall cooperate with the Port Authority in supplying the additional information. By making this Application, the Applicant agrees to submit additional proof if it is requested and acknowledges that the Port Authority may decide not to certify the Applicant as a Minority, or Women-owned Business if the additional proof is not submitted within 60 days after it is requested by the said Agency.



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FOURTH, by making this Application, the Applicant consents to examinations of its books and records and interviews of its principals and employees by the Port Authority for the purpose of determining whether the Applicant is, or continues to be, an eligible Minority, or Women-owned Business. The Applicant acknowledges that its certification may be immediately denied or revoked if such examinations or interviews are refused or if the Port Authority determines, as a result of the examinations or interviews, that the Applicant does not qualify as a Minority, or Women-owned Business Enterprise.

FIFTH, by filing this Application, the Applicant consents to inquiries being directed by the Port Authority to the Applicant's bonding companies, banking institutions, credit agencies, contractors and clients for the purpose of ascertaining the Applicant's eligibility for certification. If the Applicant fails to permit such inquiries to be made, such failure shall be grounds for denying or revoking the Applicant's certification.

SIXTH, the Applicant agrees to provide information regarding any change in the ownership or operational and managerial control of Applicant's business after the initial certification application has been filed, within 30 days of such change.

SEVENTH, certification is normally granted for a period of two (2) years. However, the Port Authority may require the submission of a new Application, additional information, examinations of the Applicant's principals and employees at any time before the expiration of the two-year certification period. The Applicant's failure to submit such material or to consent to such examinations and interviews will be grounds for immediate revocation of certification.

EIGHTH, the filing of this Application, its acceptance by the Port Authority, and any subsequent certification of the Applicant by the Port Authority, is not intended to and does not create any procedural or substantive rights enforceable at law by the Applicant against the Port Authority, its Commissioners, Officers, or employees, and any such certification is only intended to facilitate the identification of qualified and bona fide Minority, Women, and Disadvantaged Business Enterprises.

Applicant's Signature



THE PORT AUTHORITY OF NY & NJ

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SCHEDULE B

Note: This form is for the use of the Port Authority and completion of same has no connection with possible or probable subcontracting awards by any general contractors.

INFORMATION FOR DETERMINING JOINT VENTURE ELIGIBILITY

(This form need not be filled in if all joint venture firms are minority-owned.)

1. Name of Joint Venture: _____
2. Address of Joint Venture: _____

3. Phone No. of Joint Venture: _____
4. Identify the firms that comprise the Joint Venture: (The MBE partner must complete Schedule A.)

(A Describe the role of the MBE firm in the Joint) Venture: _____

5. Nature of the Joint Venture's business: _____

6. Provide a copy of the Joint Venture Agreement.



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7. What is the claimed percentage of MBE ownership? _____

8. Ownership of Joint Venture: (This need not be filled in if described in the Joint Venture Agreement provided by No. 6.)

A. Profit and Loss Sharing:

B. Capital Contributions, including Equipment:

C. Other Applicable Ownership Interests:

9. Control of and participation in this Contract. Identify by name, race, sex, and "firm" those individuals (and their titles) who are responsible for day-to-day management and policy decision-making, but not limited to, those with prime responsibility for:

Financial Decisions: _____

Management Decisions, such as Estimating

Marketing & Sales: _____

Hiring & Firing of Management Personnel: _____

Purchasing of Major Items or Supplies: _____

Supervision of Field Operations: _____



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AFFIDAVIT

“The undersigned swear that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venturer in the undertaking. Further, the undersigned covenant and agree to provide to the grantee current, complete and accurate information regarding actual joint venture work and the payment therefor and any proposed changes in any of the joint venture arrangements and to permit the audit and examination of the books, records and files of the joint venture, or those of each joint venturer relevant to the joint venture, by authorized representatives of the grantee or the Federal funding agency. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statements.”

_____ Name of Firm	_____ Name of Firm
_____ Signature	_____ Signature
_____ Name	_____ Name
_____ Title	_____ Title
_____ Date	_____ Date



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STATE OF _____
COUNTY _____
OF _____

On this _____ Day of _____, 20____, Before me appeared

(name) _____
to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (name of firm) to execute the affidavit and did so as his or her free act and deed. _____

Notary Public
My Commission Expires:

SEAL



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MBE APPROVAL REQUEST

PART ONE: (to be completed by Bidder)

Name:

Address:

Telephone No.:

Facility:

Contract No.:

Contract Title:

Request Approval of:

Amount of Sub-Contract:

Address:

Materials _____

Telephone No.:

Labor _____

Type of Work:

TOTAL _____

Has this Company done work under a Port Authority Contract?

Estimated Start ____ / ____ / ____
Date

_____ Yes _____ No

Actual Start ____ / ____ / ____
Date

If the answer to above question is "Yes", give P.A. Contract No. If "No", give three references, contract nos., type and approx. estimate work performed by contractor, name and telephone no. of the person in charge for the owner.

Remarks
(for P.A. use only)

Date ____ / ____ / ____

For the Bidder

PART TWO: (to be completed by Port Authority)

- [] Subject to the provisions of subject contract, the company submitted for approval on this application is hereby disapproved.
- [] Subject to the provisions of subject contract, the company submitted for approval on this application is hereby approved. Any materials to be furnished by this subcontractor shall be subject to inspection and approval as required by the Specifications.

Date ____ / ____

Signature

Title



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Schedule C
MBE/WBE Participation Plan

Page _____ of _____

Office of Business & Job Opportunity

Instructions: The apparent low bidder shall submit this form to the Chief Engineer, 225 Park Avenue South, 18th Floor, New York, NY 10010 by close of business, seven days after the bid opening. Note: If more than 1 page is used, complete totals on last page.

Contract Number: _____ Work Description: _____

Contractor Name: _____ Contract Amount: _____

Mailing Address: _____ Contract Goals: MBE _____ WBE _____ DBE _____

Name, Address & Telephone No. of P.A. Certified MBE/WBE/DBE Subcontractor (including name of contact person)	Indicate MBE, WBE or DBE	Description of Work, Services to be Provided Where applicable, specify "supply" or "install" or both	Approximate \$ Amount of M/W/DBE Subcontract	MBE/WBE/DBE % of Total Contract Amount
TOTAL				

Signature of Low Bidder _____

Print Name _____

Title _____ Date _____
NOTE: All subsequent revisions to the Plan must be submitted on the form "MODIFIED MBE/WBE/DBE PARTICIPATION PLAN" to the Engineering Dept. for acceptance by OBJO.

The contractor will be required to submit a subcontractor work schedule with estimated start dates at the Pre-Construction meeting.

FOR OBJO USE ONLY

Meets or Exceeds Contract Goals Waived Contract Goals No

Reviewed by _____ Plan Accepted: Yes No

OBJO Business Development Representative

Print Name _____ Date: _____

Distr.: Original-OBJO Part 2-Engineer of Construction Part 3-Contractor Part 4-Home Dept.

APPENDIX J

JOINT VENTURE

AGREEMENT

of

PHOENIX CONSTRUCTORS

Dated as of July 15, 2005

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JOINT VENTURE AGREEMENT

OF

PHOENIX CONSTRUCTORS

Joint Venture Agreement of Phoenix Constructors (the "Joint Venture"), dated as of July 15, 2005, (the "Effective Date"), by and between Fluor Enterprises, Inc., a California corporation, ("Fluor") and Slattery Skanska Inc., a New York corporation, ("Skanska"), Granite Halmar Construction Company, Inc., a New York corporation, ("Granite"), and Bovis Lend Lease LMB, Inc., a New York corporation, ("Bovis") (collectively the "Partners").

Fluor, Skanska, Granite and Bovis desire to form a joint venture to pursue the business of construction management and general contracting for the World Trade Center Transportation Hub Project (the "Business," as more particularly defined below).

NOW, THEREFORE, Fluor, Skanska, Granite and Bovis agree as follows:

SECTION 1 DEFINITIONS

For purposes of this Joint Venture Agreement (as defined below), unless the context clearly indicates otherwise, the following terms shall have the following meanings:

1.1 Not Used.

1.2 "Affiliate" or "Affiliated" shall mean with respect to any specified Person, (i) one or more shareholders if a corporation; (ii) its partners if a partnership; (iii) its trustee or beneficiary if a trust; or (iv) any entity controlled by or controlling such Person (or any of its shareholders, partners, trustees or beneficiaries), either directly or indirectly, or entities under common ownership or control with a Partner.

1.3 Not Used.

1.4 "Asset Value" with respect to any Joint Venture asset means:

- (i) The fair market value (as agreed by all Partners) when contributed of any asset contributed to the Joint Venture by any Partner;
- (ii) The fair market value on the date of distribution of any asset distributed by the Joint Venture to any Partner as consideration for an interest in the Joint Venture;
- (iii) The fair market value of all Property of the Joint Venture at the time of the happening of any of the following events: (A) the admission of a Partner to, or the increase of an interest of an existing Partner in, the Joint Venture

in exchange for a Capital Contribution; or (B) the liquidation of the Joint Venture under Regulation §1.704-1(b)(2)(ii)(g).

(iv) The Basis of the asset in all other circumstances.

1.5 Not Used.

1.6 "Basis" with respect to an asset means the adjusted basis from time to time of such asset for federal income tax purposes.

1.7 "Business" shall mean the business of competing for, and if successful, executing and performing under a contract for the construction management and general contracting services of the World Trade Center Transportation Hub Project.

1.8 "Business Day" shall mean any day other than Saturday, Sunday or any legal holiday observed in the State of New York.

1.9 "Capital Account" shall mean the account maintained for a Partner determined in accordance with Section 8 hereof.

1.10 "Capital Call" shall mean the giving of written notice pursuant to Section 8.1, or the payment by a Partner of a liability that is deemed to be a Capital Call to the extent provided paragraph 8.6(b), of this Joint Venture Agreement.

1.11 "Capital Call Period" shall mean the period of time within which each Partner is required to make a Capital Contribution in response to a Capital Call as specified in the notice given pursuant to Section 8.1, or if no such period is specified, a period of ten days after the giving of the notice of the Capital Call. In the case of a payment of a liability that is deemed to be a Capital Call, the "Capital Call Period" shall be the ten-day period prescribed in Paragraph 8.6(b) of this Joint Venture Agreement.

1.12 "Capital Contribution" shall, subject to adjustments as provided in Section 15.3 of the Agreement, mean (i) the amount of cash or the carrying value of other property actually contributed by a Partner to the Joint Venture pursuant to Section 8.2 of this Joint Venture Agreement; (ii) payment by a Partner of a portion of any liability that is deemed to be a Capital Call to the extent provided in paragraph 8.6(b) of this Joint Venture Agreement; and (iii) payment by a Partner of a Capital Call Advance or a disproportionate share of a liability deemed to be a Capital Call Advance as provided in this Joint Venture Agreement.

1.13 "Cash Available for Distribution" shall mean all cash received by the Joint Venture from the operations of the Joint Venture (including, without limitation, net proceeds of sale or refinancing), and, as determined by the Partners, all cash of the Joint Venture no longer needed for reserves and retentions previously established, reduced by

(i) all cash expenditures of the Joint Venture, including, but not limited to, payments of principal and interest on indebtedness (whether or not such payments are made to a Partner or a Partner's Affiliate), expenses for repairs, maintenance, reserves,

capital improvements and replacements, and all other cash expenditures related to the operations of the Joint Venture, including, but not limited to, all fees, if any, payable to any Partner, or any Affiliate of any Partner, under the terms of this Joint Venture Agreement; and

(ii) such working capital reserves and retentions as the Partners determine to be necessary or desirable in connection with Joint Venture operations, its then existing assets and any anticipated expenses of the Joint Venture or loan payments by the Joint Venture.

1.14 Not Used.

1.15 "Code" shall mean the Internal Revenue Code of 1986 as amended from time to time, or any corresponding provisions of any succeeding law.

1.16 "Joint Venture" shall mean Phoenix Constructors.

1.17 "Joint Venture Agreement" shall mean this Joint Venture Agreement including all amendments adopted in accordance with the Joint Venture Agreement.

1.18 "Joint Venture Liability" shall mean any enforceable debt or obligation for which the Joint Venture is liable or which is secured by any Joint Venture Property.

1.19 "Joint Venture Budget" shall mean the budget for the operations of the Joint Venture in a Fiscal Year, exclusive of budget items related to Joint Venture Projects.

1.20 "Joint Venture Project" shall mean a project in the Business for which the Joint Venture has secured a contract to perform work or services.

1.21 "Joint Venture Property" shall mean any Property owned by the Joint Venture.

1.22 "Confidential Information" shall have the meaning set forth in Section 5.7.

1.23 "CPA" shall mean the certified public accounting firm as may be designated by the Partners from time to time. The CPA shall be a nationally recognized accounting firm.

1.24 "Default Interest" shall mean the Prime Rate plus ten percent, not to exceed the maximum amount allowed by applicable law.

1.25 "Disposition" shall mean any sale, assignment, transfer, exchange, mortgage, pledge, grant, hypothecation, or other transfer, absolute or as security or encumbrance (including dispositions by operation of law).

1.26 "Dissociation" or "Dissociate" shall mean any action which causes a Person to cease to be a Partner as a described in Section 12 hereof.

1.27 "Dissolution Event" shall mean an event, the occurrence of which will result in the dissolution of the Joint Venture unless the Partners agree to the contrary, as provided in Section 16.1.

1.28 "Distribution" shall mean a transfer of cash or property to a Partner as described in Section 9.2.

1.29 "Effective Date" shall mean July 15, 2005.

1.30 "Fiscal Year" shall mean the Joint Venture's fiscal and tax year, which shall be the calendar year unless determined otherwise pursuant to §§ 706(b) and 444 of the Code.

1.31 "Intellectual Property" shall mean all patents, trade secrets, processes, copyrights, trademarks, software and know-how, and all improvements and enhancements thereto.

1.32 "JV Liability" shall mean any liability, expense (including reasonable attorneys' fees), claim, suit, action, damage, judgment, or decree arising from or relating to the Business and incurred by the Joint Venture or by a Partner acting within its authority as provided by this Joint Venture Agreement or the Steering Committee.

1.33 Not Used.

1.34 "Organization" shall mean a Person other than a natural person. An Organization includes, without limitation, corporations (both non-profit and other corporations), partnerships (both limited and general), joint ventures, limited liability companies, and unincorporated associations, but the term does not include joint tenancies and tenancies by the entirety.

1.35 "Person" shall mean and include a natural person, a limited liability company, a trust, estate, or any incorporated or unincorporated Organization.

1.36 "Plan" shall mean the plan of the Joint Venture for operations in a Fiscal Year, as provided in Section 7.2.

1.37 "Prime Rate" shall mean the interest rate announced from time to time by Citibank, N.A. as its "Prime" or "prime rate".

1.38 "Profits" and "Losses" for any fiscal year or other period means an amount equal to the Joint Venture's taxable income or loss for federal income tax purposes for such year or period determined in accordance with Code § 703(a) and the Regulations thereunder with the following adjustments:

(i) all items of income, gain, loss, and deduction of the Joint Venture required to be stated separately shall be included in taxable income or loss;

(ii) income of the Joint Venture exempt from federal income tax shall be treated as taxable income;

(iii) expenditures of the Joint Venture described in Code § 705(a)(2)(B) or treated as such expenditures under Regulation § 1.704-1(b)(2)(iv)(i) and not otherwise taken into account in computing Profits or Losses, shall be subtracted from such taxable income or tax loss;

(iv) gain or loss resulting from the disposition of Property from which gain or loss is recognized for federal income tax purposes shall be determined with reference to the Asset Value of such property;

(v) depreciation shall be determined based upon Asset Value instead of as determined for federal income tax purposes.

(vi) the difference between Basis and Asset Value shall be treated as gain or loss upon the happening of any event described in Section 1.4(i), (ii), or (iii).

1.39 "Property" shall mean any property, real or personal, tangible or intangible, including money and any legal or equitable interest in such property, but excluding services and promises to perform services in the future.

1.40 "Regulations" shall mean, except where the context indicates otherwise, the permanent, temporary, proposed, or proposed and temporary regulations of the Department of the Treasury under the Code as such regulations may be lawfully changed from time to time.

1.41 "Sharing Ratio." The Partners' original Sharing Ratios, prior to any adjustments pursuant to this Joint Venture Agreement, shall be as set forth in Section 4.2. The Partners' original Sharing Ratios represent the respective interests of the Partners in the profits accruing from the Business, in all property and equipment accruing from or acquired in connection with the performance of the Business, and the respective obligations of the Partners for disbursements and liabilities in connection with the performance of the Business. The Partners agree that (a) all net proceeds representing the cash, interest from investments, equipment, receivables, claims or every kind or nature, or other property derived from the performance of the Joint Venture Agreement, (b) any and all profits and any and all losses and liabilities or other obligations of the Joint Venture which may result from the performance of the Joint Venture Agreement, and (c) all financial obligations assumed by the Joint Venture shall be shared or borne by the Partners in accordance with the applicable Sharing Ratios. In the event of default, a Partner's Sharing Ratio may be different for Joint Venture losses than it is for Joint Venture Profits, pursuant to Sections 8 and 15 of this Joint Venture Agreement. Absent any such default, a Partner's Sharing Ratio will be a fraction (expressed as a percentage), the numerator of which is the total of that Partner's Capital Account and the denominator of which is the total of all Capital Accounts of all Partners.

1.42 "State" shall mean the State of New York.

1.43 Not Used.

1.44 "Tax Matters Partner" shall have the meaning set forth in Section 10.1.

1.45 "Taxable Year" shall mean the taxable year of the Joint Venture as determined pursuant to § 706 of the Code.

SECTION 2 THE JOINT VENTURE

2.1 Organization and Purpose. The Partners hereby organize the Joint Venture for the purpose of engaging in the Business, and to market the joint expertise and capabilities of the Partners in the Business.

2.2 Agreement. It is the express intention of the Partners that this Joint Venture Agreement (and the other written agreements referred to herein) shall be the sole source of agreement of the parties with respect to the subject matter hereof. Upon execution of a contract with the Joint Venture's client, the Steering Committee will immediately develop and implement a Project Procedures Manual which will describe in greater detail the day-to-day operating rules and procedures of the Joint Venture. Except to the extent a provision of the Joint Venture Agreement expressly incorporates federal income tax rules by reference to sections of the Code or Regulations, the Joint Venture Agreement shall govern, even when inconsistent with, or different than, the provisions of any other law or rule. To the extent any provision of this Agreement is prohibited or ineffective under Applicable law, the Joint Venture Agreement shall be considered amended to the smallest degree possible in order to make the Joint Venture Agreement effective under Applicable law.

2.3 Name. The name of the Joint Venture is Phoenix Constructors, and all business of the Joint Venture shall be conducted under that name or under any other name selected by the Partners.

2.4 Not Used.

2.5 Term. Unless otherwise specifically provided in this Joint Venture Agreement, or unless the term shall be extended by amendment to this Joint Venture Agreement, or unless the Joint Venture shall be sooner dissolved and its affairs wound up in accordance with the Joint Venture Agreement, the Joint Venture Agreement shall remain in full force and effect until terminated by written agreement of the Partners hereto or until all purposes for which the Joint Venture has been undertaken have been accomplished and completed. In no event shall the Joint Venture be terminated until all rights and liabilities of this Joint Venture Agreement have been determined and satisfied. However, this Joint Venture Agreement shall automatically expire and the Joint Venture will wind up its affairs when either the Joint Venture's client officially notifies any Partner that it will not award the prime contract to the Joint Venture or said client announces that it will award the prime contract to a team other than the Joint Venture, whichever occurs first.

2.6 Not Used.

2.7 *Principal Office.* The principal office of the Joint Venture shall be located at 505 Eighth Avenue, Suite 601, New York, New York 10019, or such other location as the Partners shall determine from time to time.

SECTION 3 RECORDS AND REPORTS

3.1 *Records to be Maintained.* The Joint Venture shall maintain the following records and information, at the principal office:

3.1.1 True and full information regarding the status of the business and financial condition of the Joint Venture, including the Plan and Joint Venture Budget for all Fiscal Years of the Joint Venture.

3.1.2 A current and past list, setting forth the full name and last known mailing address of each Partner;

3.1.3 A copy of the executed copies of any powers of attorney pursuant to which any documents have been executed;

3.1.4 Copies of the Joint Venture's federal, foreign, state and local income tax returns and reports, sales and use and property tax reports, if any, and supporting tax documentation for each year;

3.1.5 Copies of the Joint Venture Agreement including all amendments thereto and copies of any written agreements referred to herein, both when operative and when no longer in effect;

3.1.6 Any financial statements of the Joint Venture for the time periods subject to IRS and state audit;

3.1.7 A writing or other data compilation from which information can be obtained through retrieval devices into reasonably usable form setting forth the amount of cash and a description and statement of the agreed value of the other property or services contributed by each Partner and which each Partner has agreed to contribute to the Joint Venture;

3.1.8 A record of the Capital Account for each Partner in accordance with Section 8.

3.1.9 Copies of all agreements to which the Joint Venture is a party or by which the Joint Venture may be bound, whether operative or no longer in effect.

3.2 *Not Used.*

3.3 Right to Inspect Records. All Partners shall have the right, during the Joint Venture's normal business hours, to inspect any or all Joint Venture documents, books or records which are specified in Section 3.1. The Partner shall provide notice to the Joint Venture under the terms of Section 19.4 at least three Business Days prior to the desired date of inspection of such documents, books or records by the Partner. The notice shall specify with reasonable particularity the documents, books or records to be inspected by the Partner. Any inspection shall take place at the Joint Venture's principal office as specified in Section 2.7 of this Joint Venture Agreement. Any copies or reproduction of any of the Joint Venture's documents, books or records which may be desired by the Partner shall be at the sole cost and expense of the Partner.

3.4 Books and Records. At all times during the term of the Joint Venture as provided in Section 2.5 hereof, the Joint Venture shall cause accurate books and records of accounts to be maintained in which shall be entered all matters relating to the Joint Venture, including all income, expenditures, assets and liabilities thereof. Such books and records of account shall be maintained on a percentage of completion basis, in accordance with generally accepted accounting principles, consistently applied, and shall be adequate to provide each Partner on a timely basis with such financial information as may be needed by the Partner, its Parent and their Affiliates for purposes of satisfying their financial reporting obligations. Each Partner shall be entitled to any additional information necessary for the Partner to adjust its financial basis statement to a tax basis as the Partners' individual needs may dictate. In addition, the Joint Venture shall maintain all books, records, accounts and reports required under any contract with respect to any Joint Venture Project for the period of time required by such contract and provide access thereto pursuant to such contract.

3.5 Financial Statements. The Joint Venture shall prepare financial statements of the Joint Venture as of the last day of each fiscal year and for each quarter of each fiscal year. Such annual statements shall be completed within 120 days of the end of the fiscal year and shall be audited and certified by the CPA. The statements shall be prepared on the basis of generally accepted accounting principles, consistently applied. Each Partner and its certified public accountant shall have the right to discuss the results of the audit and the procedures used with the Joint Venture's certified public accountant and to examine all work papers generated in connection with the audit. The Joint Venture shall provide each Partner monthly cost reports in such form and detail as may be agreed upon by the Partners.

3.6 Bank Accounts. Funds of the Joint Venture shall be deposited in the name of the Joint Venture in such accounts as may be authorized by the Partners. Further details regarding banking relationships and procedures will be set forth in the Project Procedures Manual.

3.7 Preparation of Tax Returns and Listing. Federal, State and local income tax returns of the Joint Venture shall be prepared by the Tax Matters Partner in consultation with such agents as he deems appropriate. Copies of all tax returns of the Joint Venture shall be furnished to the Partners for their approval at least 30 days prior to the statutory date for their filing. The Partners' K-1 forms will be distributed no later than June 15 of each year.

3.8 **754 Election.** The Joint Venture shall, if approved by the Partners, make the election under Section 754 of the Code.

**SECTION 4
NAMES, ADDRESSES AND SHARING RATIOS OF PARTNERS**

4.1 **Initial Partners.** The names and addresses of the initial Partners are as follows:

Fluor: Fluor Enterprises, Inc.
100 Fluor Drive
Greenville, South Carolina 29607

Skanska: Slattery Skanska Inc.
16-16 Whitestone Expressway
Whitestone, NY 11357

Granite: Granite Halmar Construction Company, Inc.
160 West Lincoln Avenue
Mount Vernon, NY 10550

Bovis: Bovis Lend Lease LMB, Inc.
200 Park Avenue
New York, NY 10166

4.2 **Sharing Ratios.** Prior to any adjustments as provided herein, the initial Sharing Ratios of the Partners shall be as follows:

Fluor	32.5%
Skanska	32.5%
Granite	20%
Bovis	15%

4.2.1 Notwithstanding any other provisions of this Joint Venture Agreement to the contrary, each Partner hereby agrees, to the maximum extent allowed by law, and limited only by the indemnifying Partner's Sharing Ratio, to defend, indemnify, and hold harmless each other Partner against that portion of any JV Liability incurred by any such other Partner in excess of such Partner's proportionate share of the JV Liability as calculated pursuant to the Partners' Sharing Ratios, provided that the JV Liability was not caused by the gross negligence, willful misconduct or abandonment of the Joint Venture's prime contract of or by the indemnified Partner. Nothing herein shall limit in any way the liability of any insurer of the Joint Venture or of any Partner under any applicable insurance policy naming either the Joint Venture or any Partner or both the Joint Venture and any Partner.

SECTION 5
RIGHTS AND DUTIES OF PARTNERS

5.1 Management Rights. Management of the Joint Venture shall be vested in the Partners. A Partner who has not dissociated, and whose management rights have not been terminated pursuant to Section 15, shall be entitled to vote on any matter submitted to a vote of the Partners. Unless otherwise provided herein, any matter or action shall be approved by a majority of the Partners.

5.2 Unanimous Consent for Certain Matters. The following actions shall require the consent of all of the Partners:

5.2.1 The execution, approval, or taking of any action regarding any contract or transaction or payment between the Joint Venture and a Partner or an Affiliate of a Partner, or entity in which a Partner or an Affiliate of a Partner has a direct economic interest;

5.2.2 Any activity outside of the Joint Venture's ordinary course of business, or any expenditure which is not reimbursable under the terms of the prime contract with the Joint Venture's client;

5.2.3 The contracting and incurring of any liability for or on behalf of the Joint Venture in the ordinary course of business of the Joint Venture in excess of \$5,000,000.

5.2.4 The borrowing for or on behalf of the Joint Venture of money or the mortgaging, deeding in trust, pledging or otherwise encumbering of Joint Venture assets to secure repayment of the money;

5.2.5 The commitment of the Joint Venture to any improvement involving capital expenditures in excess of \$25,000;

5.2.6 Not Used.

5.2.7 Cash or property distribution from the Joint Venture to any Partner;

5.2.8 The establishment of banking arrangements (including bank accounts, location and signing authorities);

5.2.9 The establishment of the Joint Venture's insurance program, including amounts and changes thereto;

5.2.10 Approval of the auditors of the Joint Venture;

5.2.11 Approval of a Plan or Joint Venture Budget, or material changes thereto;

5.2.12 Settlement of claims by and against the Joint Venture, or commencement and conduct of defense or settlement of claims or litigation involving the Joint Venture;

5.2.13 Hiring of lawyers on behalf of the Joint Venture;

5.2.14 Approval of consent decrees, injunctions, or orders binding upon the Joint Venture;

5.2.15 Final approval of tax returns prior to filing and approval of any tax elections required or permitted to be made by the Joint Venture under the Code or Regulations;

5.2.16 Any amendment to this Joint Venture Agreement;

5.2.17 Not Used.

5.2.18 The continuation of the Joint Venture after a Dissolution Event;

5.2.19 The authorization of a Partner to do any act on behalf of the Joint Venture that contravenes the Joint Venture Agreement;

5.2.20 Any change order to the prime contract with the Joint Venture's client in excess of \$5,000,000, or any amendment to the terms and conditions of such contract;

5.2.21 Establishment of, or changes to, the Guaranteed Maximum Price for the contract with the Joint Venture's client (consent to the foregoing shall be in the sole and absolute discretion of each Partner);

5.2.22 Any material change to the progress schedule applicable to the Joint Venture's work;

5.2.23 Change in the Joint Venture's financial and cost accounting treatments and policies;

5.2.24 Any significant change in a Partner's billing rates or indirect cost structure which results in higher billings from that Partner than those billing rates contemplated in the GMP, or which may result in a Partner's total indirect cost billings exceeding those indirect cost billings contemplated in the GMP;

5.2.25 Making any loans from the Joint Venture to any Partner or an Affiliate thereof; and

5.2.26 Approval of the safety program for the Joint Venture.

5.3 *Exculpation and Indemnification.* In carrying out their duties to the Joint

Venture, the Partners Steering Committee representatives appointed pursuant to Section 6.1 hereof, officers and employees ("Indemnified Persons") shall not be liable to the Joint Venture nor to any Partner for their good faith actions, or failure to act, nor for any errors of judgment, nor for any act or omission believed in good faith to be within the scope of authority conferred by this Joint Venture Agreement, but shall be liable to the Joint Venture for willful misconduct or gross negligence in the performance of their duties under this Joint Venture Agreement. The Joint Venture shall indemnify and hold harmless each of the Indemnified Persons against and from any personal loss, liability or damage incurred as a result of any act or omission of any Indemnified Persons believed in good faith to be within the scope of authority conferred by this Joint Venture Agreement, except for willful misconduct or gross negligence. Notwithstanding the foregoing, the Joint Venture's indemnification of the Indemnified Persons as to a third party shall be only with respect to such loss, liability or damage that is not otherwise compensated for by insurance carried for the benefit of the Joint Venture.

5.4 Representations and Warranties. Each Partner and person executing the Joint Venture Agreement on behalf of an Organization, hereby represents and warrants to the Joint Venture and each other Partner that the Partner is duly organized validly existing, and in good standing under the law of its state of organization and that it has full organizational power to execute and agree to the Joint Venture Agreement to perform its obligations hereunder.

5.5 Partner Expenses; Reimbursement. Any Partner shall be entitled to prompt reimbursement for expenses borne, incurred, or advanced on behalf of the Joint Venture as follows: A Partner which incurs direct costs and expenses (such as salaries paid to Partner employees) relating to Joint Venture operations shall be reimbursed promptly by the Joint Venture upon billing by the Partner. Such reimbursement shall be at the rate of 100% of direct costs only, which shall include labor burdens and benefits. Recovery of general and administrative costs, if any, will be determined and subject to unanimous consent of the Partners, following the conclusion of commercial negotiations of the Joint Venture's prime contract with its client. Subject to Section 8.6, and without diminishing the rights of any Partner to be reimbursed in the event that it incurs a disproportionate share of any Joint Venture liability, it is expressly agreed that payment to the Joint Venture by the client of any compensation, reimbursement or any other amounts due (including profits as set forth in section 4.2), pursuant to this Joint Venture Agreement and the prime contract, is an express condition precedent to the responsibility and liability of the Joint Venture to pay to each Partner its appropriate share of all such compensation, reimbursement or other amount due.

5.6 Confidential Information. Except as otherwise provided herein, the terms and conditions of this Joint Venture Agreement, and all data, reports, records, and other information of any kind whatsoever developed or acquired by the Joint Venture or any Partner in connection with this Joint Venture Agreement, shall be treated by the Joint Venture and the Partners as confidential (hereinafter called "Confidential Information") and neither the Joint Venture nor any Partner shall reveal or otherwise disclose such Confidential Information to third parties without the prior written consent of all the Partners. The restrictions of this Section 5.6 shall not apply to the disclosure of Confidential Information to any Affiliate or, to the extent reasonably required in the performance of a project related to the Business, to any public or private financing agency or institution, and to employees and consultants of the Joint Venture and the Partners; provided,

however, that in any such case only such Confidential Information as such third party shall have a legitimate business need to know shall be disclosed and the person or entity to whom disclosure is made shall first undertake in writing to protect the confidential nature of such Confidential Information at least to the same extent as the parties are obligated under this Section 5.6. In addition, the foregoing restrictions shall not apply to Confidential Information that (a) becomes generally available to the public other than as a result of a disclosure by the Joint Venture, any Partner or any of their officers, employees or agents; (b) was available on a non-confidential basis prior to its disclosure to the Joint Venture, any Partner or any of the officers, employees or agents or (c) becomes available on a non-confidential basis from a source other than the Joint Venture, any Partner or any of the officers, employees or agents, unless such source is known to be bound by a confidentiality agreement to a Partner or the Joint Venture. In the event that the Joint Venture or a Partner is required to disclose Confidential Information to any federal, state or local government, or any agency or department thereof, to the extent required by law or in response to a legitimate request for such Confidential Information, the Joint Venture or a Partner so required shall immediately notify the Partners of such requirement and the terms thereof prior to such submission. The Partners so notified shall have the right to file an objection to such disclosure with the agency or department concerned and to seek confidential treatment of any Confidential Information to be disclosed on such terms as such Partner shall, in its sole discretion and at its sole cost, determine. The provisions of this Section 5.6 shall apply during the term of this Joint Venture Agreement and shall survive termination of this Joint Venture Agreement for three years following termination of this Joint Venture Agreement, and shall continue to apply to a Partner who withdraws, who is deemed to have withdrawn, or who sells, assigns, transfers, or conveys all of its interest in the Joint Venture, for five years following the date of such occurrence.

5.7 Public Statements. The Joint Venture may make public announcements regarding the Joint Venture in the normal course of business, provided that no such announcement shall mention the name of a Partner without that Partner's prior written consent. No Partner shall make any public announcement or public disclosure with regard to this Joint Venture Agreement, the Joint Venture or any other Partner, any project relating to the Business, including Confidential Information and non-Confidential Information, without the prior written consent of the other Partners as to the content and timing of such announcement or disclosure, which consent shall not be unreasonably withheld; provided, however, that nothing shall prevent the Joint Venture or a Partner from making such an announcement or disclosure which is required by applicable law, regulation or stock exchange rule.

5.8 Right of First Refusal; Conflicts of Interest.

5.8.1 Each Partner agrees that neither it nor any of its Affiliates will compete with the Joint Venture by pursuing any business opportunity in the Business unless (i) such Partner has first offered the business opportunity to the Joint Venture, providing written notice thereof to the other Partners; and (ii) the other Partners shall not have elected in writing to pursue such business opportunity through the Joint Venture within 30 days following their receipt of the written notice from such Partner. Nothing in this Joint Venture Agreement shall be construed as a limitation of the powers or rights of any Partner to carry on its separate business for its sole benefit, except as provided to the

contrary in this Section 5.8.

5.8.1.1 Each Partner shall account to the Joint Venture and hold as trustee for it any property, profit, or benefit derived by such Partner, without the consent of the other Partners, in the conduct and winding up of the Joint Venture business or from a use or appropriation by the Partner of Joint Venture Property including Intellectual Property, information developed exclusively for the Joint Venture, and opportunities expressly offered to the Joint Venture.

5.8.1.2 A Partner does not violate a duty or obligation to the Joint Venture merely because the Partner's conduct furthers the Partner's own interest. The rights and obligations of a Partner who transacts business with the Joint Venture are the same as those of a person who is not a Partner, subject to other applicable law. No transaction with the Joint Venture shall be voidable solely because a Partner has a direct or indirect interest in the transaction if either the transaction is fair to the Joint Venture or the disinterested Partners in either case knowing the material facts of the transaction and the Partner's interest, authorize, approve, or ratify the transaction.

5.9 No Hire. Except in the event of a breach of this Joint Venture Agreement whereby any non-breaching Partner needs to hire the employee of a defaulting Partner to complete the Business or in the event that a Partner is insolvent or in bankruptcy, it is expressly agreed that during the term of the Joint Venture Agreement and for one year after its termination no Partner will directly or indirectly solicit for hire any employee of any other Partner who is associated with the proposed efforts covered by this Joint Venture Agreement without the agreement of such other Partner.

5.10 Bonds and Guarantees. Each Partner shall each be responsible for placing its proportionate share of payment and performance bonds, if any, required under the prime contract with the Joint Venture's client, to the extent of its respective Sharing Ratio. The Partners will provide guarantees from their ultimate parent companies to each other to secure performance under this Joint Venture Agreement, and, if and to the extent reasonably required, to the Joint Venture's client to secure performance of the Joint Venture under its prime contract. No consideration will be paid to any Partner or to any Partner's parent company for the provision of any such parent company guarantee.

SECTION 6 STEERING COMMITTEE; MEETINGS OF STEERING COMMITTEE

6.1 Steering Committee. Upon the signing of this Joint Venture Agreement, the Partners will establish a Steering Committee of four (4) representatives, composed of one (1) representatives from each Partner, who shall be an officer of the Partner. Each Partner will have an equal vote on the Steering Committee. The presence of one representative of each Partner shall be required to form a quorum necessary for the transaction of business. In the event the Steering Committee is not able to decide on an issue, the Managing Partner, as described in Section 7.1

hereof, may decide the issue, in good faith, if such failure to decide in the judgment of the Managing Partner, reasonably exercised, may negatively impact the project, and any disputes shall be resolved under the dispute resolution provisions of this Joint Venture Agreement. The Project Manager may attend Steering Committee meetings, but may not vote. The Steering Committee shall keep each Partner fully informed and consult on all matters and attempt to resolve all questions affecting the Partners and shall attempt to resolve questions raised by any Partner.

6.2 Meetings. The Steering Committee shall have meetings from time to time during the term of this Joint Venture Agreement, as necessary, at a mutually convenient location. Such meetings may be called by any Partner upon seven (7) calendar days written notice to the other Partners. However, in the event any Partner determines that a condition exists which requires an immediate meeting, any Partner may call an immediate meeting upon telephone or facsimile notice to the other Partners. The notice shall specify the matters to be decided at the meeting. Any Partner may add matters to be decided at such meeting by notice to the other Partners prior to the meeting.

6.3 Meeting of All Partners. If all Partners shall meet at any time and place, either within or outside of the State of New York and consent to the holding of a meeting at such time and place, such meeting shall be valid without call or notice, and at such meeting any lawful action may be taken.

6.3.1 Telephonic Meetings. Any Partner may participate in any meeting by telephone or other electronic means. The Partner so participating may vote if no other Partner expresses doubt as to the Partner's identity.

6.4 Quorum. All of the Partners, represented in person or by proxy, shall constitute a quorum at any meeting of Partners.

6.5 Manner of Acting. If a quorum is present, the affirmative vote of a majority of the Partners at a Steering Committee meeting shall be the act of the Partners, unless the vote of a greater or lesser portion or number is otherwise required by this Joint Venture Agreement.

6.6 Proxies. At all meetings of the Steering Committee a Partner may vote in person or by proxy executed in writing by the Partner or by a duly authorized attorney-in-fact. Such proxy shall be filed with the Joint Venture before or at the time of the meeting. No proxy shall be valid after eleven months from the date of its execution.

6.7 Action by Partners Without a Meeting. Action required or permitted to be taken at a meeting of the Steering Committee may be taken without a meeting if the action is evidenced by one or more written consents describing the action taken, signed by each Partner entitled to vote, and delivered to the Joint Venture for inclusion in the minutes or for filing with the Joint Venture records. Action taken under this Section is effective when all Partners entitled to vote have signed the consent, unless the consent specifies a different effective date. The record date for determining Partners entitled to take action without a meeting shall be the date the first Partner signs a written consent.

6.8 *Waiver of Notice.* When any notice is required to be given to any Partner, a waiver thereof in writing signed by the person entitled to such notice, whether before, at, or after the time stated therein, shall be equivalent to the giving of such notice.

6.9 *Powers of the Steering Committee.* Subject to Section 5.2, the Steering Committee shall have the following powers, among others:

- (a) To approve contracts for the Business, and any modifications or amendments thereto.
- (b) To approve the assumption of liabilities or the undertaking of commitments by the Joint Venture when these liabilities and/or commitments are material.
- (c) To approve the nominees for the key personnel, except such personnel as otherwise specified in Article 7 for the Joint Venture Project.
- (d) To determine the time and place of holding its meetings and to establish procedures for conducting Steering Committee affairs.
- (e) To request from each Partner, on recommendation of the Project Manager, the provision of any necessary working capital for the performance and execution of the Joint Venture Project.
- (f) To authorize the establishment of a project office, or to authorize the use of a Partner's office and the rate of payment for such use.
- (g) To determine rental rates for equipment owned by any of the Partners and made available for use in connection with the Joint Venture Project. Any equipment owned by third parties will be invoiced to the Joint Venture at actual rental rates.
- (h) To determine Joint Venture insurance coverages and limits, and to determine insurance reserves and reserves for other potential liabilities that may result from or arise out of the Business.
- (i) To approve suretyships or guarantees that may be executed by the Partners in connection with the Joint Venture Project.
- (j) To consider all claims and disputes of any kind between the Joint Venture and its client, subcontractors and/or third parties and to authorize negotiation, arbitration, litigation, and/or any other process for their resolution.
- (k) To determine and act upon the various matters, expressly or impliedly contained in other sections of this Joint Venture Agreement, which require decision by the Steering Committee.

SECTION 7
DELEGATION OF AUTHORITY; OPERATIONS

7.1 *Delegation of Authority.* Fluor is hereby designated as the Managing Partner, subject, however, to the superior authority and control of the Steering Committee. The Managing Partner shall appoint the Project Manager.

7.1.1 The day to day activities of the Joint Venture and the primary contact with the owner of the Project shall be performed by the Project Manager or his designees, subject to the direction of the Steering Committee. The initial Project Manager shall be Gary W. Winsper, P.E., an employee of Skanska. Any subsequent Project Manager shall be appointed by the Managing Partner, subject to the approval of the Steering Committee. In addition, there shall be a Deputy Project Manager in the office of the Project Manager. The Deputy Project Manager shall initially be a Fluor employee. The Project Manager and Deputy Project Manager shall be employees of either Fluor or Skanska, but neither company shall occupy both positions at any one time. Fluor shall appoint the individual who will serve as Project controls, finance and administrative managers. Such employee shall assist the Project Manager and will be responsible for the financial management of the Joint Venture. The Project Manager shall also be responsible for the carrying out of all necessary correspondence with the owner of the Joint Venture Project and maintaining the appropriate Joint Venture Project correspondence files. Notwithstanding the foregoing, each Partner shall have the right to attend all meetings and to have access to all correspondence, minutes, and other documentation pertaining to the Joint Venture's services. Each Partner shall be responsible for the quality of its services and compliance with budget and time schedules.

7.1.2 The day-to-day management of the Joint Venture Project shall be under the direction of the Project Manager. The Project Manager shall be responsible for coordinating execution of the services under the contract for the Joint Venture Project.

7.1.3 Levels of approval authority will be defined for the Joint Venture Project. An approval authority matrix will be developed for the Project and approved by the Steering Committee.

7.1.4 The Project Manager will establish Joint Venture Project reporting requirements, and will define the types of reports and times of submittal to the Parties. As a minimum, the Project Manager will provide a monthly progress report (noting any problem areas) and a monthly financial status report.

7.1.5 Authority to act for and bind the Partners in connection with all or any part of the performance of the contract for the Joint Venture Project may from time to time be delegated to the Project Manager by the Steering Committee.

7.1.6 Any delegation of authority to any Partner or individual or individuals may be revoked by the Steering Committee; provided, however, that if the authority of the individual serving as Project Manager is revoked, the Managing Partner shall have the right and obligation to nominate another individual to serve in that capacity, subject to the approval of the Steering Committee.

7.2 Plan and Joint Venture Budget. Within 60 days prior to the end of each Fiscal Year of the Joint Venture, the Project Manager shall propose the Plan for the Joint Venture for the next Fiscal Year, setting forth the business and operations of the Joint Venture for such Fiscal Year (exclusive of Joint Venture Projects) and shall also propose the Joint Venture Budget for such Fiscal Year necessary to carry out the Plan, and providing for any Capital Calls necessary to fund the Joint Venture Budget and Plan. The Plan and Joint Venture Budget shall be submitted forthwith to the Partners. The Partners shall approve the Plan and Joint Venture Budget prior to the commencement of the Fiscal Year with such modifications as the Partners find necessary or appropriate.

7.3 Steering Committee Representatives. The Partners' initial Steering Committee representatives are set forth below. Each Partner represents that the representatives so identified are duly authorized to act on its behalf with respect to its participation in the Joint Venture. In the event that a Partner wishes to change its representatives in the future, it shall so notify all other Partners in accordance with Section 19.4 of this Joint Venture Agreement, by means of a letter from a corporate counsel and/or from another duly authorized officer of such Partner.

<u>Partner</u>	<u>Representative</u>	<u>Alternate</u>
Fluor:	Bob Prieto	David Gedney
Skanska:	Joseph LoCurto	Richard Cavallaro
Granite:	Mike Donnino	Darryl Goodson
Bovis:	James Abadie	Pete Marchetto

7.4 Implementation of Budgets. The Steering Committee and Project Manager shall operate the Joint Venture and perform the Joint Venture projects in accordance with the Joint Venture Budget and Plan, and the Plan will not be changed, nor may any approved budget be exceeded in any specific quarter, without prior unanimous written consent of the Partners.

SECTION 8 CONTRIBUTIONS AND CAPITAL ACCOUNTS

8.1 Capital Requirements. As soon as practicable following organization of the Joint Venture, and from time to time thereafter, the Steering Committee shall determine the capital

needs of the Joint Venture, and to the extent such needs cannot reasonably be met from cash on hand or Project revenues, shall give written notice (a "Capital Call") to the Partners of the amount of cash or other capital that must be contributed by the Partners to sustain the business operation of the Joint Venture for a period not to exceed ninety days from the date of Capital Call. The Partners shall endeavor to be unanimous with respect to any Capital Call, and in no event will a Capital Call be allowed unless approved by three (3) of the Partners.

8.2 Capital Contribution. Upon receipt of a Capital Call each Partner shall be obligated within ten (10) days to make a contribution (a "Capital Contribution") to the capital of the Joint Venture of cash or other capital specified in the Capital Call in an amount determined by applying the Partner's Sharing Ratio (as adjusted as of the time of the Capital Call) to the total amount of cash or other capital specified in the Capital Call, subject to the limitations stated in Section 8.1.

8.3 Capital Call Dispute. If a Capital Call is approved by the Steering Committee representatives of three (3) of the Partners, but a dissenting Partner disputes the need for or the amount of the Capital Call, it may, within 10 days of the vote, have the CPA conduct an independent review (at the dissenting Partner's expense) to determine if the amount of the Capital Call is reasonably required to meet projected cash requirements under the Client Contract and the approved budget for the "Business Plan". If the CPA finds any or all of the Capital Call is clearly unreasonable to meet these projected needs, it may adjust the Capital Call amount by the amount it finds to be clearly unreasonable. This shall be done within 30 days of notice from the dissenting Partner. Until such adjustment is made the dissenting Partner shall continue to meet the Capital Call requirements. If there is any adjustment, it will be made according to the Sharing Ratio, and the Partners will get a refund or pay the difference as the case may be within 10 days of written notice of the adjustment.

8.4 Capital Call Advance. If any Partner fails to make any required payment under this Article prior to expiration of the Capital Call Period, any other Partner(s) may advance (a "Capital Call Advance") to the Joint Venture any part or all of such required payment. In the absence of election by the advancing Partner(s) of one of the Special Elections provided under Section 15.3 of this Joint Venture Agreement, a Capital Call Advance shall be deemed to be an additional Capital Contribution by the advancing Partner(s), and such Partner's Sharing Ratio (with respect to profits, but not losses) shall be permanently adjusted to reflect the Partner's actual Capital Contributions as of the time of the making of the Capital Call Advance and the Partner(s) shall receive interest at the Prime Interest rate on the Capital Call Advance until the amount of the Capital Call Advance has been repaid. In any case adjustment to the Partners' profit Sharing Ratios shall be permanent notwithstanding reimbursement of the Capital Call Advance by the defaulting Partner or Partners.

8.5 Return of Capital Contributions. Capital Contributions shall be expended in furtherance of the Business of the Joint Venture. All costs and expenses of the Joint Venture, Capital Call Advances, and interest on Capital Call Advances shall be paid from its funds prior to any return of Capital Contributions. No other interest shall be paid on Capital Contributions.

8.6 Liabilities of Partners to Third Parties; Reimbursement. To the extent any Partner is legally required to pay any liability or obligation to any Person other than the other Partners or the Joint Venture arising out of or in any way connected with this Joint Venture Agreement or the Joint Venture, such payment shall be treated for all purposes of this Joint Venture Agreement (including adjustments of Sharing Ratios) as if such payment were a Capital Contribution made in response to a Capital Call pursuant to Section 8.2 of this Joint Venture Agreement; and to the extent any such payment exceeds the amount determined by applying such Partner's Sharing Ratio (as adjusted as of the time immediately prior to such payment) to the total amount of such liability or obligation, such excess shall be treated for all purposes of this Joint Venture Agreement as if such excess were a Capital Call Advance within the meaning of Section 8.4 of this Joint Venture Agreement; provided that in the event a portion of a payment made pursuant to this paragraph 8.6 is deemed to be a Capital Call Advance, the Partner on whose behalf such Capital Call Advance was made shall have ten days from the making of such advance to reimburse such advance to the paying Partner, in which case such reimbursement shall likewise be deemed to be a Capital Contribution for all purposes of this Joint Venture Agreement (including adjustment of Sharing Ratios); and provided further that in the event the Partner on whose behalf such Capital Call Advance is deemed to have been made pursuant to this paragraph 8.6 fails to reimburse the amount of such advance within such ten-day period, the provisions of Section 15.4 shall apply. The foregoing provisions are subject in all events to the Special Elections provided in Article 15 of this Joint Venture Agreement.

8.7 Capital Accounts. The Joint Venture shall maintain a separate capital account for each Partner in accordance with the Treasury Regulations under section 704(b) of the Code and such other accounts as may be necessary or desirable to comply with the requirements of applicable laws and regulations.

8.8 Special Allocations. Any Profits and Losses and other items of income, gain, loss, deduction or credit including depreciation recapture, with respect to any property (other than money) that has been contributed by a Partner to the Capital of the Joint Venture and which is required to be allocated to the Partners for income tax purposes pursuant to Section 704(c) of the Code so as to take into account the variation between the adjusted basis of the property for federal income tax purposes and its fair market value at the time of contribution shall be allocated to the Partners in the manner so required by Section 704(c) of the Code and the Treasury Regulations thereunder.

8.9 Distribution of Assets. If the Joint Venture at any time distributes any of its assets in-kind to any Partner, the Capital Account of each Partner shall be adjusted to account for that Partner's allocable share) of the net Profits or net Losses that would have been realized by the Joint Venture had it sold the assets that were distributed at their respective fair market values immediately prior to their distribution.

8.10 Sale or Exchange of Interest. In the event of a sale or exchange of some or all of a Partner's interest in the Joint Venture, if allowed pursuant to the terms of this Joint Venture Agreement, the Capital Account of the transferring Partner shall become the Capital Account of

the assignee, to the extent it relates to the portion of the interest transferred.

SECTION 9 ALLOCATIONS AND DISTRIBUTIONS

9.1 *Allocations of Net Profits and Net Losses from Operations.* Subject to prior repayment of additional Capital Contributions and interest thereon (as provided for in Section 8.4 – **Capital Call Advance**), and except as may be required by § 704(c) of the Code, net Profits, net Losses, and other items of income, gain, loss, deduction and credit shall be apportioned among the Partners in proportion to their Sharing Ratios, unless otherwise provided in this Joint Venture Agreement.

9.2 *Interim Distributions.* From time to time, and subject to Section 5.2, the Partners shall determine in their reasonable judgment to what extent, if any, there is Cash Available for Distribution. No distributions shall be made to Partners who are in default of their respective obligations to indemnify or fund as herein provided until and unless such default has been cured to the reasonable satisfaction of the non-defaulting Partners. To the extent such Cash Available for Distribution exists, and the Partners have approved pursuant to Section 5.2, the Joint Venture shall make distributions to the Partners in accordance with their Sharing Ratios.

SECTION 10 TAXES

10.1 *Elections.* Fluor shall be the "Tax Matters Partner" pursuant to § 6231(a)(7) of the Code and shall take such action as may be necessary to cause each other Partner to become a *notice partner* within the meaning of § 6223 of the Code. The Tax Matters Partner may make any tax elections for the Joint Venture allowed under the Code or the tax laws of any state or other jurisdiction having taxing jurisdiction over the Joint Venture, upon approval of all other Partners. All expenses incurred by the Tax Matters Partner while acting in that capacity shall be paid or reimbursed by the Joint Venture.

10.1.1 Subject to approval of the Steering Committee, the Tax Matters Partner may employ tax counsel to represent any audit or investigation of the Joint Venture by the Internal Revenue Service and any related administrative or judicial proceedings. The fees and expenses of such counsel shall be a Joint Venture expense. It shall be the responsibility of each Partner, at its own expense, to employ tax counsel to represent their separate interests.

10.1.2 The Joint Venture shall indemnify the Tax Matters Partner (including the officers and directors of a corporate Tax Matters Partner) against judgments, fines, amounts paid in settlement, and expenses (including attorney fees) reasonably incurred in any civil, criminal or investigative proceeding in which they are involved or threatened to be involved by reason of being the Tax Matters Partner, provided that the Tax Matters Partner acted in good faith, consistent with what it reasonably believed to be the best interests of the Joint Venture or its Partners. The indemnification provided hereunder shall not be deemed exclusive of any other rights to which those indemnified may be

entitled under any applicable status, agreement, vote of Partners, or otherwise.

10.2 *Accrual Method of Accounting.* The records of the Joint Venture shall be maintained on an accrual method of accounting employing percent of completion revenue and profit recognition.

SECTION 11 ASSIGNMENT OF PARTNERSHIP

11.1 *Disposition.* No Partner may dispose of or assign all or a portion of the Partner's Partnership interest in the Joint Venture to any person without the written consent of the other Partners. The Partners agree that due to the relationship of the parties, and the reliance of each Partner on the expertise and qualifications of the other Partners, that this restriction is reasonable and is part of the basis of the bargain in entering into this Joint Venture Agreement and forming the Joint Venture. The Partners agree that consent to Disposition of an interest in the Joint Venture may be withheld for any reason, and such withholding of consent shall be conclusively deemed to be reasonable.

11.2 *Dispositions not in Compliance with this Section Void.* Any attempted Disposition of a Partnership Interest, or any part thereof, not in compliance with this Section is null and void and shall be deemed a breach of this Joint Venture Agreement.

SECTION 12 DISSOCIATION OF A PARTNER

12.1 *Dissociation.* A Partner may not voluntarily Dissociate from the Joint Venture, except with the written consent of the other Partners and the approval of the Joint Venture's client in the event that a Contract for the Project is executed with said client. A Partner may not be involuntarily removed by a vote of the Partners. A Person shall cease to be a Partner of the Joint Venture upon the happening of any of the following events:

12.1.1 To the fullest extent permitted by applicable law, where a Partner (i) makes an assignment for the benefit of creditors; (ii) files a voluntary petition in bankruptcy or fails within 30 days to bring about the dismissal of an involuntary petition in bankruptcy filed with respect to such Partner; (iii) is adjudicated a bankrupt or insolvent; (iv) files a petition or answer seeking for the Partner any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any statute, law or regulation; (v) files an answer or other pleading admitting or failing to contest the material allegations of a petition filed against the Partner in any proceeding of this nature; or (vi) seeks, consents to, or acquiesces to the appointment of a trustee, receiver or liquidator of the Partner or of all or any substantial part of the Partner's properties, in each case, excepting the situation where the Partner assumes this Joint Venture Agreement and the prime contract with the Joint Venture's client, and provides adequate assurances of its continued ability to perform under both such agreements;

12.1.2 In the case of a Partner that is a corporation, the filing of a certificate of

dissolution, or its equivalent, for the corporation or the revocation of its charter.

12.2 *Rights of Dissociating Partner Where Dissolution Results.* In the event any Partner Dissociates prior to the expiration of the term of the Joint Venture and if the Dissociation causes a dissolution and winding up of the Joint Venture under Section 14, the Partner shall be entitled to participate in the winding up of the Joint Venture to the same extent as any other Partner except that any Distributions to which the Partner would have been entitled shall be reduced by the damages sustained by the Joint Venture as a result of the dissolution caused by the Dissociation and winding up.

**SECTION 13
NOT USED**

**SECTION 14
NOT USED**

**SECTION 15
DEFAULT AND REMEDIES**

15.1 *Default: Contribution Obligations.* Failure by any Partner to pay its share of a Capital Call within the Capital Call Period or failure by any Partner to make reimbursement within the time prescribed by Paragraph 8.6 of this Joint Venture Agreement shall be a default for purposes of this Section 15.1.

15.2 *Default: Other Obligations.* In the event any Partner fails, within thirty days of receipt of written demand for compliance from the other Partners, to fulfill any obligations under this Joint Venture Agreement other than obligations giving rise to default under the foregoing Section 15.1, then at the election of all of the non-defaulting Partner(s) and upon the delivery of written notice of default to the defaulting Partner, the defaulting Partner shall be in default within the meaning of this Section 15.2.

15.3 *Special Elections Upon Default Under Section 15.1.* Upon occurrence of a default under Section 15.1, any non-defaulting Partners shall have the right, but not be required, to elect one of the following alternative remedies by giving written notice of such election to the defaulting Partner prior to expiration of thirty days following occurrence of such default:

(a) **Contribution Loan.** To the extent a non-defaulting Partner(s) has made or is deemed to have made a Capital Call Advance in connection with such default, the non-defaulting Partner(s) may elect to treat such Capital Call Advance as a Contribution Loan to the defaulting Partner, in which case such Contribution Loan shall bear Default Interest from the date such advance is made or deemed to have been made, shall be payable upon demand. In the event of an election pursuant to this paragraph 15(a), adjustments shall be made retroactively to the date such advance was made or deemed to have been made so that no part of such Contribution Loan is taken into account in determining the electing Partner's Sharing Ratio, and the full amount of

such Contribution Loan shall be deemed a Capital Contribution by the defaulting Partner for all purposes of this Joint Venture Agreement.

(b) Joint Venture Loan(s). In the alternative, any non-defaulting Partner(s) may elect to convert the amount of any Capital Contribution or Capital Call Advance made or deemed to have been made by such non-defaulting Partner in response to the Capital Call giving rise to the default as a loan by the non-defaulting Partner to the Joint Venture as of the date of such contribution or advance. In the event of an election under this Section 15.3(b), Sharing Ratios shall be deemed adjusted retroactively to conform to the respective Partners' interests as they existed immediately prior to the Capital Call giving rise to the default by the defaulting Partner. Upon election under this Section 15.3(b), the full amount subject to the election shall be deemed to be a loan to the Joint Venture, shall be entitled to repayment in advance of any distribution made to any Partner, shall bear interest at the Default Rate from the date of each respective advance, and shall be payable upon demand. To the extent any Capital Call Advance made or deemed to have been made by the non-defaulting Partner is included in an election made under this Section 15.3-(b), repayment by the Joint Venture of such amount shall be guaranteed by the defaulting Partner, with the effect that the defaulting Partner shall be deemed to have guaranteed payment and not collection of the amount representing such Capital Call Advance, and shall be deemed to have waived notice of default, nonpayment, dishonor, acceptance, presentment, demand and any other notice that may be required in the absence of waiver under applicable law; and further shall be deemed to have agreed that no extension of time, forbearance, release or compromise of any obligations of the Joint Venture nor any other action by the non-defaulting Partner against the Joint Venture or any other Person shall be deemed to have compromised or released in any respect the obligations of the defaulting Partner under such guaranty.

15.4 Termination of Management Rights. In the event of any default, and until remedy of the default and payment of all interest owed by the defaulting Partner, (whether occurring under Section 15.1 or 15.2 of this Joint Venture Agreement), the defaulting Partner shall be deemed to have transferred to the non-defaulting Partners all rights and responsibilities for all acts, consents appointment authority and decisions with respect to the performance of the Contract and the management of the Joint Venture, including all voting rights of the defaulting Partner and the appointment of the entirety of the Steering Committee, which management activities shall thereafter be taken solely by the non-defaulting Partners without need to consult with or otherwise gain consent from the defaulting Partner. Notwithstanding such exercise of control by the non-defaulting Partners, the defaulting Partner shall remain a Partner and shall be entitled to profits and distributions and shall remain responsible for obligations and liabilities as provided under this Joint Venture Agreement, subject to limitation to the Partner's Sharing Ratio where applicable and as adjusted upon default(s) as provided in the foregoing Sections 8.4 and 15.3 and as reduced by the damages sustained by the Joint Venture or any Partner as a result of the default.

15.5 Other Remedies. In addition to other remedies provided under this Article 15, in the event of any default under this Article 15, the non-defaulting Partners shall have all other rights and remedies arising upon default under applicable law against the defaulting Partner, to the full extent that such other rights and remedies are not inconsistent with the exercise of remedies provided under this Article 15 or other express provisions of this Joint Venture

Agreement.

SECTION 16 DISSOLUTION AND WINDING UP

16.1 Dissolution. The Joint Venture shall be dissolved and its affairs wound up, upon the first to occur of the following events (which, unless the Partners agree to continue the business, shall constitute Dissolution Events):

16.1.1 the expiration of the term as provided in Section 2.5, unless the business of the Joint Venture is continued with the consent of all of the Partners;

16.1.2 the unanimous written consent of all of the Partners;

16.1.3 the Dissociation of any Partner, unless the business of the Joint Venture is continued with the consent of all of the remaining Partners within 90 days after such Dissociation so long as there are at least two remaining Partners in the Joint Venture;

16.1.4 the entry of a decree of judicial dissolution;

16.1.5 if the Joint Venture voluntarily or involuntarily, by way of condemnation or similar proceeding, disposes of all or substantially all of its real property assets;

16.1.6 if a Port Authority Contract for the Project is not awarded to the Joint Venture.

16.2 Effect of Dissolution. Upon dissolution, the Joint Venture shall cease carrying on its business, except for the winding up of the Joint Venture's business, which shall continue until the winding up of the affairs of the Joint Venture is completed.

16.3 Distribution of Assets on Dissolution. Upon the winding up of the Joint Venture, the Joint Venture Property shall be distributed:

16.3.1 to creditors, including Partners who are creditors, to the extent permitted by law, in satisfaction of Joint Venture Liabilities;

16.3.2 to Partners in accordance with positive Capital Account balances taking into account all Capital Account adjustments for the Joint Venture's taxable year in which the liquidation occurs. Liquidation proceeds shall be paid within 60 days of the end of the Joint Venture's taxable year or, if later, within 90 days after the date of liquidation. Such distributions shall be in cash or Property (which need not be distributed proportionately) or partly in both, as unanimously determined by the Partners.

16.4 Deficit Capital Account. A deficit balance in a Partner's Capital Account after liquidation of the Joint Venture shall be repaid to the Joint Venture no later than 90 days after the liquidation of such interest.

16.5 Winding Up and Certificate of Cancellation. The winding up of a the Joint Venture shall be completed when all debts, liabilities, and obligations of the Joint Venture have been paid and discharged or reasonably adequate provision therefor has been made, and all of the remaining property and assets of the Joint Venture have been distributed to the Partners.

SECTION 17 INTELLECTUAL PROPERTY

17.1 License From Partners to Joint Venture. To the extent each Partner has the legal right to do so, and subject to any restrictions under applicable license and other agreements, each Partner hereby grants to the Joint Venture a nonexclusive license to use such Partners' Intellectual Property insofar as the same is reasonably required and relates to the activities of the Joint Venture on the Joint Venture Project. Each Partner shall cooperate to make such Intellectual Property available and useful to the Joint Venture. The Joint Venture shall not sublicense any Partners' Intellectual Property to any other person, including any other Partner, without the prior written consent of the Partner owning such Intellectual Property.

17.2 Intellectual Property Developed by the Joint Venture. The Joint Venture shall own and hold in its own name all Intellectual Property created, developed or acquired (but not including any Intellectual Property licensed to the Joint Venture pursuant to Section 17.1) by the Joint Venture. Except as provided in this Section 17.2, the Joint Venture shall not license or sell any of its Intellectual Property to any person except with the prior written consent of all the Partners. To the extent the Joint Venture has the legal right to do so and subject to any restrictions under contracts or agreements on any Joint Venture Project and applicable license and other agreements, the Joint Venture hereby grants to each Partner a nonexclusive license to use the Joint Venture's Intellectual Property. No Partner shall sublicense any of the Joint Venture's Intellectual Property (except to its Affiliates) without the prior written consent of the other Partners.

17.3 Use on Liquidation. Upon liquidation of the Joint Venture, all Intellectual Property of the Joint Venture shall be transferred to the Partners jointly and each Partner shall be free to use, license, sell or otherwise deal with such Intellectual Property.

SECTION 18 AMENDMENT

18.1 Joint Venture Agreement May Be Modified. The Joint Venture Agreement may be modified as provided in this Section 18 (as the same may, from time to time be amended).

18.2 Amendment or Modification of Joint Venture Agreement. The Joint Venture Agreement may be amended or modified from time to time only by a written instrument adopted and executed by all of the Partners.

18.3 Sharing Ratio Adjustment. In the event that any Partner believes that the nature of the Joint Venture Project or the relative contributions of the Partners to the Business change,

such Partner may submit a request to the Steering Committee to adjust the Partners' Sharing Ratios in light of such asserted change. Any such change to the Sharing Ratios shall require the unanimous approval of the Partners.

SECTION 19 MISCELLANEOUS PROVISIONS

19.1 *Entire Agreement.* The Joint Venture Agreement represents the entire agreement among the Partners and between the Partners and the Joint Venture.

19.2 *Governing Law.* This Joint Venture Agreement shall be governed by, and construed in accordance with, the law of the State of New York, without reference to the State of New York's choice of law provisions.

19.3 *Litigation; Dispute Resolution.* In the event of any dispute between or among the Partners relating to or arising from the Joint Venture, this Joint Venture Agreement or to the affairs of the Joint Venture (a "Dispute"), any such Dispute shall be resolved as follows:

19.3.1 The Partners shall first use their best efforts to resolve any such Dispute through good faith negotiations among senior corporate officers with at least the title of Vice President and who are not on the Steering Committee.

19.3.2 Any Dispute not resolved through negotiation as provided for under Section 19.3.1 shall promptly be submitted to JAMS, or its successor, for mandatory, non-binding mediation. Any aggrieved Partner may commence mediation by providing to JAMS and the other Partners a written request for mediation, setting forth the subject of the Dispute and the relief requested. The mediation shall be conducted using the then-existing mediation rules of JAMS, and all affected Partners will cooperate with JAMS and with one another in timely scheduling the mediation proceedings and in selecting a mediator from an approved list of neutrals. Such list of neutrals will be developed and approved in writing by the Steering Committee within 60 days after award of a contract to the Joint Venture by the client. Mediation shall be a condition precedent to litigation of any Dispute, provided that any affected Partner may initiate litigation in accordance with 19.3.3 with respect to the matters submitted to mediation should the mediation session not occur within 90 days after the date of filing the written request for mediation.

19.3.3 Any Dispute that is not resolved under the mediation process provided for under 19.3.2 shall be resolved exclusively by the courts of the State of New York situated in the County of New York. Each Partner knowingly, voluntarily and upon consultation with counsel hereby agrees to waive any right it may have to a trial by jury of any Disputes, to the greatest extent permitted by applicable law, and agrees that any Disputes shall be tried before a judge sitting without a jury.

19.4 *Notices.* All notices under this Joint Venture Agreement shall be in writing, and shall be sufficiently given if delivered to the addresses in person or if mailed, postage prepaid, as follows:

To Fluor: Fluor Enterprises, Inc.
100 Fluor Drive
Greenville, South Carolina 29607
Att'n: David Gedney
with a copy to Richard A. Fierce

To Skanska: Slattery Skanska Inc.
16-16 Whitestone Expressway
Whitestone, NY 11357
Att'n: Gary Winsper
with a copy to David Finch

To Granite: Granite Halmar Construction Company, Inc.
160 West Lincoln Avenue
Mount Vernon, NY 10550

Att'n: Eugene Kelley
with a copy to Division Counsel, Heavy Civil Division
Granite Construction Company
585 West Beach Street
Watsonville, CA 95076

To Bovis: Bovis Lend Lease LMB, Inc.
200 Park Avenue
New York, NY 10166
Att'n: Mr. Jim Abadie
with a copy to Joseph Portela

To the Joint Venture: Phoenix Constructors, Joint Venture
505 8th Avenue, Suite 601
New York, NY 10019
Att'n: Gary Winsper

With copies to all members of the Steering Committee.

19.5 No Partnership Intended for Non-tax Purposes: The Partners have formed the Joint Venture with the express intention not to form a partnership under any law of the State, but do intend to qualify as a partnership for tax purposes.

The Partners do not intend to be agents one to another, or partners as to any third party. To the extent any Partner, by word or action, represents to another person that any other Partner

is an agent or that the Joint Venture is a partnership to any third party, the Partner making such wrongful representation shall be liable to any other Partner which incurs liability by reason of such wrongful representation.

19.6 *Rights of Creditors and Third Parties under Joint Venture Agreement.* The Joint Venture Agreement is entered into among the Joint Venture and the Partners for the exclusive benefit of the Joint Venture, its Partners, and their successors and assignees. The Joint Venture Agreement is expressly not intended for the benefit of any creditor of the Joint Venture or any other Person. Except and only to the extent provided by applicable statute, no such creditor or third party shall have any rights under the Joint Venture Agreement or any agreement between the Joint Venture and any Partner with respect to any Capital Contribution or otherwise.

19.7 *Profit Forecasts.* It is recognized that some Partners are publicly traded corporations that are required to generate accurate forecasts of the project profit (or loss) on a quarterly basis. Such forecasts begin at, or before, such time as the Project has expended twenty-five percent (25%) of the estimated project cost and continue through project acceptance.

19.8 *Joint Defense and Prosecution of Claims.* Should one or more of the Partners, or the Joint Venture entity itself, become a party to a legal claim, proceeding or lawsuit (each a "Proceeding"), whether offensive or defensive, involving or relating to the subject matter of this Joint Venture Agreement or the Business, other than a Proceeding solely between or among the Partners, the Partners agree that they have a mutual interest in proceeding together in a common defense or prosecution. Should one of the Partners be subject to a Proceeding unrelated to the Business of the Joint Venture, the provisions of this Article shall not apply. Without waiving their individual attorney client privilege, work product or any other privilege or immunity, except as provided herein, the Partners agree as follows:

a. The Partners and/or the Joint Venture shall be represented jointly by one attorney or firm in the Proceeding throughout the pendency of the Proceeding and shall jointly assume defense of the Joint Venture. The Partners shall choose counsel to represent the interests of the Joint Venture. To the greatest extent permitted by law, the Partners hereby waive any conflict in such joint representation. The costs and fees for such representation shall be borne by the Partners in the same proportion as their Sharing Ratio. The sharing of such defense costs shall not operate as any precedent in determining liability by and between the Partners and shall remain inadmissible for any purpose whatsoever. This agreement shall automatically apply to substitute or associated counsel who may appear in the Proceeding on behalf of any of the Partners. This agreement covers, applies to, and binds the firms, partners, associates and support staff of the undersigned counsel, as well as any consultants, investigators, or experts retained by them in connection with the defense of the Proceeding.

b. The Partners agree to share and exchange among themselves, witness statements, factual summaries, documents, legal strategies, intelligence, confidences, and other secrets (hereinafter the "Joint Defense Materials") for the limited and restricted purpose of assisting counsel in protecting the common rights and interests of the Partners. Any communications or Joint Defense Materials shared between the Partners are within the "common interest" and are, therefore, confidential and protected from disclosure to any third party by the attorney-client

privilege and the work product doctrine and may be used for no other purpose than the common interest of the Partners. All Joint Defense Materials (including all copies, summaries or excerpts thereof) shall be returned to the Partner who provided the same at the conclusion of the Proceeding.

c. None of the privileged or otherwise protected communications or Joint Defense Materials obtained by any Partner or information derived therefrom shall be disclosed or revealed to any third party except (i) as required by law or an order of a court of competent jurisdiction or (ii) with the written consent of all Partners. Should one Partner receive a subpoena or process requiring production of Joint Defense Materials, it shall provide 5 days written notice to all other Partners to give them an opportunity to move for a protective order.

d. Should a divergence of interest between the Partners arise during the Proceeding, the Partners agree to reserve and defer prosecution of any claim each may have against the other until the later of the conclusion of (i) the Proceeding or (ii) the Business (defined as the receipt of final payment therefor) and agree to abide by this Section 19.7 in good faith and proceed with the joint defense or prosecution of the Proceeding until the conclusion of the Proceeding and from any judicial and/or administrative appeals therefrom. Any period of limitations as to any claim between or among the Partners is tolled by this agreement until 60 days after such time. The attorney representing the Partners and/or the Joint Venture may not represent any Partner in a claim against one another nor appear as a witness in any such claim without the advance, express, written consent of the other Partners. No Partner shall object to a motion by another Partner to intervene in a pending Proceeding.

e. The Partners agree that this agreement set forth in Section 19.8 may be enforced by injunctive relief and that it shall not be subject to abrogation by an assignee, trustee in bankruptcy or other successor in interest to any Partner hereto. Nor shall such assignee, trustee in bankruptcy or other successor in interest waive any privilege or immunity with regard to the Joint Defense Materials shared by or among the Partners.

19.9 *Limitation on Claim Against Joint Venture Interest.* Without limiting the rights of the Partners or their parent company guarantors, the right of any Person or Organization claiming by, through, or under any Partner (including, but not limited to, judgment or other creditors, receivers, trustees, assignees, garnishees, executors, administrators, etc.) to assert any claim against the right, title, or interest of any Partner shall be limited in any event to the right to claim or receive after the completion of the Business and after the closing of the account of the Joint Venture the distributive share of such Partner in the compensation and reimbursable costs and profits payable hereunder, and then only subject to the equities of the other Partners or as set forth in this Joint Venture Agreement.

IN WITNESS WHEREOF, we have hereunto set our hands on the date set forth beside our names.

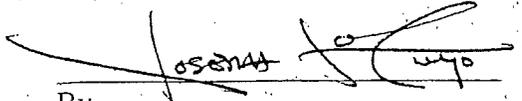
Fluor Enterprises, Inc.

By *H. M. Powell*
Its *Senior Vice President*

7/18/05
Date

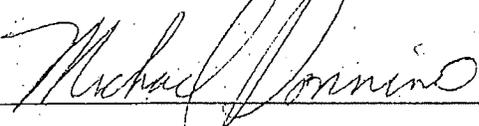


Slattery Skanska Inc.


By _____
Its President

July 15, 2005
Date

Granite Halmar Construction Company, Inc.



July, 13 2005

By Mike Donnino, Its Senior Vice President

Bovis Lend Lease LMB, Inc.

By James Abadie Date 7/14/05
Its Sr. Vice President-Principal in Charge



THE PORT AUTHORITY OF NY & NJ

**THE PORT AUTHORITY OF NEW YORK & NEW JERSEY
DOWNTOWN RESTORATION PROGRAM
WORLD TRADE CENTER TRANSPORTATION HUB
CONSTRUCTION MANAGEMENT
SERVICES/GENERAL CONTRACTING SERVICES**

CONTRACT WTC-284.458 CM

AND

CONTRACT WTC-284-458 GC

CONTRACT MODIFICATION AGREEMENT NO. 1

WHEREAS, The Port Authority of New York and New Jersey (hereinafter called the "Authority") and Phoenix Constructors, JV (hereinafter called the "Contractor"), have heretofore entered into Contracts in writing known as Contract WTC-284.458CM and Contract WTC-284.458GC (hereinafter called the "Contracts"); and

WHEREAS, the parties hereto desire to amend said Contracts in certain respects:

NOW THEREFORE, in consideration of the mutual covenants and agreements hereinafter contained, the parties mutually agree the said Contract shall be deemed amended effective as of January 23, 2006 as follows:

For the purpose of convenience and ease of location of changes effected by this Modification Agreement No. 1 and for said purposes only, all references herein to Proposal, Form of Contract, Specifications, Contract Drawings, Pages, Paragraphs, Clauses, and Lines are to conformed copies of Contract WTC-284.458CM and WTC-284.458GC heretofore distributed by the Authority.

Article I. Contract WTC-284.458 CM – Construction Management Services

The Construction Management Agreement shall be amended as follows:

1. Exhibit A, Performance of Construction Management Services, is amended by the deletion of Task 8, Procurement Processes, and in lieu thereof, the following is inserted:

“Task 8 Procurement Processes

- a. Recommend to the Authority processes regarding procurement. The processes shall comply with the terms of this Contract and Contract WTC 248.458GC – General Contracting Services. Develop a strategy regarding the qualification of subcontractors.



- b. Coordinate and develop, with the Authority, solicitation packages and work scope descriptions for each separate category that represents the entirety of the scope of the work for each phase and stage of the Project.
- c. Refine, implement and monitor a MBE/WBE subcontracting plan.
- d. Review the subcontractor and CM/GC self-performed contract documents to ensure that they contain adequate provision for all temporary facilities necessary to enable the performance of the work, and provisions for all of the job site facilities necessary to manage, inspect, and supervise construction of the work.”

Article II. Contract WTC-284.458 GC – General Contracting Services

The General Contracting Services Agreement shall be amended as follows:

2.1. Subclauses a through f of Clause 3.3, “Procurement” of Clause 3, “Statement of Work” are deleted and in lieu thereof, the following is inserted:

- “a. Manage and execute procurement activities as set forth in Clause 20, “Prequalification and Solicitation of Subcontractors”.”

2.2. Clause 9, “General Contracting Services Compensation” is modified by: the deletion in Clause B.1.(a) of the words “Contractor’s Indirect Cost” and the insertion in lieu thereof of the words “Contractor’s G&A”; the deletion in Clause B.2. of the words “Contractor’s Indirect Cost” and the insertion in lieu thereof of the words “Contractor’s G&A”; the deletion of Clause C and the addition of new Clauses C and D to allow for the parties to agree on lump sum compensation for work packages that include both subcontracted and self-performed work without regard to the mix of subcontracted and self-performed work; and the addition of a new clause E to provide for Contractor’s compensation related to work done under multiple award task order contracts. Clause 9.B., C., D and E as modified read as follows:

- “B. In the event the Director orders Work which the Contractor self performs, the Contractor’s compensation will be the sum of the following amounts and such amounts only:

- 1.(a) The Contractor’s lump sum price in accordance with the clause entitled “Contractor’s Self Performed Work”. The Contractor’s lump sum price shall include the cost of all Work including all direct costs for Contractor labor, material and equipment, indirect costs and fee in accordance with the subject clauses entitled “Contractor’s Self-Performed Work”, “Contractor’s Supervision”, “Contractor’s G&A”, “Contractor’s Fee for Pre-GMP Work” or “Contractor’s Fee for Post-GMP Work”, whichever is applicable;

OR



- (b) In the event that the Director orders the Contractor to self-perform the Work, an amount equal to the costs of all Work described in provision B.1.a. above, computed in accordance with the provisions of the clause entitled "Cost Reimbursement Work"; plus
 2. An amount equal to the costs for labor, materials, and equipment for the Contractor's general conditions Work associated with item 1 above computed by the Engineer in accordance with the clause entitled "Contractor's General Conditions Work", "Contractor's G&A", "Contractor's Fee for Pre-GMP Work" or "Contractor's Fee for Post-GMP Work", whichever is applicable.
- C. In the event the Director orders Work that includes both subcontracted Work and Work which the Contractor self performs, the Contractor's compensation will be the sum of the following amounts and such amounts only:
1. The Contractor's lump sum price shall include the cost of all Work including all direct costs for labor, materials, and equipment, indirect costs and fee in accordance with the subject clauses entitled "Subcontractor Work", "Contractor's Self Performed Work", "Contractor's Supervision" "Contractor's G&A" and "Contractor's Fee for Pre-GMP Work" or "Contractor's Fee for Post-GMP Work", whichever is applicable, plus
 2. An amount equal to the costs for labor, materials, and equipment for the Contractor's general conditions Work associated with item 1 above computed by the Engineer in accordance with the clause entitled "Contractor's General Conditions Work", "Contractor's G&A", and "Contractor's Fee for Pre-GMP Work" or "Contractor's Fee for Post-GMP Work", whichever is applicable.

In the event that there is no agreement on a lump sum for a Work package containing both self performed and subcontracted Work, the Authority reserves the right to otherwise procure the Work of the Work package or to direct Contractor to self perform all or some of the Work and/or to procure subcontractors pursuant to the clause "Prequalification and Solicitation of Subcontractors".

- D. Compensation for the performance of Work in addition to Items A, B, and C above, if applicable, shall be computed by the Engineer in accordance with the following clauses:
1. If such Work is ordered prior to the execution of the GMP Amendment:
 - a. "Compensation for Extra Work"
 - b. "Insurance Procured by the Contractor"
 - c. "Idle Salaried Workers and Equipment"



- d. "Compensation for Emergency Delays"
2. If such Work is ordered after the execution of the GMP Amendment:
 - a. "Compensation for Extra Work"
 - b. "Insurance Procured by the Contractor"
 - c. "Construction Contingency"
- E. In the event the Director orders work which is performed under multiple award task order contracts, the Contractor's compensation will be as follows:
 1. If the work is done on a lump sum basis, Contractor's compensation shall be calculated pursuant to Clause 9.A.
 2. Where the Authority and Contractor cannot agree on a lump sum price for the work, Contractor's compensation shall be computed as follows:
 - a. The Subcontractor's direct costs consisting of:
 - i. An amount equal to the direct cost in money of the labor, using the rates established in the task order contracts, and materials with a mark up of 15% applicable to the materials, plus
 - ii. The cost of any rental equipment required for such work, such equipment to be billed in accordance with the provisions of this Contract, with a mark up of 15%. In no event shall the amount paid to the Subcontractor exceed the Not-to-Exceed amount of his task order, plus
 - b. An amount equal to the direct costs for Contractor's labor, material and equipment for the Contractor's supervision work associated with Item a. above as applicable, plus
 - c. An amount equal to the direct costs for Contractor's labor, materials, and equipment for Contractor's General Conditions work associated with Item a. above, as applicable, plus
 - d. An amount equal to Contractor's G&A rate of 5% applied to the sum of Items a., b., and c. above, plus
 - e. The Contractor's fee of 5.5% applied to the Engineer's Final Estimate for such work.
 3. If the work is performed on a unit price basis as directed by the Engineer, Contractor's compensation shall be computed as follows:
 - a. The Subcontractor's direct costs consisting of:
 - i. An amount equal to the direct cost in money of the labor, using the rates established in the task order



- contracts, and materials with a mark up of 15% applicable to the materials, plus
- ii. The cost of any rental equipment required for such work, such equipment to be billed in accordance with the provisions of this Contract, with a mark up of 15%. In no event shall the amount paid to the Subcontractor exceed the Not-to-Exceed amount of his task order, plus
 - b. An amount equal to the direct costs for Contractor's labor, material and equipment for the Contractor's supervision work associated with Item a. above as applicable, plus
 - c. An amount equal to the direct costs for Contractor's labor, materials, and equipment for Contractor's General Conditions work associated with Item a. above, as applicable, plus
 - d. An amount equal to Contractor's G&A rate of 5% applied to the sum of Items a., b., and c. above, plus
 - e. The Contractor's fee of 5.5% applied to the sum of items a., b., c., and d. above."

2.3. Clause 11, Direct Hourly Labor Rate Schedule for Construction Services, is amended by the addition of a new third paragraph as follows:

"Contractor shall have the right to request that additional titles be added to the Authority-approved organization chart for this project and to the Labor Rate Schedule on an on-going basis. Contractor shall submit any such request indicating why the new title is needed and providing supporting documentation showing, e.g., comparability with similarly-skilled titles, salary history, and the like for approval by the Authority."

2.4. Clause 12A, "Contractor's Self-Performed Work" is modified by the deletion of the third paragraph and the substitution of the paragraph shown below to allow the Authority the flexibility to direct the Contractor as it sees fit in the event that agreement on a lump sum for self performed Work cannot be reached. In addition the Clause is modified by the deletion of the last paragraph which reads, "The Contractor will not be permitted to self perform Work other than the Work specified above in this clause. Therefore, the Contractor will not be permitted to submit bids on subcontractor packages." In addition, the clause is modified by an addition to the end of the clause so that the last two paragraphs of the clause are as follows:

"The Contractor's compensation for self performed Work will be a negotiated lump sum amount. In the event that agreement on a lump sum amount for a Work package or a portion of a Work package cannot be reached, the Authority, in its sole discretion, either will direct the Contractor to self perform with compensation to be determined pursuant to Clause 9.B.1(b) or will direct the Contractor to competitively procure the Work package to subcontractors as set forth in the clause entitled "Prequalification and Solicitation of Subcontractors".



Notwithstanding the foregoing, the Authority may permit the Contractor not to perform certain work which is listed as "Contractor's Self Performed Work" and may permit the Contractor to self perform work of a type not listed as "Contractor's Self Performed Work". In no event will the Contractor be permitted to submit bids on subcontractor packages."

2.5. Clause 15, "Contractor's Indirect Costs", is deleted in its entirety with no substitution thereof.

2.6. Clause 16, "Contractor' Fee for Pre-GMP Work," is modified consistent with the change allowing work packages to consist of both self-performed and subcontracted work by the insertion of the words "and/or" in lieu of "or" as shown below:

"The Contractor's fee for Work ordered by the Authority prior to the execution of the GMP Amendment represents the Contractor's fee for Work packages consisting of Contractor's self performed and/or subcontracted work, and associated Contractor supervision and Contractor general conditions work. The Engineer's Initial Estimate, which will be finalized prior to subcontractor bidding, commencement of negotiations of the lump sum amount for Contractor's self performed work, or commencement of negotiations of the lump sum amount for Work packages containing both self performed and subcontracted work will include estimates for the subcontracted work and/or Contractor's self performed work or for Work packages containing both self performed and subcontracted work, for the Work package as a whole, Contractor's supervision work and Contractor's general conditions work. The Contractor's fee and anticipated indirect costs will be computed by the Engineer based on information furnished by the Contractor in the clause entitled "General Contracting Services Compensation". The Contractor's Pre-GMP Fee shall be computed by multiplying the Contractor's Pre-GMP fee percentage by the estimated value for the total of the subcontracted and/or self performed work, Contractor's supervision work and the Contractor's general conditions work, such estimated value to be agreed upon between the Engineer and the Contractor. If such agreement on the estimated value of the total of the subcontracted and/or Contractor's self performed work, Contractor's supervision work and Contractor general conditions work is not reached, the Contractor's Pre-GMP fee shall be computed by multiplying the Contractor's Pre-GMP fee percentage by the Engineer's Final Estimate for the total of the subcontracted and/or Contractor's self performed work, Contractor supervision work and Contractor general conditions work."

2.7. Clause 17, "Contractor' Fee for Post-GMP Work," is modified consistent with the change allowing work packages to consist of both self-performed and subcontracted work by the insertion of the words "and/or" in lieu of "or" as shown below:

"The Contractor's fee for Work ordered by the Authority after the execution of the GMP Amendment represents the Contractor's fee for Work packages consisting of subcontracted and/or Contractor's self performed work, and associated Contractor supervision and Contractor general conditions work. The Engineer's Initial Estimate, which will be finalized prior to subcontractor bidding,



commencement of negotiations of the lump sum amount for Contractor's self performed work or for packages involving both self performed and subcontracted work, or commencement of negotiations of the lump sum for Work packages containing both self performed and subcontracted Work will include estimates for the subcontracted and/or Contractor's self performed work, or for Work packages containing both subcontracted and self performed work, for the Work as a whole, Contractor's supervision work and Contractor's general conditions work. The Contractor's fee and anticipated indirect cost will be computed by the Engineer based on information furnished by the Contractor in the clause entitled "General Contracting Services Compensation". The Contractor's Post-GMP Fee shall be computed by multiplying the Contractor's Post-GMP fee percentage by the estimated value for the total of the subcontracted and/or Contractor's self performed work, Contractor's supervision work and Contractor's general conditions work, such estimated value to be agreed upon between the Engineer and the Contractor. If such agreement on the estimated value of the total of the subcontracted and/or Contractor's self performed work, Contractor's supervision work and Contractor's general conditions work is not reached, the Contractor's Post-GMP fee shall be computed by multiplying the Contractor's Post-GMP fee percentage by the Engineer's Final Estimate for the total of the subcontracted and/or Contractor's self performed work, Contractor supervision work, and Contractor general conditions work."

2.8. Clause A.1.a.(iii) of Clause 19, "Cost Reimbursement Work" is modified by the deletion of clause (ii), the deletion of the "a." after (iii) and the words "or b. indirect costs pursuant to the clause entitled "Contractor's Indirect Costs".", and the addition of a new second paragraph in clause a so that Clause A.1.a. reads as follows:

"a. As used in this numbered clause "labor" means on site labor necessarily performed at the construction site by the foremen, surveyors, laborers, mechanics, and other employees directly employed at the construction site by the Contractor and "cost of labor" means the direct wages paid and received by such employees engaged in operations under this Contract plus a proper proportion of (i) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligations upon the basis of such wages and (ii) taxes and unemployment insurance actually paid by the employer pursuant to law upon the basis of such wages

AND

Wages and salaries (including overtime approved by the Engineer for personnel classified as non-exempt in the payroll records of the relevant joint venture partner) plus fringe and statutory charges and employment benefits for personnel described in Clause 11, "Direct Hourly Labor Rate Schedule for Construction Services", and dedicated full time to the project and located at or proximate to the construction site. For any such personnel who devote at least forty (40) hours to the project during the payroll week, the Authority shall pay to Contractor an amount equal to the weekly salary paid to such personnel. For the person who devotes less than forty (40) hours to the project during the payroll week, the Authority shall pay to Contractor an amount equal to one-fortieth (1/40) of the weekly salary paid to such person multiplied by the number of hours worked on



the project. Benefits include those of any kind and nature that are not part of salary. Included are, without limitation, payroll taxes, medicare, employee insurance (including health and dental care, life and disability insurance) and employee incentives (including bonuses, retirement plan, tuition reimbursement and training courses) actually received by the employee and any other indirect costs defined and computed pursuant to the Federal Acquisition Regulation 48 CFR Part 31 exclusive of any indirect costs paid to the Contractor as part of the G&A rate. The indirect cost rate (exclusive of indirect costs paid to Contractor as part of the G&A rate) applied to a given employee will be the rate of the joint venture partner that employs such employee.”

2.9. In addition, Clause A.2 of Clause 19, “Cost Reimbursement Work”, is modified to provide that contracts under \$100,000 do not require advance approval of the Engineer so that clause A.2 reads as follows:

“2. In the case of permanent, temporary or consumable materials necessary for performance of Work required hereunder, an amount equal to the direct amounts paid by the Contractor for such material (less salvage value of temporary materials) and any purchased tools and purchased equipment as provided in the immediately following sentence; such salvage value shall be determined by the Engineer at the conclusion of the Work plus the reasonable cost of inspection, testing, transportation, storage and handling of such materials all in strict conformity with purchase orders which require, if the total cost is greater than \$100,000, advance approval in writing by the Engineer.”

2.10. The text of Clause 20, “Prequalification and Solicitation of Subcontractors”, is deleted and in lieu thereof, the following is inserted:

“A. The LMRO Third Party Contracting Requirements are deleted from this Contract. Contractor shall conduct its procurement process in accordance with the following:

B. The Contractor shall prepare and submit Standard Operating Procedures for the Procurement of Subcontractors and Suppliers for the Authority’s review and approval. The procedures will provide, among other things, for the following:

1. The Contractor will publicly advertise on an on-going basis to develop a list of pre-qualified subcontractors. Contractor also may advertise individual procurements to add to the list of pre-qualified subcontractors. The Authority will approve the Contractor’s prequalification process and reserves the right to review and, if appropriate, veto any subcontractor pre-qualified by the Contractor. As long as there is active contracting occurring, the Contractor will continuously qualify subcontractors. The Contractor need not accelerate or truncate the prequalification process to accommodate a potential offeror who submits a firm for approval before or during a solicitation period.



2. Contractor shall comply with all requirements of the FTA Construction Attachment appended as Appendix G hereto and incorporated as if fully set forth herein.
3. Potential subcontractors shall submit qualification questionnaires providing information about their technical and financial capacity to perform the work and for subcontractors doing work expected to exceed \$100,000, the certification regarding lobbying set for in paragraph 5, "Certification – Lobbying Restrictions – Contracts Exceeding \$100,000"; and for subcontractors doing work expected to exceed \$25,000, the certification set forth in paragraph 12, "Certification – Debarment and Suspension – Contracts Exceeding \$25,000" of the "FTA Construction Attachment" at Appendix G.
4. The prequalification process for Contractor self-performed work will provide:
 - a. As specified in the clause entitled "Contractor's Self-Performed Work", the Contractor shall demonstrate, both prior to the Authority's acceptance of its Proposal and at the time that the Director orders Contractor to perform such Work, that it is qualified to perform the Work described in the Work package.
5. Contractor shall conduct procurements in a manner providing for full and open competition as defined herein. Contractor shall adhere to the highest ethical standards in its procurement process and shall assure that no one engaged in the award and administration of contracts shall participate in the selection, award, or administration of a contract if that person has a conflict of interest, real or apparent.
6. Contractor shall solicit for subcontractors as follows: the Contractor shall follow the methods of procurement set forth below for all Work with the exception of Contractor general conditions Work and any other Contractor self-performed Work listed in the clause entitled "Contractor's Self-Performed Work" unless otherwise directed by the Authority.
 - a. Public advertising shall be conducted as follows:
 - Contractor shall advertise as set forth in clause 20.B.1 above to seek subcontractors for prequalification.
 - Contractor shall conduct pre-bid conferences as necessary.
 - b. Contractor may make purchases below \$2,500 without competition, provided that the price is fair and reasonable.
 - c. Contractor shall seek informal quotes for purchases between \$2,500 and \$100,000. Advertising is not required. Quotes may be oral or written.
 - d. Contractor shall use the sealed bid or Request for Proposals (negotiated procurement) method for purchases above \$100,000. Contractor may solicit from potential offerors on the pre-qualified list or may advertise specific procurements to seek additional offerors.



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- e. The Contractor shall attempt to obtain a minimum of three offers for purchases above \$2,500. If fewer than three offers are received, the Contractor shall determine the reason by surveying potential offerors and shall recommend a course of action to the Authority. If directed by the Authority, the Contractor shall reject the offer(s) and follow a procedure agreed upon with the Authority, which might include re-solicitation of the work or the Contractor's self-performance of the work.
- f. Sealed bids and competitive proposals will be opened at an opening conducted by Contractor's staff and attended by representatives of the Authority.
- g. The Contractor shall justify non-competitive procurements in accordance with the following criteria except to the extent provided in paragraph h. below:
 - i. Competitive procurement is infeasible and:
 - 1. The item is available only from a single source;
 - 2. The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;
 - 3. The Authority advises that the FTA has authorized noncompetitive negotiations; or
 - 4. After solicitation of a number of sources, competition is determined inadequate.
- h. Where the Contractor finds it necessary to conduct a non-competitive procurement that cannot be justified in accordance with the criteria set forth in the above paragraph, it may do so where the Authority finds that such non-competitive procurement is necessary to allow for unplanned or unforeseen circumstances where schedule adherence is at risk and the need for the work will not permit a competitive procurement. In such instances, the Contractor shall submit a recommendation to the Authority demonstrating that such non-competitive procurement is necessary in accordance with the foregoing. In no event shall any contract awards made pursuant to this clause exceed a cumulative total of \$10,000,000.
- i. For any non-competitive procurement, the Contractor shall submit a justification to the Authority for approval. Where possible, the Contractor shall attempt to obtain competitive offers for such procurements. Such procurements under \$100,000 may be approved retroactively.
- j. Where work is highly technical and presents a particular risk to the successful completion of the project, the Contractor may restrict the pool of competitors by asking only select firms on the pre-qualified list to participate in the solicitation. The Contractor shall exercise its discretion



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- in choosing such firms. Nothing herein shall relieve the Contractor of the obligations set forth in clause 9.B.5.e.CK above.
- k. Contractor will state the award criteria in each solicitation above \$100,000. For Requests for Proposals, Contractor will indicate the relative importance of the evaluation criteria. Contractor will issue addenda setting forth changes to the solicitation contract requirements or specifications to all potential offerors.
 - l. Contractor shall ensure that awards are made only to responsible contractors. Contractor will supply names of potential subcontractors to the Port Authority for vetting addressing integrity concerns.
 - m. Contractor may use the type of contract best suited to the work, e.g., fixed price, cost reimbursement, time and materials, task order (indefinite delivery/indefinite quantity), subject to the following provisions: Contractor shall use time and materials only after it has determined that no other kind of contract is suitable and only if the contract contains a not to exceed ceiling price that the subcontractor may not exceed except at its own risk. Contractor shall use task order contracts only pursuant to a plan for their use approved by the Port Authority. Contractor may use cost reimbursement contracts only with the prior written approval of the Port Authority. Contractor shall not use the cost plus percentage of cost contracting method.
 - n. Contractor shall include in its subcontracts all clauses that it is required by this Contract or otherwise to flow down to particular subcontractors.
 - o. Contractor shall prepare an award recommendation memo for each contract and shall place such memo in the contract file. Contractor shall summarize the procurement process and justify its recommendation explaining the reasons for the selection with reference to the award criteria. Each award recommendation shall include a finding that the Contractor finds the proposed price fair and reasonable, using price or cost analysis as appropriate. For awards above \$100,000 where the contract is not part of a Work package including both subcontracted and self-performed Work, Contractor shall submit the award recommendation memo to the Authority for its advance concurrence. For awards where the contract is part of a Work package including both subcontracted and self-performed Work where a lump sum price has been agreed, Contractor is not required to submit an award recommendation memo to the Authority.



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- p. Contractor shall prepare an independent cost estimate before receiving bids or proposals in connection with every contract action. Contractor will analyze proposed prices for every contract action as appropriate to provide assurances to the Port Authority that the prices are fair and reasonable.
 - q. Contractor shall document the procurement process.
 - r. The Contractor shall incorporate the combined goal for MBE and WBE participation.
 - s. Notwithstanding the foregoing, the following will apply to material procurements required in connection with self-performed work as to which a lump sum price has been negotiated: Contractor may procure such materials in any way it deems appropriate.
 - t. Contractor shall maintain a contract administration system sufficient to assure that its subcontractors are performing in accordance with the terms of their contracts.
 - u. In any specifications prepared by Contractor or anyone acting on its behalf, Contractor shall assure that the specifications do not refer to brand name only unless there is an adequate sole source justification. Otherwise, such specifications must allow "an equal" product to be offered and must list its salient characteristics.
 - v. The Contractor may procure performance and payment bonds for subcontracts \$300,000 and over or may direct such subcontractors to procure such bonds. The Contractor may upon approval of the Engineer procure performance and payment bonds for material supply contracts \$300,000 and over or may direct such material suppliers to procure such bonds. The Authority shall reimburse the costs of such bonds.
7. In accordance with the provisions of the clause entitled "Assignments and Subcontracts", the Contractor shall obtain the prior written approval of the Authority for each subcontract the Contractor desires to enter into, including the subcontractor and the terms of the subcontract. In the event of a claim arising under or related to a Subcontract approved by the Authority, the Authority shall affirmatively consider the fact that it approved the provisions of the Subcontract giving rise to the claim in its analysis, determination and decision on the merits of such a claim. Notwithstanding the foregoing, where a subcontract is part of a Work package containing both self-performed and subcontracted Work where a lump sum for such Work package has been agreed, there is no requirement for Contractor to obtain the Authority's approval of the terms of the subcontract.
8. The Authority will not permit the Contractor to assign or delegate any of his responsibilities as a general contractor without the express written approval of the Authority.



2.11. Clause 22, "Compensation for Extra Work", is modified to provide for a mark-up where Extra Work is performed by a subcontractor; to provide that subcontractors must start Extra Work immediately upon proper direction even where there is no agreement on a lump sum; to delete the references to Contractor's Indirect Costs; and to provide for the intended application of the G&A fee so that paragraphs B.1. and B.2 read as follows and new paragraphs B.3., B.4., and B.5 are included as set forth below:

"1. In the case of Extra Work performed by Contractor personally ordered prior to the execution of the GMP Amendment, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus such rental for equipment (other than small tools) required for such Extra Work as computed in accordance with the clause entitled "Computation of Rental for Construction Equipment", plus Contractor's fixed G&A rate as set forth in the clause entitled "Contractor's G&A" applied to the direct cost in money for labor, materials, and equipment for such Work, plus the Contractor's fee percentage inserted in item 5(i) of the clause entitled "General Contracting Services Compensation" or item (i) of clause 10, entitled "Compensation for Performance of Optional Work" as applicable, applied to the Authority's Engineer's Final Estimate for such Work in accordance with the clause entitled "Contractor's Fee for Pre-GMP Work".

2. In the case of Extra Work performed by the Contractor personally ordered after the execution of the GMP Amendment, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus such rental for equipment (other than small tools) required for such Extra Work as computed in accordance with the clause entitled "Computation of Rental for Construction Equipment", plus the Contractor's fixed G&A rate as set forth in the clause entitled "Contractor's G&A" applied to the direct cost in money for labor, materials, and equipment for such Work, plus a reasonable Contractor's Fee percentage as inserted in item 5(i) and 5(ii) of clause 10, entitled "Compensation for Performance of Optional Work" as applicable, applied to the Authority's Engineer's Final Estimate for such Work in accordance with the clause entitled "Contractor's Fee for Post-GMP Work".

3. In the case of Extra Work performed by a subcontractor ordered prior to the execution of the GMP Amendment, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus such rental for equipment (other than small tools) required for such Extra Work, plus fifteen percent (15%) applied to the Engineer's Final Estimate for the direct costs for labor, materials, and equipment for such Work, plus Contractor's fee of 5% applied to the Engineer's Final Estimate for such Work.

4. In the case of Extra Work performed by a subcontractor ordered after the execution of the GMP Amendment, an amount equal to the direct cost in money of the labor and materials required for such Extra Work,



plus such rental for equipment (other than small tools) required for such Extra Work, plus fifteen percent (15%) applied to the Engineer's Final Estimate for the direct costs for labor, materials, and equipment for such Work, plus Contractor's fee of 5% applied to the Engineer's Final Estimate for such Work.

5. Contractor shall require subcontractors to perform Extra Work where there is no agreement on a lump sum price immediately upon proper direction to do so. Contractor shall include such provision in all subcontracts."

2.12. Clause 23, "Compensation for Emergency Delays", is modified by the deletion of "1" in clause (a) and the deletion of the words "or 2. indirect costs pursuant to clause entitled "Contractor's Indirect Costs" so that the first paragraph of Clause 23 now reads as follows:

"If during work ordered prior to the execution of the GMP Amendment, the Contractor is specifically directed by the Engineer to suspend his operations as stipulated in the clause of the Specifications entitled "Conditions and Precautions for Work Performed Outside of PATH Operations Area", "PATH Operations and Conditions" and "Transit Operations" or if the Contractor is specifically directed not to start his operations at a time when operations are permitted to start as stipulated in such Section(s), and if solely because of such suspension or direction not to start any of the Contractor's or subcontractor's employees or equipment then engaged in or about to start such Work are necessarily kept idle at the construction site, during the hours when they would otherwise be engaged in the performance of the Work, then the Contractor's compensation shall be increased by an amount equal to the direct salaries and wages in amounts approved by the Engineer which the employer is required to pay and actually pays to such employees for the period or periods of such idleness, plus a proper proportion of (a) fringe and statutory charges, employment benefits and indirects for non-exempt personnel, as described in Clause 19.A.1.a, and (b) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligations upon the basis of such salaries and wages, and in addition thereto such rental as the Engineer deems reasonable for such equipment during the period or periods of such idleness. The rental for idle equipment shall be computed by the Engineer in accordance with the provisions of the clause of the Form of Contract entitled "Idle Salaried Workers and Equipment". All such costs shall be marked up by the Contractor's G&A rate pursuant to the clause entitled "Contractor's G&A"."

2.13. A new clause 24A, Off-Site Storage of Materials, is inserted as follows:

"If approved by the Engineer, monthly advances to the Contractor may include an amount not to exceed 85% of the material value of material stored off-site, as determined by the Engineer, pending incorporation in the permanent construction provided that the following conditions are met:



To be eligible for partial payment, materials must meet all of the following conditions:

Have a minimum material cost of two hundred fifty thousand dollars (\$250,000.00);

Be materials that will be incorporated into permanent work;

Be in a condition that is ready for on-site installation without further fabrication or processing; such warehouse must be located in the continental United States unless otherwise approved by the Engineer;

Be stored in a bonded warehouse considering special storage requirements for the materials; All items must be stored in a manner consistent with the manufacturer's recommendations in order to ensure that equipment and materials are in no way damaged or impaired during the storage period and that all manufacturers' warranties remain unimpaired;

Be delivered and stored off-site in a manner consistent with a plan submitted by Contractor and approved by the Engineer. Such plan shall include the name and location of the bonded warehouse, a description of the conditions of storage, any plans for inspection and testing, and a description of all fees associated with storage, inspection, maintenance, testing, moving, and any other kinds of expenses associated with off-site storage. In approving such plan, the Engineer will advise Contractor of any requirements for the Engineer's presence during the movement of items to or from storage and the plan will be considered to include such requirements;

Be materials that will be stored for a minimum of 60 days;

All material stored at an approved off-site location shall be individually marked and identified in a conspicuous manner "Property of the Port Authority of New York and New Jersey – Contract WTC-284.458GC";

Contractor shall arrange for the Engineer to have access to the site for inspection of material stored as requested;

The Contractor shall submit to the Engineer a warehouse receipt for the items stored. Such receipt shall be in the name of the Authority and shall be in a form approved by the Authority;

The Contractor shall have risk of loss for any materials stored off-site until their acceptance by the Authority at the Project site.

As a prerequisite to making any payments under this clause, the Contractor shall furnish whatever documents evidencing transfer of title to materials to the Authority that the Engineer requires, including bills of sale and affidavits of title in forms acceptable to the Engineer.

In light of the period of storage, there will be no retention made from the 85% of the material cost paid in advance of incorporation of the materials into the permanent construction.

The making of partial payments shall not be deemed to be a final acceptance of materials, nor shall it relieve Contractor of responsibility for such materials.

Notwithstanding any provision hereof to the contrary, the warranty, if any, for any items stored shall not commence until the Authority's acceptance of the item. Any use for



testing, start-up or beneficial use prior to the acceptance date shall not constitute warranty start-up. Contractor shall maintain any item used in connection with beneficial use prior to the warranty start date as if the item were under warranty during that period.

In any subcontract where off-site storage is necessary, Contractor shall provide for such storage in accordance with the approved plan through the scheduled on-site delivery date. Contractor also shall provide that such off-site storage shall continue past such date as may be needed and will obtain unit pricing for such storage in six-month units to allow for such extension.”

2.14. A new clause 24B, Special Advance Payment, is added as follows:

Within 5 days after execution of this Modification Agreement No. 1 or 5 days of approval by the FTA, whichever is later, the Authority shall make a payment of \$25,000,000 to the Contractor. Contractor shall repay this amount to the Authority beginning one year from the date of payment of such amount at the rate of 5% of \$25,000,000 per month. During such time as the sum is not yet repaid, the Authority shall pay Contractor amounts due and owing in accordance with the terms of the Contract except that if at any time Contractor has less than \$25,000,000 (or less to the extent that Contractor has repaid the \$25,000,000) of incurred cost, the Authority shall not be required to make any payments then owing to the extent that such incurred cost is less than such threshold.

2.15. Clause B.2. of Clause 27, “Construction Contingency” is modified by the deletion of references to Contractor’s Indirect Costs and a correction to the application of G&A rate and the Fee so that the clause reads:

“2. If such agreement on compensation is not made, and Contingency Work be performed, the Contractor’s compensation shall be increased by the following amounts an such amounts only:

An amount equal to the direct cost in money of the labor and materials required for such Contingency Work, plus such rental for equipment (other than small tools) required for such Contingency Work as computed in accordance with the clause entitled “Computation of Rental for Construction Equipment”; plus the Contractor’s fixed G&A rate as set forth in the clause entitled “Contractor’s G&A” applied to the direct cost in money for labor, materials, and equipment for such Work, plus a Contractor’s Fee not to exceed the lesser of the two Contractor’s Fees as inserted in item 5(i) and 5(ii) of clause entitled “General Contracting Services Compensation” and applied to the Authority’s Engineer’s Final Estimate for such Work in accordance with the clause entitled “Contractor’s Fee for Post-GMP Work”.”

2.16. Clause 43, “Assignments and Subcontracts: is modified by the deletion of the last sentence from the first paragraph. The deleted sentence is as follows: “Approval of a subcontractor may be conditioned on (among other things) the furnishing, without expense to the Authority, of a surety bond guaranteeing payment by the subcontractor of



claims of materialmen, subcontractors, workmen and other third persons arising out of the subcontractor's performance of the Work." The first paragraph of the clause now reads as follows:

"Any assignment or other transfer by the Contractor of this Contract or any part hereof or of any of his rights hereunder or of any monies due or to become due hereunder and any delegation of any of his duties hereunder without the express consent in writing of the Authority shall be void and of no effect as to the Authority, provided, however, that the Contractor may subcontract portions of the Work to such persons as the Engineer may, from time to time, expressly approve in writing. For each individual, partnership or corporation proposed by the Contractor as a subcontractor, the Contractor shall submit to the Authority a certification or, if a certification cannot be made, a statement by such person, partnership or corporation to the same effect as the certification or statement required from the Contractor pursuant to the clauses of the "Information For Proposers" entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc.; Disclosure of Other Required Information" and "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee". Notwithstanding the aforementioned, for any subcontract or supply contract greater than \$25,000, the Contractor shall obtain certifications and any necessary disclosure forms from all subcontractors and suppliers as set forth in the clause entitled "Ineligible Contractors" in the FTA Construction Attachment, and for any subcontract or supply contract greater than \$100,000, the Contractor shall obtain certifications and any necessary disclosure forms from all subcontractors and suppliers as set forth in the clause entitled "Restrictions on Lobbying" in the FTA Construction Attachment and forward the originals to the Director of Procurement, Procurement Department, Port Authority of New York & New Jersey, One Madison Avenue, 7th Floor New York, New York 10010. All further subcontracting by any subcontractor shall also be subject to such approval of the Engineer."

2.17. Clause 51, "Insurance Procured by the Authority", is modified by the insertion of the following paragraph after the fourth paragraph in numbered clause 3:

"The policy described in 3 above will NOT provide coverage for any workers compensation for the Contractor and/or subcontractors who utilize electricians from the International Brotherhood of Electrical Workers Local Union 3. In such cases, the Contractor and/or subcontractor shall request evidence of the workers' compensation insurance from IBEW Local Union 3 in accordance with the statutory requirements of the State of New York and employer's liability insurance in limits of not less than \$3 million per accident. The Contractor and/or subcontractor shall deliver to the General Manager, Risk Management, The Port Authority of New York and New Jersey, Treasury Department, 225 Park Avenue South, 12th Floor, New York, New York 10003 (Attn: WTC-TH Contract Insurance Review), an original insurance certificate, stating the contract number, from the insurer. A duplicate certificate evidencing the above insurance shall also



be delivered to the Resident Engineer. With regard to insurance required to be procured by the Contractor and/or subcontractor, the Contractor shall deliver the certificate described above at least ten days before the subcontractor commences Work.”

2.18 Clause 5, “Agency for Rental of Construction Equipment”, is modified to provide for the Contractor’s agency for the purchase of materials not incorporated in permanent construction. Accordingly, the text of the clause is deleted and the following is inserted:

**“5. AGENCY FOR RENTAL OF CONSTRUCTION EQUIPMENT
AND PURCHASE OF MATERIALS NOT INCORPORATED
IN PERMANENT CONSTRUCTION**

With respect to the performance of Work in the State of New York:

A. General Provisions

The Contractor further agrees to act as agent of the Authority, subject to the provisions of this numbered clause relating to such agency (i) for the rental of all construction equipment necessary or desirable for or incidental to the performance of the Contract (other than construction equipment owned and also used by the Contractor or owned and also used by any subcontractor) and (ii) for the purchase of materials not to be incorporated in the Permanent Construction but to be used or consumed in the performance of the Contract as provided in the clause in the Form of Contract entitled "Exemption From New York State and New York City Sales Taxes" and, in the exercise of such agency, to assume all the obligations and duties imposed upon him by this Contract. The Contractor may authorize any subcontractor to act as his subagent for rental of such equipment or purchase for use by such subcontractor, subject to all the provisions of this Contract. "Construction equipment" as used in this numbered clause shall include plant.

The Authority will pay the (i) rental charges for said equipment directly to the lessors thereof, and (ii) purchase prices for said materials directly to the vendors thereof but the charges so paid shall be deducted from the compensation payable to the Contractor under the Contract; provided, however, that the Authority will pay such charges, and the Contractor is authorized by the Authority to act as such agent, to the extent only that the charges or prices payable for such rental or purchase, as the case may be, do not exceed the compensation payable to the Contractor under the Contract; and provided further that the Contractor performs all the obligations relating to said agency imposed upon him by this Contract.

The Authority will provide the Contractor with a statement or other documentation to be furnished by him and the subcontractors to such lessors and materialmen who will identify this Contract as the one under which the Contractor is authorized to rent said equipment or purchase said materials and which will identify the site to which delivery must be made. The Contractor shall arrange



for delivery of said equipment or materials directly to the construction site. Payment of the rental charges or purchase prices shall be made by the Authority on the basis of invoices made out to the Authority in which is contained the place of delivery and on which the Contractor has certified by endorsement that such construction equipment or materials is or are being or has or have been used in the performance of the Contract, said invoices to be submitted through the Contractor to the Authority at the time said equipment or materials is used at the construction site. In the event said invoices are not submitted promptly, at the time stated above, but are submitted at a time when, by reason of prior advances and payments to the Contractor or for his account, the amounts still payable to the Contractor in connection with the Contract are insufficient to pay said invoices, then the Authority shall not be liable to the lessors or vendors for any amounts in excess of said amounts still payable to the Contractor which remain in the possession of the Authority.

Notwithstanding the above agency arrangement, the Authority shall not be liable to lessors of construction equipment for any amounts except rental charges based on time of use of such equipment, nor shall the Authority be liable to vendors of construction materials for any amounts except the purchase price thereof, and the Contractor's agency is limited accordingly. All obligations incurred by the Contractor or subcontractors for any other expenses, including repairs and damages for breach of the rental agreement, shall be obligations incurred by the Contractor or subcontractors as principal not as agent of the Authority. Moreover, as between the Authority and the Contractor, the Contractor shall be responsible for all amounts due to lessors of construction equipment and vendors of construction materials notwithstanding the above agency arrangement.

The Contractor shall indemnify the Authority and the FTA against any claim of any kind whatsoever made against the Authority or the FTA by a lessor of construction equipment or vendor of construction materials, and the Contractor assumes the risk of all claims against him by any lessor of construction equipment or vendor of construction materials, including in both cases, claims in connection with a subcontractor.

The agency provided for under this numbered clause shall not relieve the Contractor of any of his duties and obligations elsewhere provided for under this Contract.

B. Option Not to Act as Agent

Notwithstanding the provisions of A above, the Contractor shall have the right to elect not to act as agent of the Authority for the (i) rental of any particular item or items of said construction equipment; or (ii) purchase of any construction materials, in which event, with regard to any such rentals or purchases by the Contractor as principal and not agent, the provisions of A of this numbered clause shall be inapplicable as well as those provisions of the clause of the Form of Contract entitled "Exemption From New York State and New York City Sales Taxes", which relate to rental of construction



equipment and purchase of materials not incorporated in the Permanent Construction.”

2.19. Clause 6, “Exemption from New York State and New York City Sales Tax”, is modified to provide for such exemption for materials not incorporated in the permanent construction. The text of the current clause is deleted and in lieu thereof, the following is inserted:

“6. EXEMPTION FROM NEW YORK STATE AND NEW YORK CITY SALES TAXES

A. Materials Incorporated in Permanent Construction

The attention of the Contractor is directed to the following provision of the New York State and New York City Sales and Compensating Use Tax Act:

“§1115. Exemptions from sales and use taxes. (a) Receipts from the following shall be exempt from the tax on retail sales imposed under subdivision (a) of section eleven hundred five and the compensating use tax imposed under section eleven hundred ten:

(15) Tangible personal property sold to a contractor, subcontractor or repairman for use in (i) erecting a structure or building (A) of an organization described in subdivision (a) of section eleven hundred sixteen, * * * or (ii) adding to, altering or improving real property, property or land (A) of such an organization, * * * as the terms real property, property or land are defined in the real property tax law; provided, however, no exemption shall exist under this paragraph unless such tangible personal property is to become an integral component part of such structure; building or real property.”

The Authority is an exempt organization of the type described in subdivision (a) of section eleven hundred sixteen.

In view of the foregoing, the Contractor should not include in his price(s) any amounts for New York State and New York City sales and compensating use taxes on such tangible personal property.

If (i) any claim is made against the Contractor by the State of New York or City of New York for such sales or compensating use taxes, or (ii) any claim is made against the Contractor by a materialman or a subcontractor on account of a claim against such materialman or subcontractor by the State of New York or City of New York for such sales or compensating use taxes, then the Authority will



reimburse the Contractor in an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that:

- 1) the Contractor, or the Contractor and any such subcontractor, as the case may be, have complied with such rules and regulations as may have been promulgated relating to the claiming of the exemption from such taxes and have filed all the forms and certificates required by the applicable laws, rules and regulations in connection therewith;
- 2) the Authority is afforded the opportunity before any payment of tax is made, to contest said claim in the manner and to the extent that the Authority may choose and to settle or satisfy said claim and such attorney as the Authority may designate is authorized to act for the purpose of contesting, settling and satisfying said claim; and
- 3) the Contractor, or the Contractor and any such subcontractor, as the case may be, give immediate notice to the Authority of any such claim; cooperate with the Authority and its designated attorney in contesting said claim and furnish promptly to the Authority and said attorney all information and documents necessary or convenient for contesting said claim, said information and documents to be preserved for six years after the date of Final Payment or longer if such a claim is pending or threatened at the end of such six years.

If the Authority elects to contest any such claim, it will bear the expense of such contest.

B. Rental of Construction Equipment

The rental by the Contractor or a subcontractor of construction equipment not owned by the Contractor or a subcontractor for use in the performance of the Contract will also not be subject to New York State or New York City sales or compensating use taxes, provided that:

- 1) the Contractor's and any subcontractor's use of construction equipment rented from others, and any agreement for such rental, is based upon the agency arrangement provided for in the clause hereof entitled "Agency for Rental of Construction Equipment and Purchase of Materials Not Incorporated in Permanent Construction" and the Contractor and subcontractors have performed all their obligations under said clause;
- 2) delivery of said equipment is to the construction site;



- 3) the Contractor or subcontractor has furnished to the lessor the statement or other documentation from the Authority identifying this Contract as the one under which the Contractor or subcontractor has been authorized to rent said equipment and identifying the construction site to which delivery must be made;
- 4) the invoice for said equipment is made out to the Authority and prescribes the place of delivery; and
- 5) the amounts payable for rental of said equipment do not exceed the amount of compensation payable in connection with the Work.

In view of the above, the Contractor should not include in his price(s) any amounts for New York State and New York City sales and compensating use taxes on such rentals of equipment.

If (i) any claim is made against the Contractor by the State of New York or the City of New York for sales or compensating use taxes on such rental of construction equipment or (ii) any claim is made against the Contractor by a materialman, lessor or a subcontractor on account of a claim against such materialman, lessor or subcontractor by the State of New York or the City of New York for sales or compensating use taxes on rental of said equipment, then the Authority will reimburse the Contractor in an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that the provisos listed above in this numbered clause as A.1 through A.3 and B.1 through B.5 are complied with.

If the Authority elects to contest any such claim, it will bear the expense of such contest.

C. Materials Not Incorporated in Permanent Construction

The purchase by the Contractor or a subcontractor of materials not incorporated in the Permanent Construction, but used or consumed in the performance of the Contract, including but not limited to, tangible personal property for use in (i) maintaining, installing, repairing or servicing tangible personal property or (ii) the Permanent Construction, excluding tools and equipment, and construction supplies or otherwise taxable services used or consumed by the Contractor or

subcontractors at the construction site, excluding tools and equipment, will also



not be subject to New York State or New York City sales or compensating use taxes provided that:

1. the Contractor's and any subcontractor's purchase of materials is based upon the agency arrangement provided for in the clause hereof entitled "Agency for Rental of Construction Equipment And Purchase of Materials Not Incorporated in Permanent Construction" and the Contractor and subcontractors have performed all their obligations under said clause;
2. delivery of said materials is to the construction site;
3. the Contractor or subcontractor has furnished to the vendor the statement or other documentation from the Authority identifying this Contract as the one under which the Contractor or subcontractor has been authorized to purchase said materials and identifying the construction site to which delivery must be made;
4. the invoice for said materials is made out to the Authority and prescribes the place of delivery; and
5. the amounts payable for said, purchase of materials do not exceed the amount of compensation payable in Connection with the Work.

In view of the above, the Contractor should not include in his price(s) any amounts for New York State and New York City sales and compensating use taxes on such purchases of materials. If (i) any claim is made against the Contractor by the State or City of New York for sales or compensating use taxes on such purchases of materials or (ii) any claim is made against the Contractor by a materialman, or a subcontractor on account of a claim against such materialman, or subcontractor by the State or City of New York for sales or compensating use taxes on purchases of said materials, then the Authority will reimburse the Contractor in an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that the provisions listed above in this numbered clause as A.1 through A.3 and C.1 through C.5 are complied with.

If the Authority elects to contest any such claim, it will bear the expense of such contest.”



Article III. MISCELLANEOUS

3.1. Except as provided herein, each of the Agreements remains unchanged and in full force and effect.

3.2. This Modification Agreement may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.



THE PORT AUTHORITY OF NY & NJ

IN WITNESS WHEREOF, the parties hereto have caused this Modification Agreement to be duly executed by their respective duly authorized officers as of the day and year first above written.

PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: Slattery Skanska, Inc.

By: Steve Plite
Name:
Director, WTC Construction

OK FORM
BPN

By: _____
Name:
Title:

By: Andree Rantman
Name:
Director, Procurement

By: Fluor Enterprises, Inc.

By: _____
Name:
Title:

By: Granite Halmar Construction Company, Inc.

By: _____
Name:
Title:

By: Bovis Lend Lease LMB, Inc.

By: James Abadio
Name:
Title: SUP/PIC



THE PORT AUTHORITY OF NY & NJ

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PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: Slattery Skanska, Inc. / SKANSKA USA CIVIL NORTH EAST

By: [Signature]
Name: GRAY W. WINSPER
Title: Sr. Vice President

By: [Signature]

Name:
Director, WTC Construction

By: _____

Name:
Director, Procurement

By: Fluor Enterprises, Inc.

By: _____
Name:
Title:

By: Granite Halmar Construction Company, Inc.

By: _____
Name:
Title:

By: Bovis Lend Lease LMB, Inc.

By: _____
Name:
Title:



THE PORT AUTHORITY OF NY & NJ

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PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: Slattery Skanska, Inc.

By: Steve Plite
Name:
Director, WTC Construction

By: _____
Name:
Title:

By: _____
Name:
Director, Procurement

By: Fluor Enterprises, Inc.

By: Robert Prieto
Name: ROBERT PRIETO
Title: SENIOR VICE PRESIDENT

By: Granite Halmar Construction Company, Inc.

By: _____
Name:
Title:

By: Bovis Lend Lease LMB, Inc.

By: _____
Name:
Title:



THE PORT AUTHORITY OF NY & NJ

IN WITNESS WHEREOF, the parties hereto have caused this Modification Agreement to be duly executed by their respective duly authorized officers as of the day and year first above written.

PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: Slattery Skanska, Inc.

By: Steven Plate
Name:
Director, WTC Construction

By: _____
Name:
Title:

By: _____
Name:
Director, Procurement

By: Fluor Enterprises, Inc.

By: _____
Name:
Title:

By: Granite Halmar Construction Company, Inc. ; AKA GRANITE CONSTRUCTION NORTH EAST

By: Eugene F. Kelley
Name: Eugene F. Kelley
Title: Regional Manager

By: Bovis Lend Lease LMB, Inc.

By: _____
Name:
Title:



THE PORT AUTHORITY OF NY & NJ
THE PORT AUTHORITY OF NEW YORK & NEW JERSEY
DOWNTOWN RESTORATION PROGRAM
WORLD TRADE CENTER TRANSPORTATION HUB
CONSTRUCTION MANAGEMENT
SERVICES/GENERAL CONTRACTING SERVICES

CONTRACT WTC-284.458 CM

AND

CONTRACT WTC-284-458 GC

CONTRACT MODIFICATION AGREEMENT NO. 2

WHEREAS, The Port Authority of New York and New Jersey (hereinafter called the "Authority") and Phoenix Constructors, JV (hereinafter called the "Contractor"), have heretofore entered into Contracts in writing known as Contract WTC-284.458CM and Contract WTC-284.458GC (hereinafter called the "Contracts"); and

WHEREAS, the parties hereto desire to amend said Contracts in certain respects:

NOW THEREFORE, in consideration of the mutual covenants and agreements hereinafter contained, the parties mutually agree the said Contract shall be deemed amended effective as of January 23, 2006 as follows:

For the purpose of convenience and ease of location of changes effected by this Modification Agreement No. 2 and for said purposes only, all references herein to Proposal, Form of Contract, Specifications, Contract Drawings, Pages, Paragraphs, Clauses, and Lines are to conformed copies of Contract WTC-284.458CM and WTC-284.458GC as modified by Contract Modification Agreement No. 1 and heretofore distributed by the Authority.

Article I. Contract WTC-284.458 CM – Construction Management Services

The Construction Management Agreement shall be amended as follows:

1. Clause 7, first sentence, on page 3 is modified as follows:

After the "Million", insert the following: ",which includes a fixed fee of \$579,096 as provided in Attachment 1 to Exhibit B"

2. Attachment 1 to Exhibit B, the second to last line, titled "Fee (Profit)" is modified as follows:

After the dollar value of "579,096" insert the following: "*".



THE PORT AUTHORITY OF NY & NJ

3. Attachment 1 to Exhibit B, below the chart is modified as follows:

Immediately below the chart insert “* This \$579, 096 amount is a fixed fee for the performance of all the Consultant’s services under this Agreement.”

Except as provided herein, each of the Agreements remains unchanged and in full force and effect.

This Modification Agreement may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Modification Agreement to be duly executed by their respective duly authorized officers as of the day and year first above written.

PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: Slattery Skanska, Inc.

By: [Signature]

By: [Signature]
Name: Michael Cobelli
Title: SVP-GM

JP
RJC
Name: _____
Director, WTC Construction

By: [Signature]
Name: _____
Director, Procurement

By: Fluor Enterprises, Inc.

By: [Signature]
Name: Herbert Morgan
Title: Vice President

By: Granite Hammar Construction Company, Inc.

By: [Signature]
Name: Eugene F. Kelley
Title: Regional Mgr

By: Bovis Lend Lease LMB, Inc.

By: [Signature]
Name: _____
Title: SVP/PIC

**THE PORT AUTHORITY OF NEW YORK & NEW JERSEY
DOWNTOWN RESTORATION PROGRAM
WORLD TRADE CENTER TRANSPORTATION HUB
CONSTRUCTION MANAGEMENT SERVICES**

CONTRACT WTC-284.458 CM

CONTRACT MODIFICATION AGREEMENT NO. 3

WHEREAS, The Port Authority of New York and New Jersey (hereinafter called the "Authority") and Phoenix Constructors, JV (hereinafter called the "Contractor"), have heretofore entered into a Contract in writing known as Contract WTC-284.458CM (hereinafter called the "Contract"); and

WHEREAS, the parties hereto desire to amend said Contract in certain respects:

NOW THEREFORE, in consideration of the mutual covenants and agreements hereinafter contained, the parties mutually agree as follows:

1. The Contract. For the purpose of convenience and ease of location of changes effected by this Modification Agreement No. 3 and for said purposes only, all references herein to Proposal, Form of Contract, Specifications, Contract Drawings, Pages, Paragraphs, Clauses, and Lines are to the conformed copy of Contract WTC-284.458CM as modified by Contract Modification Agreement No. 1 and 2 heretofore distributed by the Authority.
2. Modification of Contract. Effective as of August 6, 2008, the Contract shall be deemed amended as follows:

In Exhibit B entitled "CONSTRUCTION MANAGERS COMPENSATION" – in the second and third lines of paragraph 1, delete "based on CM/GC furnished offices".

Except as provided herein, the Contract remains unchanged and in full force and effect.

3. Effect of Modification. The parties agree that this Contract Modification No. 3, will permit the Contractor to be reimbursed for approved office rental expenses as an out-of-pocket expense.
4. Payment. The parties agree that within thirty (30) days following the execution and delivery of this document to the Authority, including the Release forming a part hereof, the Authority will pay the Contractor the amount of Three Million, Two Hundred Sixty-Seven Thousand Four Hundred and Eighty-Four Dollars and Eighty-Eight Cents (\$3,267,484.88) as compensation under the Contract.

ADP

5. Release. (a) The undersigned Contractor, for the greater assurance of the Authority, and for and in consideration of paragraphs 1 through 4 above hereby waives and has remised, released, and forever discharged, and by these presents does for itself, its successors, and assigns, remise, waive, and release, and forever discharge the Authority of, and from any and all manner of action and actions, cause and causes of action, suits, debts, agreements, promises, variances, trespasses, damages, judgments, claims, and demands whatsoever at law, or in equity, which against the Authority the said Contractor, its successors and assigns ever had, now have or hereafter can, shall, or may have, for, upon, or by reason of any matter, cause or thing whatsoever from the beginning of the world to the date of delivery of these presents against the Authority, arising out of, by reason of, under or in connection with the said Contract, the Work, Labor, Services, and Materials performed, and furnished thereunder, and every act or neglect of the Authority, relating to, or affecting the said Contract, Work, Labor, Services, and Materials, including all claims whether or not they presently, or could by investigation be known, whether or not they have yet arisen, or been asserted, or have been the subject of notice to the Authority, and whether or not they are in litigation or are under consideration by the Authority or the Engineer under said Contract, and including claims arising out of a Breach of Contract and claims based on claims against the Contractor by other contractors, or by any other third person or entities; provided however, that notwithstanding, the foregoing waiver, and release, the Contractor's rights to the following, but only the following, are specifically reserved, and excepted under, and subject to the provisions of the subject Contract:

- A. A claim not to exceed the amount of Three Hundred Thousand Dollars (\$300,000.00), representing invoices submitted prior to August 6, 2008 for out-of-pocket expenses incurred by the Contractor under the Contract prior to the August 6, 2008 .
- B. A claim not to exceed the amount of Two Hundred Six Thousand One Hundred Six Dollars and Eighty Eight Cents (\$206,106.88), representing invoices submitted after August 6, 2008 for out-of-pocket expenses incurred by the Contractor under the Contract prior to August 6, 2008.

In addition, and notwithstanding the foregoing waiver and release, in the event any third party asserts a claim or commences an action against the Contractor for death, personal injury or property damage arising out of any of the Work, Services or Labor performed or furnished under the Contract, the Contractor reserves the right to make a claim over against the insurance carrier or carriers providing coverage under the Owner Controlled Insurance Policy provided by the Authority under the Contract, subject to the provisions of the Contract.

It is agreed that the Authority does not admit the correctness of any claimed amount set forth in paragraphs A or B above, or the validity of any such claim. Payment on any of the claimed amounts shall be in accordance with the Contract.

It is further agreed by the Contractor that, with respect to the claimed amount set forth in paragraph A above, in the event the Contractor is unable to demonstrate, to the

satisfaction of the Authority, that any portion of such amount is eligible for payment under the terms of the Contract, as amended by this Modification No. 3, the determination of the Authority with respect to such portion shall be final and binding, and the Contractor agrees not to assert any further claim with respect thereto or to institute any action or proceeding, before any court or administrative agency, to recover or collect such portion from the Authority.

(b) It is further agreed by the Contractor that at the time Final Payment under the Contract is made by the Authority, and accepted by the Contractor, the Release set forth in Section 5(a) above shall be, and become, a complete and unconditional Release of all claims under, or in connection with, the Contract by the Contractor against the Authority, including all claims arising before and after the Contractor's acceptance of Final Payment. After the time of Final Payment, if any person whosoever shall make a claim against the Authority for payment for any compensation under the Contract for labor, materials, equipment and services provided by or to the Contractor on account of anything done, or furnished, or to be done, or furnished, in connection with the Contract, then the Contractor shall indemnify the Authority against such claim by such person, and for all reasonable expense incurred by the Authority in the defense, settlement, or satisfaction of such claim, by such person, including expenses of attorneys; provided, however, that the foregoing indemnity shall not apply to the extent that such claim by the Contractor is one which would not have been deemed released under the terms of this Release to the Authority had the Contractor made it against the Authority.

(c) Neither the Release set forth in Section 5(a) above, nor its acceptance by the Authority, shall operate, or be deemed to operate to affect, impair, or diminish the duties, or obligations of the Contractor under, or upon the said Contract, as revised by this document or to release said Contractor from any of said duties, or obligations, or to vary, or affect the provisions of the Contract as so revised. Moreover, except as to the amount set forth in Section 4 hereof, neither this instrument, nor its acceptance by the Authority, shall be construed in any way as an admission by the Authority of the validity of any amounts specified or referred to as claims exceptions to the Release, or any part thereof, or of the validity of the Contractor's rights to any of the specified or referred to claims amounts, or any part thereof, or as a waiver by the Authority of any right to contest such claims amounts, and any such claims amounts shall be subject to all provisions of said Contract.

(d) Nothing contained in the Release set forth in Section 5(a) above, is intended for the benefit of third persons, or entities except, however, that such Release shall be deemed to include equally, the Commissioners, officers, agents, employees, successors, and assigns of the Authority. Such Release may not be changed, or modified, except by, a writing, signed by the party to be charged therewith. Such Release contains the entire agreement between the Contractor and the Authority in connection with the subject matter thereof, and no statement, representation, or promise has induced the Contractor to execute such Release, except as may be expressly included herein. The Contractor represents and warrants to the Authority that it has reviewed the provisions of such Release so that it might request inclusion herein of any statement, representation, or promise which it

desired, or on which it wished to place reliance, and that either every such statement, representation or promise has been included in such Release, or else, if omitted, that the Contractor has expressly relinquished the benefit of any such omitted statement, representation, or promise and is willing to execute this Modification Agreement and accept such Release without claiming reliance thereon, or making any other claims on account of such omission. The Contractor further recognizes that the provisions of this Section 5(c) (though not only such provisions) are essential to the Authority's consent to accept such Release and that without such provisions the Authority would not have accepted such Release.

6. Miscellaneous. This Modification Agreement may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Modification Agreement to be duly executed by their respective duly authorized officers as of the day and year first above written.

PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: Skanska USA/Civil Northeast

By: Richard Cavellaro
Name: Richard Cavellaro
Title: E.V.P.

By: Steve Plite
Name:
Director, WTC Construction

By: Luis D. Valera
Name:
Director, Procurement

By: Fluor Enterprises, Inc.

By: _____
Name:
Title:



By: Granite Construction Northeast

By: _____
Name:
Title:

By: Bovis Lend Lease LMB, Inc.

By: _____
Name:
Title:

JSP

desired, or on which it wished to place reliance, and that either every such statement, representation or promise has been included in such Release, or else, if omitted, that the Contractor has expressly relinquished the benefit of any such omitted statement, representation, or promise and is willing to execute this Modification Agreement and accept such Release without claiming reliance thereon, or making any other claims on account of such omission. The Contractor further recognizes that the provisions of this Section 5(c) (though not only such provisions) are essential to the Authority's consent to accept such Release and that without such provisions the Authority would not have accepted such Release.

6. Miscellaneous. This Modification Agreement may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Modification Agreement to be duly executed by their respective duly authorized officers as of the day and year first above written.

PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: Skanska USA Civil Northeast

JP By: *Steven P. [Signature]*
Name:
Director, WTC Construction

By: _____
Name:
Title:

By: *Giuseppe Valenti*
Name:
Director, Procurement

By: Fluor Enterprises, Inc.

By: *Robert Pareto*
Name: *Robert Pareto*
Title: *Sr. v.p.*



By: Granite Construction Northeast

By: _____
Name:
Title:

By: Bovis Lend Lease LMB, Inc.

By: _____
Name:
Title:

JDP

desired, or on which it wished to place reliance, and that either every such statement, representation or promise has been included in such Release, or else, if omitted, that the Contractor has expressly relinquished the benefit of any such omitted statement, representation, or promise and is willing to execute this Modification Agreement and accept such Release without claiming reliance thereon, or making any other claims on account of such omission. The Contractor further recognizes that the provisions of this Section 5(c) (though not only such provisions) are essential to the Authority's consent to accept such Release and that without such provisions the Authority would not have accepted such Release.

6. Miscellaneous. This Modification Agreement may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Modification Agreement to be duly executed by their respective duly authorized officers as of the day and year first above written.

PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: Skanska USA Civil Northeast

JP

By: Steven Olate

Name:
Director, WTC Construction

By: _____

Name:
Title:

By: Laura O Valente

Name:
Director, Procurement

By: Fluor Enterprises, Inc.



By: _____

Name:
Title:

By: Granite Construction Northeast

By: Michael Donnino
Name: MICHAEL DONNINO
Title: SR. VICE PRESIDENT

By: Bovis Lend Lease LMB, Inc.

By: _____

Name:
Title:

JDP

desired, or on which it wished to place reliance, and that either every such statement, representation or promise has been included in such Release, or else, if omitted, that the Contractor has expressly relinquished the benefit of any such omitted statement, representation, or promise and is willing to execute this Modification Agreement and accept such Release without claiming reliance thereon, or making any other claims on account of such omission. The Contractor further recognizes that the provisions of this Section 5(c) (though not only such provisions) are essential to the Authority's consent to accept such Release and that without such provisions the Authority would not have accepted such Release.

6. Miscellaneous. This Modification Agreement may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Modification Agreement to be duly executed by their respective duly authorized officers as of the day and year first above written.

PHOENIX CONSTRUCTORS, JV

PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: Skanska USA Civil Northeast

JP

By: Steven Plata
Name:
Director, WTC Construction

By: _____
Name:
Title:

By: Lidia D Valente
Name:
Director, Procurement

By: Fluor Enterprises, Inc.



By: _____
Name:
Title:

By: Granite Construction Northeast

By: _____
Name:
Title:

By: Bovis Lend Lease LMB, Inc.

By: James Abadie
Name:
Title: PIC SUP

JP

FINAL Contract Modification and Settlement Agreement No. 4

This Contract Modification No. 4 and Settlement Agreement to Contract WTC-284.458.GC ("Modification and Settlement Agreement") is entered into this 14th day of August, 2009 (the "Execution Date"), and shall be deemed to be effective (the "Effective Date") as of May 4, 2009, as provided for herein by and between the Port Authority of New York and New Jersey (the "Authority") and Phoenix Constructors, JV ("Contractor"), a joint venture consisting of Fluor Enterprises, Inc., Skanska USA Civil Northeast, Inc., Granite Construction Northeast, Inc., and Bovis Lend Lease LMB, Inc. (hereinafter individually "JV Partner" and collectively "JV Partners,"), and when the Authority and Contractor are referred to individually as "Party" and collectively as the "Parties."

Statement of Purpose

The Authority wishes to exercise its rights under Article 34 of the Contract, entitled Authority of the Director, to reduce or eliminate portions of Contractor's Work Scope and to provide for the prompt performance of those portions of the Work that Contractor is to complete. By this Modification and Settlement Agreement, the Authority and Contractor document their agreement to do so, and, consistent with the terms and conditions hereof and the exclusions and reservations of rights contained herein, their settlement and resolution of any and all disputes. Pursuant to the terms set forth herein, the Parties resolve to settle, as of the Execution Date hereof, and as is described more fully herein, all commercial matters, disputes, claims or potential claims and warranty and guarantee issues that the Authority may have against Contractor or the Contractor may have against the Authority regarding the Work and the Contract.

All references to Proposal, Form of Contract, Specifications, Contract Drawings, Pages, Paragraphs, Clauses, and Lines are to the conformed copy of Contract WTC-284.458 GC, as modified by Contract Modifications No. 1, 2, and 3 (collectively the "Contract"). As of the Execution Date, the Contract shall be deemed amended as provided for herein.

Definitions

All capitalized terms not defined herein shall have the same meaning as in the Contract.

“All Work” – The Early and Enabling Works previously performed and yet to be performed by the Contractor, including both “Performed Work” and the “Contractor’s Amended – Continuing Scope of Work,” as each is defined below.

“Performed Work” – The Work and services performed by the Contractor, the Contractor’s Subcontractors and/or Vendors of any tier, any of the Contractor’s Self Perform entities, and/or any Third Parties, whether Extra Work, Lump Sum, T&M, Cost Reimbursable or otherwise, prior to the Effective Date of this Modification.

“Descoped Work” – The Work that has yet to be performed by Contractor and which, by this Modification and Settlement Agreement, is to be eliminated and removed from Contractor’s Scope of Work, inclusive of work yet to be performed under subcontracts and other agreements to be terminated for the Authority’s convenience (the “Terminated Agreements”), or assigned and transferred to the Authority, pursuant to Assignment and Assumption Agreements (the “Assigned Agreements”).

“Contractor’s Amended – Continuing Scope of Work” – The Work remaining to be performed by the Contractor as enumerated and described in Attachment 1, which delineates “Contractor’s Amended - Continuing Scope of Work,” and which, for the sake of clarity, includes continuing Work Packages already commenced and any new Work Packages that Contractor is to perform.

Agreement

NOW, THEREFORE, for and in consideration of the various mutual covenants, promises and undertakings set forth herein, the sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. Payments by the Authority to Contractor

(a) The Authority and Contractor agree that the lump sum amount to be paid by the Authority to Contractor for Work performed under the Contract, as more specifically described and enumerated below in Paragraph 1(b) and Attachment 2, is \$96,169,031, which amount excludes Extra Work and subcontractor/vendor claims which subcontractor/vendor claims, known to Contractor as of May 3, 2009, are identified on Attachment 3, "Subcontractor/Vendor Claims Known to Exist as of May 3, 2009." With respect to changes, changed work and Extra Work performed by Contractor, the Authority will separately process Change Orders for the approval and payment of same, and it agrees to do so in an expeditious, diligent manner in accordance with the Contract. It is agreed that the Authority shall make a good faith effort to resolve and pay all unresolved Extra Work in a reasonable, timely and diligent manner, by no later than September 30, 2009.

(b) The foregoing lump sum amount includes payment for:

- (i) The costs incurred to May 3, 2009 for cost reimbursable work related to General Conditions to the extent that such costs are allowable costs per the Contract including G&A and Pre GMP Fee calculated at the rates provided for in the Contract, net of amounts already paid to Contractor through Requisition 37 that are attributable to such General Conditions costs, in the amount of \$6,060,911;
- (ii) The costs incurred to May 3, 2009 for cost reimbursable work related to Work Packages identified in Attachment 2, to the extent that such costs are allowable costs per the Contract including G&A and Pre GMP Fee calculated at the rates provided for in the

Contract, net of amounts already paid to Contractor through Requisition 37 that are attributable to the referenced Work Packages, in the amount of \$4,621,224;

- (iii) A lump sum price for the costs incurred for the reimbursable work, under Article 40, for Work Package 4b Bulletin 1 (this Lump Sum Price supersedes the Authority's Not-To-Exceed (NTE) Letter for Work Package 4b Bulletin 1 dated June 11, 2009 which letter shall be null and void), and Work Package 4c including G&A and Pre GMP Fee calculated at the rates provided for in the Contract in the amount of \$20,129,646.;
- (iv) A lump sum price for General Conditions costs incurred after May 3, 2009, to complete Contractor's Amended – Continuing Scope of Work which is set forth in Attachment 1.1 Contractor's General Conditions Scope of Work from 5/4/09 to 12/31/11 ; including G&A and Pre GMP Fee calculated at the rates provided for in the Contract in the amount of \$65,357,250;

(c) The Authority and Contractor agree that the lump sum Work Packages issued to Contractor are identified in Attachment 7, entitled "Lump Sum Values For Work Packages," issued as of May 3, 2009.

(d) As relates to General Conditions Lump Sum Costs after May 3, 2009, the Authority shall pay the amounts due or to become due to Contractor in accordance with the Contract and Schedule of Payments annexed to this Modification and Settlement Agreement (See Attachment 5 entitled "Lump Sum General Conditions Payment Schedule").

(e) The Authority shall pay the amounts due for items (i), (ii), and (iii), above, within thirty (30) days of receipt of Contractor's approved payment application.

(f) No retention shall be withheld on Contractor's Amended - Continuing Scope of Work going forward, and retention withheld as of the Execution Date, will be released according to the terms of the Contract; provided, however, that the retention presently being withheld that is in excess of Seven Million Five Hundred Thousand (\$7,500,000.00) Dollars shall be promptly released and paid to Contractor,

exclusive of the retention withheld, pursuant to the Special Advance Payment of \$25 Million, known as Work Package 11 Acceleration. It is understood and agreed that the Director, in his discretion, may make further reductions in the amount of retention being withheld; however, any and all retention being withheld shall be released within thirty (30) days of the issuance of the Certificate of Final Completion of Contractor's Amended - Continuing Scope of Work the issuance of which will not be unreasonably withheld.

2. Release and Settlement of Claims

In consideration for the payments, obligations, undertakings, benefits received and releases provided under this Modification and Settlement Agreement, the Authority and Contractor and each JV Partner, on behalf of themselves and their partners, and their parent companies and subsidiaries of every tier, and their affiliates, successors and assigns, fully and finally waive, release and forever discharge one another from and against any and all claims, causes of action, disputes, demands, costs, damages, debts and liabilities of any nature whatsoever, whether asserted or unasserted, including all claims, demands, causes of actions, costs, demands and liabilities of any nature whatsoever whether currently known or unknown, arising out of the World Trade Center Transportation Hub Project, the Contract or the Work, Labor, Services or Materials furnished, performed or supplied by Contractor, that the Authority may have against Contractor or that Contractor may have against the Authority ("Released Claims"). This mutual and reciprocal waiver and release of Released Claims extends to each of the Parties and to their respective officers, directors, shareholders, partners, board members, employees, representatives, agents, predecessors, successors, insurers, subsidiaries, parent corporations, affiliated entities and divisions. This Release shall not be effective with regard to claims in the nature of contribution or indemnity that arises out of a claim by a third party seeking recovery for personal injury, property damage or wrongful death in connection with or related to said Project.

3. Survival of Certain Contractual Obligations

Notwithstanding the Parties' mutual release of the Released Claims, nothing in this Modification and Settlement Agreement is intended, nor shall be construed or deemed, to abrogate or result in a release or waiver of:

- (a) Contractor's material and workmanship warranty obligations under the Contract with respect to equipment purchased and Temporary Work and Permanent Construction, as identified and classified in Attachment 1 hereto; provided, however, that any such obligations of Contractor will not apply to, or cover, Temporary Work or Permanent Construction which, is materially altered, modified or changed by the Authority or others; or used for purposes or durations other than those intended at the time of construction. For purposes of establishing the foregoing applicable warranty periods and the date from which they shall run, it is understood and agreed that:
 - (i) The warranty period for all completed Temporary Work (as delineated in Attachment 1) shall be one (1) year, which period shall start to run as of the Execution Date hereof. The warranty period for all Temporary Work In Progress (as delineated in Attachment 1) shall begin to run as of the date of the issuance of a Certificate of Partial Completion thereof, which Certificate shall be issued within thirty (30) days of completion of such Temporary Work, provided the required Contract documentation has been timely submitted to, and accepted by, the Authority.
 - (ii) The warranty period for all completed Permanent Construction (as delineated in Attachment 1) shall be three (3) years, which period shall start to run as of the Execution Date hereof. The warranty period for all Permanent Construction In Progress (as delineated in Attachment 1) shall begin to run as of the date of the issuance of a Certificate of Partial Completion thereof, which Certificate shall be

issued within thirty (30) days of completion of such Permanent Construction provided the required documentation has been timely submitted to, and accepted by, the Authority.

(b) Contractor's warranty obligations to the Authority with respect to any equipment purchased by Contractor but not yet installed, which shall be satisfied by Contractor's full assignment to the Authority of the Manufacturers' warranties with respect to equipment purchased by Contractor but not yet installed;

(c) The Authority's rights and remedies against Contractor with respect to latent construction defects, or material construction defects, in Permanent Construction not in accordance with the Contract Drawings and Specifications, exclusive of any such defects of which the Director had actual knowledge as of the Execution Date;

(d) Contractor's obligations to achieve Final Completion of Contractor's Amended - Continuing Scope of Work to be completed by Contractor hereunder in accordance with the Work Package Completion Dates specified in Attachment 1 of this Modification and Settlement Agreement which completion dates shall be the only completion dates Contractor shall be obligated to achieve and are in lieu of any and all other interim or final completion dates contained in the Contract;

(e) Contractor's obligations to maintain in full force and effect the Parent Company Guarantees, required under the Contract, until the Authority's issuance (which shall not be unreasonably withheld or delayed) of the "Certificate of Final Completion" specified in Clause 46 of the Contract, with respect to Contractor's Amended - Continuing Scope of Work, which shall be issued by the Authority no later than Ninety (90) days after the Contractor has completed Contractor's Amended - Continuing Scope of Work and the required Contract documentation has been timely submitted to, and accepted by, the Authority;

(f) The Authority's obligations to make timely and proper payment to Contractor in accordance with the Contract and this Modification and Settlement Agreement; and,

(g) In addition, and notwithstanding the foregoing waiver and release, in the event the Authority or any third party asserts a claim against the Contractor for wrongful death, personal injury or property damage arising out of any of the Work, Services or Labor performed or furnished under the Contract or this Modification and Settlement Agreement, the Contractor retains its right to make a claim against the insurance carrier or carriers providing coverage under the Authority's Owner Controlled Insurance Policy provided by the Authority under the Contract.

4. Other Covenants

(a) As of the Effective Date of this Modification and Settlement Agreement, Contractor shall cease performance of the Work, except that Contractor shall continue to perform Contractor's Amended – Continuing Scope of Work, and provide those services which are detailed in Attachment 1, "Contractor's Amended – Continuing Scope of Work & Schedule." The Authority agrees that the Contractor's Amended – Continuing Scope of Work is the only Work remaining to be performed by the Contractor. Changes, if any, to Contractor's Amended - Continuing Scope of Work, after the Effective Date of this Modification and Settlement Agreement: (i) shall be clearly delineated in Contract Modifications or Change Orders as provided for in the Contract; (ii) shall be the subject of good faith price negotiations between the Parties, pursuant to which agreement shall be reached as to a lump sum price; (iii) shall constitute and embody only such Extra Work as is reasonably and actually necessary to complete the Contractor's Amended – Continuing Scope of Work except for the Extra Work required for the erection of the Memorial 1A Structural Steel Package and the concrete superstructure (walls and slabs) required to support the Memorial Spot Network and all Extra Work located in the southeast corner of the West Bathtub, where Contractor is performing the Work Package 21 Work, which work shall be performed by Contractor, at the Authority's direction in accordance with the provisions of the Contract and this Modification and Settlement Agreement; and (iv) shall not extend the performance period beyond that period presently provided for under the Modification and Settlement Agreement. However, it is understood and agreed that in the event

the Parties fail to reach agreement on a lump sum price with respect to any changes or Extra Work directed by the Authority, the Authority reserves its rights to otherwise procure performance of such work, including having Contractor perform such work on a Time and Material basis, as specified in the Contract. Except for those obligations which the Contract specifically provides shall survive issuance of a Certificate of Final Completion, the Contract shall be deemed complete and fully performed upon the Authority's issuance of the Certificate of Final Completion for Contractor's Amended – Continuing Scope of Work, as delineated in Attachment 1 annexed hereto.

(b) Pursuant to the terms and conditions of the Contract, including, without limitation, Article 34, the Authority, at the Authority's election, has agreed with Contractor to enter into Assignment and Assumption Agreements with respect to certain designated purchase orders and subcontracts, and in connection therewith, it has directed Contractor to assign or transfer to it certain yet to be performed subcontracts and purchase orders for which it shall assume responsibility (the "Assigned Agreements") as further set forth below. A list of the Assigned Agreements is Subcontracts/Purchase Order to be assigned to the Port Authority is contained in Attachment 4, "Assignment & Assumption of Subcontracts & Purchase Orders." The assignment of existing leases is excluded from this Modification and Settlement Agreement and shall be covered by a separate letter agreement between the Parties, with the exception of the \$195,083 advance paid for the rental of the premises at 100 Broadway. Until the Authority accepts assignment of the existing leases to be assigned, it will continue to reimburse the Contractor, consistent with the Contract, for the costs related thereto.

(c) It is further agreed that any Subcontracts or Purchase Orders not delineated in Attachment 4 shall either be closed out or terminated for convenience, as mutually agreed by the Parties.

(d) The Authority and Contractor agree that: (i) notwithstanding the elimination and reduction of Contractor's Scope of Work under the Contract, as provided for in, and as contemplated by, this Modification and Settlement Agreement, Contractor shall maintain an adequate number of project

management, supervisory and field support staff to duly and faithfully complete the Contractor's Amended - Continuing Scope of Work in accordance with the Contract; and (ii) with respect to the completion dates specified for any Work Packages included in the Contractor's Amended - Continuing Scope of Work, as described in Attachment 1, it is understood and agreed that the Parties retain their rights and remedies under the Contract should Contractor fail to complete any Work Package by any applicable completion date.

(e) Contractor shall make all reasonable efforts to secure termination or cancellation of the yet to be performed and completed subcontracts, purchase orders and other agreements as determined by the Authority. The Authority and Contractor have agreed to substitute the Authority by assignment in the place of Contractor with respect to certain other existing third party agreements, pursuant to an Assignment and Assumption Agreement which in form and substance will be similar to either Attachment 4.1 "Draft Assignment and Assumption Agreement for Subcontractors Where Work has Commenced" under which the Authority shall assume responsibility for such agreements after the date of execution of the Assignment, or similar to Attachment 4.2 "Draft Assignment and Assumption Agreement for Subcontractors Where Work has Not Commenced and All Purchase Orders," under which the Authority shall assume full responsibility for such agreements as of the date of the assignment, or as otherwise agreed by the Parties.

5. Eligibility To Compete For And Be Awarded Further Work

The Authority agrees that, after the Effective Date of this Modification and Settlement Agreement by both parties, the JV Partners individually, or any combination thereof, other than the Phoenix, JV combination, or in combination with third parties, will be eligible to submit proposals, and be considered for and, if appropriate, awarded contracts let by the Authority for Remaining WTC Transportation Hub Work; that their participation in the Contract will not be construed as affording Contractor an unfair competitive advantage or deemed to be a conflict of interest making them per se ineligible for award of remaining WTC Transportation Hub Contracts; and that said proposals will be fairly evaluated in the same manner as other competing proposals. For the purpose of this Modification and Settlement Agreement,

“Remaining WTC Transportation Hub Work” is defined to include all Work remaining to complete in the Authority’s Scope to construct a fully functional and complete WTC Transportation Hub, which is not included as part of “Contractor’s Amended – Continuing Scope of Work.” The eligibility of Contractor’s employees to work on remaining WTC Transportation Hub Work is covered in Steve Plate’s May 21, 2009 letter to Phoenix Contractor’s JV Partners, which letter is annexed hereto as Attachment 6.

6. Descoped Work – Waivers, Indemnity and Insurance

Contractor and the Authority agree as follows:

(a) Within forty-five (45) days after the Execution Date of this Modification and Settlement Agreement, Contractor will furnish the Authority with releases and waivers of claims from all tiers of subcontractors and suppliers party to, or participating in, each Assigned and Terminated Agreement, such releases and waivers of claims for compensation or damages shall be related only to events or occurrences prior to the Authority’s assignment and assumption of each Assigned or Terminated Agreement. Provided, however, that with respect to any subcontractors or suppliers which presently have pending claims against Contractor for additional compensation or a price adjustment, it is agreed and understood that the releases to be provided by Contractor will except any such pending claims. The Authority will cooperate with Contractor to secure releases and waivers of claims from subcontractors and suppliers which are parties to the Assigned or Terminated Agreements, and where it determines that any such subcontractor or supplier is unreasonably refusing to provide a release or waiver, it will relieve Contractor of its obligation to secure same.

(b) All insured claims, losses or damages arising from, or related to Assigned Agreements and/or Terminated Agreements that would otherwise be covered by program insurers notwithstanding this Modification and Settlement Agreement shall continue to be covered in accordance with the terms and conditions of the associated World Trade Center Transportation Hub Owner Controlled Insurance Program (“OCIP”) insurance policies.

(c) The Authority shall indemnify and hold Contractor individually and collectively harmless from and against any and all claims for compensation or damages related to events or occurrences after the transfer to, or assignment and assumption by, the Authority of the Assigned or Terminated Agreements; provided, however, that this indemnification shall not apply where the claim is solely due to Contractor's willful misconduct or negligent acts, occurring prior to the effective assignment or termination date.

7. Carry Out Terms

The Parties shall do all that is necessary or required so as to carry out the terms, conditions and intent of this Modification and Settlement Agreement, and to execute all necessary and required documentation to fulfill the obligations of either Party hereto or to effectuate the Parties' intent as manifested herein.

8. Representations and Warranties

The parties make the following representations and warranties:

(a) Each Party warrants and represents that the terms of this Modification and Settlement Agreement are the result of negotiation between the Parties;

(b) Each Party warrants and represents that this Modification and Settlement Agreement has been read by that Party, that the contents hereof are known to and understood by that Party, and that this Modification and Settlement Agreement is signed freely by each Party, after the opportunity for consultation and advice from legal counsel of each Party's own choosing;

(c) Each Party represents that it has not to date assigned, transferred, or conveyed in any manner any claims or rights released by this Modification and Settlement Agreement; and

(d) The Authority represents that as of the Execution Date of this Modification and Settlement Agreement it has no knowledge of any procurement actions undertaken by Contractor in furtherance of the Performed Work or Descoped Work that do not comply with the Contract terms and the relevant requirements of the Authority's procurement practices.

9. Limitation of Contractor's Liability

Notwithstanding anything herein contained to the contrary, the Parties understand and agree that Contractor's liability to the Authority for damages of any nature, whether in contract, tort, statutory or otherwise, shall in no event exceed One Hundred Fifty Million (\$150,000,000.00) Dollars in aggregate.

10. Contractual Relationships Affirmed

Except as provided for herein, the Contract remains unchanged and in full force and effect.

11. Counterparts

This Modification and Settlement Agreement may be executed in any number of counterparts, and each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.

12. Authority to Sign

The individuals executing this Modification and Settlement Agreement represent that they are authorized to execute this instrument on behalf of the Party for which they sign and that they are fully authorized to bind such Parties or entities to the terms stated herein.

13. Entire Agreement

All prior negotiations, representations and agreements between the Parties of any kind relating to the settlement of the matters addressed in this Modification and Settlement Agreement, whether oral, written, express, implied or collateral or concurrent, are merged into this Modification and Settlement Agreement, constitute the complete and total agreement between the Parties relating to the specific subject matter hereof as supplemented by the terms of the Contract as provided in Clause 10, to the extent not inconsistent with any of the terms and conditions of the Modification and Settlement Agreement. No modification of this Modification and Settlement Agreement shall be effective unless it is in writing and signed by the Parties hereto.

14. Turn Over of Information; Release of Information

Contractor agrees that, upon written request of the Authority, it shall, no later than twenty (20) business days of receipt; (i) deliver to the Authority data to which the Authority is entitled to under the terms of the Contract and (ii) shall, to the extent provided for in the relevant subcontracts, obtain from its subcontractors and deliver to the Authority the drawings, specifications, plans, estimates, schedules and other information concerning Work that is being performed or is intended to be performed by subcontractors.

15. No Admission of Liability

Nothing contained in this Modification and Settlement Agreement shall be construed as an admission by any Party of liability of any kind to any other Party or any third party. All such liability is expressly denied.

16. Severability

In the event that any provision of this Modification and Settlement Agreement should be held to be void, voidable or unenforceable, the remaining portions hereof shall remain in full force and effect.

17. Applicable Law

This Modification and Settlement Agreement shall be governed by and interpreted in accordance with the laws of the Jurisdiction of New York without regard to any choice of law rules to the contrary. Any disputes between the Parties concerning a breach or enforcement of this Modification and Settlement Agreement shall be resolved in accordance with the Disputes Provisions of the Contract.

18. No Third Party Beneficiary

This Modification and Settlement Agreement is not intended to benefit any third party.

19. Jointly Drafted

Any ambiguity in, or dispute about, the meaning of any part of this Modification and Settlement Agreement shall not be presumptively construed against its drafter, and each Party shall be conclusively considered to have jointly participated in the drafting.

20. Rights Reserved

Nothing in the Modification and Settlement Agreement is intended to create any new rights, expand any rights that presently exist or diminish any rights that the Authority may have, by contract, statute or otherwise, against Contractor for misrepresentation or fraud in connection with the preparation of the Modification and Settlement Agreement.

21. Attachments Incorporated

The following Attachments, and their specific Sub-Attachments, are made a part of, and incorporated in, Modification and Settlement Agreement No. 4, as if specifically contained herein:

Attachment 1 – Contractor’s Amended - Continuing Scope of Work & Schedule;

Attachment 2 – Cost Reimbursable Conversion to Lump Sums;

Attachment 3 – Subcontractor/Vendor Claims Known to Exist as of May 3, 2009;

Attachment 4 – Assignment & Assumption of Subcontracts & Purchase Orders;

Attachment 5 – Lump Sum General Conditions Payment Schedule;

Attachment 6 – The Port Authority’s Letter of May 21, 2009; and

Attachment 7 – Lump Sum Values of Work Packages.

IN WITNESS WHEREOF, the Parties have caused this Modification and Settlement Agreement to be duly executed as of the Modification Execution Date.

PHOENIX CONSTRUCTORS, JV

**PORT AUTHORITY OF NEW YORK
AND NEW JERSEY**

By: Skanska USA Civil Northeast, Inc.

By: Director of WTC Construction

By: _____

PHOENIX CONSTRUCTORS, JV

**PORT AUTHORITY OF NEW YORK
AND NEW JERSEY**

By: Skanska USA Civil Northeast, Inc.

By: Director of WTC Construction

By: Michael Cobelli
(signature)

David Tweedy
(signature)

Printed Name: Michael Cobelli

Printed Name: DAVID TWEEDY

Title: EVP

Title: Chief Cap. Planning

By: Fluor Enterprises, Inc.

By Director of Procurement

By: Darrell E. Waters
(signature)

Lillian Valpari
(signature)

Printed Name: DARRELL E. WATERS

Printed Name: LILLIAN VALPARI

Title: VICE PRESIDENT

Title: DIRECTOR OF PROCUREMENT

By: Granite Construction Northeast, Inc.

By: Eugene F. Kelley
(signature)

Printed Name: Eugene F. Kelley

Title: Regional Manager

By: Bovis Lend Lease LMB, Inc.

By: _____
(signature)

Printed Name: _____

Title: _____

(signature)

Printed Name: _____

Title: _____

(signature)

Steve Plate

Printed Name: STEVE PLATE

Title: DIRECTOR - WTCC

By: Fluor Enterprises, Inc.

By Director of Procurement

By: _____

(signature)

(signature)

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

By: Granite Construction Northeast, Inc.

By: _____

(signature)

Printed Name: _____

Title: _____

By: Bovis Lend Lease LMB, Inc.

By: _____

Steven Sommer

(signature)

Printed Name: STEVEN SOMMER

Title: PIC / SUP

ATTACHMENT 1: Contractor's Amended-Continuing Scope of Work - Description/Schedule Of Contractor's Work And De-Scoped Work

Lump Sum Work Packages	WP Scope Variations	WP Status	Classification	Target Completion
WP-1G Signal Control Purchase	To Be Assigned to the Port Authority	Complete	Permanent	Mod 4
WP-1H Temporary Escalators & Elevator	As Awarded	Complete	Temporary	Maint. Only Remains
WP-1I Fan Plant Equipment Purchase	To Be Assigned to the Port Authority	In Progress	Permanent	Mod 4
WP- 1J Track Turnouts	To Be Assigned to the Port Authority	In Progress	Permanent	Mod 4
WP-2 Temporary Substation	To Be Assigned to the Port Authority	In Progress	Temporary	Mod 4
WP-3B Ramp J Demolition	As Awarded	Complete	Temporary	Complete
WP-4A East Bathtub Site Prep	As Awarded	Complete	Temporary	Complete
WP-4B Lump Sum East Bathtub Slurry Wall	(Refer to Note 1)	In Progress	Permanent	30-Jun-09
WP-4B Reimbursable East Bathtub Slurry Wall	(Refer to Note 1)	In Progress	Permanent	30-Jun-09
WP-4B1 Temp Stair Relocation	As Awarded	Complete	Temporary	Complete
WP-4B.2 Secant Pile Wall <1724>	As Awarded	Complete	Temporary	Complete
WP-4BD North Demising Wall	As Awarded	Complete	Temporary	Complete
WP-4BD South Demising Wall	As Awarded	Complete	Temporary	Complete
WP4C - Demo. of Temp. Concourse & N. H&M	(Refer to Note 2)	In Progress	Permanent	9/15/2009 *
WP-4D Vesey St Water main Relocation	As Awarded	Complete	Permanent	Complete
WP-4E Signage on Fence	As Awarded	Complete	Temporary-No CO Req'd	Complete
WP-5A Platform D Foundations	As Awarded	Complete	Permanent	Complete
WP-5B.1 Pltfrm D Crshwll Demo&Lodout	As Awarded	Complete	Temporary	Complete
WP-5B.2 Pltfrm D W Basin Excavatn	As Awarded	Complete	Temporary	Complete
WP-5B.3 Pltfrm D Elect Wire and Cable	As Awarded	Complete	Temporary	Complete
WP-5B.4 Pltfrm D Concrete Sheer Wall	As Awarded	Complete	Permanent	Complete
WP-6A North Temp Access Steel Work	As Awarded	Complete	Permanent	Complete
WP-6B North Temp Construction	As Awarded	In Progress	Permanent	9/30/2009 **
WP-6E Interim Elect Service Raceway	As Awarded	Complete	Permanent	Complete
WP8 Lump Sum East West Connector	(Refer to Note 3)	In Progress	Permanent	6-Sep-09
WP8 Reimbursable East West Connector	As Awarded	Complete	Permanent	Complete
WP-8.1 East-West Connector Shear Wall	As Awarded	Complete	Permanent	Complete
WP-8B Concrete Mock Up (Subcontract)	As Awarded	Complete	Temporary	Complete
WP-9 Lump Sum Temp Underpinning of Line 1	(Refer to Note 4)	In Progress	Permanent	31-Jul-09
WP-9 Reimbursable Temp Underpinning of Line 1	(Refer to Note 4)	In Progress	Permanent	31-Jul-09
WP-9B Underpinning Early Act Work	As Awarded	Complete	Temporary	Complete

ATTACHMENT 1: Contractor's Amended-Continuing Scope of Work - Description/Schedule Of Contractor's Work And De-Scoped Work

Lump Sum Work Packages	WP Scope Variations	WP Status	Work Package Classification	Target Completion
WP-9C Demo of Track Above H&M	As Awarded	Complete	Temporary	Complete
WP-10.1 W Basin-Const (7) Footings	As Awarded	Complete	Permanent	Complete
WP-10.2 South Mezzanine Foundations	As Awarded	Complete	Permanent	Complete
WP-12 Electrical Service Equipment	To Be Assigned to the Port Authority	In Progress	Permanent	Mod 4
WP-18A 9A Underpass Early Action	As Awarded	Complete	Temporary	Complete
WP-18A.2 Brookfield Caissons	As Awarded	Complete	Permanent	Complete
WP-18A Secant Piles at 18A	(Refer to Note 5)	Complete	Permanent	Complete
WP-18B 9A Underpass Main/North Vent Bld	As Awarded	In Progress	Permanent	30-Jun-11
WP-18B.1 -Lump Sum Roof Demo and Temp Bracing	As Awarded	In Progress	Temporary	30-Jun-11
WP-18B2 Route 9A Underpass Main/North Vent Bldg	As Awarded	In Progress	Permanent	30-Jun-11
WP-18B.4 Tower 1 Column Steel & Concrete Ftg	As Awarded	Complete	Permanent	Complete
WP-18B.5 T1 Deep Beam	As Awarded	In Progress	Permanent	30-Jun-11
WP-18B.6 Traffic Shift & NP Roof	As Awarded	Complete	Temporary	Complete
WP-18C N Prj Mech Demo&Tieback Inst	As Awarded	Complete	Temporary	Complete
WP- 20A Early Works, Protection, Relocation	As Awarded	Complete	Temporary	Complete
WP-20A Trestle Bridge Phase 1	As Awarded	Complete	Temporary - No CO Req'd.	Complete
WP-20AC Tower Crane	As Awarded	Complete	Temporary - No CO Req'd.	Complete
WP-21- LS_3E Lump Sum Egress Stairs	As Awarded	Complete	Temporary - No CO Req'd.	Complete
WP 21 - LS_5C North South Shear Wall	As Awarded	Complete	Permanent	Complete
WP-21 - LS_6C So Mezz Struct Steel Center	As Awarded	In Progress	Permanent	31-Mar-10
WP-21 - LS_6C.1 So Mezz Struct Steel South	As Awarded	In Progress	Permanent	31-Mar-10
WP-21 - LS_20BCD.1 So Mezz Struct Steel North	As Awarded	In Progress	Permanent	3/31/2010 ***
WP-21 - LS_6X Demolish Existing Path Canopy	As Awarded	Complete	Temporary	Complete
WP-21 - LS_10.3 Memorial Pavilion Foundation	As Awarded	In Progress	Permanent	31-Dec-09
WP-21 - LS_10.2.2 So Mezzanine Foundations	As Awarded	In Progress	Permanent	31-Dec-09

ATTACHMENT 1: Contractor's Amended-Continuing Scope of Work - Description/Schedule Of Contractor's Work And De-Scoped Work

Lump Sum Work Packages	WP Scope Variations	WP Status	Work Package Classification	Target Completion
Cost Reimbursable Work Packages				
WP-3B Ramp J Demolition	As Awarded	Complete	Temporary	Complete
WP-4A East Bath tub Site Prep	As Awarded	Complete	Temporary	Complete
WP-4B Reimbursable East Bath tub Slurry Wall	As Awarded	Complete	Permanent	Complete
WP-4BB Bulletin 1 T&M Work	As Awarded	In Progress	Permanent	30-Jun-09
WP-4BD North Demising Wall	As Awarded	Complete	Temporary	Complete
WP-4BD South Demising Wall	As Awarded	Complete	Temporary	Complete
WP-4BT - Trucking	As Awarded	In Progress	Temporary	30-Jun-09
WP-4CT- Temp Concourse Demo Cntmntd. Soil Removal	As Awarded	In Progress	Temporary	8-Oct-09
WP-6A1 North Access Construction	As Awarded	Complete	Temporary	Complete
WP-6E Interm Elect Service Raceway	As Awarded	Complete	Temporary	Complete
WP-9 Reimbursable Temp Underpinning of Line 1	As Awarded	Complete	Permanent	Complete
WP-9 1 1&9 Line Underpinning-Jacking & Spt	As Awarded	Complete	Temporary	Complete
WP-9X - 1 Line Permanent Underpinning	As Awarded	Complete	Temporary - No CO Req'd.	Complete
WP-18A 9A Underpass Early Action	As Awarded	Complete	Temporary	Complete
WP-18A Secant Piles at 18A	As Awarded	Complete	Temporary	Complete
WP-18B 9A Underpass Main/North Vent Bid	As Awarded	Complete	Permanent	Complete
WP-18C N Prj Mech Demo&Tieback Inst	As Awarded	Complete	Temporary	Complete
WP-18B 9A Underpass Main Cntmntd. Soil Removal	As Awarded	In Progress	Temporary	30-Jun-11
WP-18B1 N Prjctn Roof Demo Cntmntd. Soil Removal	As Awarded	Complete	Temporary	Complete
WP-21 - LS_6C So Mezz Struct Steel Center	As Awarded	Complete	Permanent	Complete
General Conditions		In Progress	Temporary	31-Dec-11
Substantial Completion				30-Jun-11
Final Contract Completion				31-Dec-11

* The Contractor will make every reasonable effort to achieve the 9/15/09 Target Date

** The Contractor, as part of this scope, will make every reasonable effort to energize the temporary switchgear/substation by 8/31/09

*** The Contractor will make every reasonable effort to prosecute its work to enable the Pavilion Steel work to start by 12/31/09

ATTACHMENT 1: Contractor's Amended-Continuing Scope of Work - Description/Schedule Of Contractor's Work And De-Scoped Work

Notes:

Note 1 - The Original Lump Sum Scope and Cost Reimbursable Scope of WP 4B has been modified and a credit negotiated for the work descope in the Work Package. The balance of remaining work under the 4B Work Packages is as follows: (a) Vesey Street End Wall - complete "A" Level Wall & ties; build concrete access road (PACC 187); complete permeation grouting (PACC 186); complete intermediate wall on east side of Vesey St. JG wall; drill 4 tiebacks at VG1; drill 12 mini-piles for VG1; form and place concrete for VG1; install "B" level ties. (b) Liberty Street End Wall- complete "A" Level Wall and install "B" Level ties. (c) SOE Walls - provide letter of acceptance by PCJV Engineer of Record; provide sequence of removal. (d) 4B Bracing - complete all Level 1 bracing and punchlist work; leave grade under 1 Line as per latest contour submission; complete slurrywall punchlist. (e) H&M Rings - complete removal with no more than 12ft unbraced length on the piles and in accordance with RFI 4B-467-4b.

Note 2 - The Original Lump Sum Scope of WP 4C has been modified and a credit to be negotiated for the work de-scoped in the Work Package. The balance of remaining work under the modified 4C Work Package is as follows: (a) PATH Underpass - complete Level 1 and Level 2 bracing; demo PATH Underpass - roof beams and end walls; complete tension bar connections after roof beams are removed; leave modified 4B slope in place from final elevation details similar to 4B drawings, GT-501 and GT-502; 8ft Underpass slab to remain. (b) H&M - complete entire scope to top of rock; complete work associated with PACC 122 and PACC 171; cap water main on Church Street; remove 885 Crane and platform after H&M is excavated to top of rock. Phoenix will every reasonable effort to complete this work by 9/15/09.

Note 3 - The Original Lump Sum Scope of WP 8 has been modified and a credit to be negotiated for the work de-scoped in the Work Package. The de-scoped work is as follows: (a) elimination of the furnishing and installing of the waterproofing to the blast slab and the associated concrete protection slab. (b) The added 8 arches only includes furnish and delivery; No installation of the added 8 arches.

Note 4 - The balance of remaining work to be completed under Work Package 9 Lump Sum and Work Package 9 Cost Reimbursable is as follows: (a) 1 Line Underpinning Work - (1) Bent 157 remove loose concrete (PACC will be issued for this work); EDR support work repairs; provide access to the North EDR for NYCT; complete shim keepers in platform area (PACC to be issued); final installation of instrumentation (prisms to be added to PACC 157). (2) 1 Line Items to be Turned Over to the PA - timber mats and steel plates on roof on roof of 1 Line (PACC to be issued); Stair Tower on west side if material and installation is in accordance to MATOC -WP 0.10 - Engineering T.O. #27 to remain. (3) Demobilization- remove overhang bracket walkway from 1 Line (PACC to be issued); Cover 1 Line platform hatches; remove stair tower on PATH roof to 1 Line; clean all debris/material under and adjacent to 1 Line; remove all equipment and material on top of 1 Line (only Moretrench settling tank and PVC piping, waterline, electrical, handrail, crane mats and plates to remain) - All to be complete by June 30, 2009

Note 5 - WP 18A - All of Zone 4 secant piles have been removed from this Work Package. A PACC will be issued for the de-scoped work.

**ATTACHMENT 1.1 - GENERAL CONDITIONS REVISED SCOPE MAY 4, 2009
THROUGH DEC 31, 2011- CONTRACTOR'S AMENDED -
CONTINUING SCOPE OF WORK**

GENERAL CONDITIONS LUMP SUM

ITEM #	DESCRIPTION	LUMP SUM May 2009 - Dec 2011
1	CRAFT LABOR	\$18,784,138
2	SUPERVISORY LABOR	\$25,954,207
3	EXPENSE (ODC)	\$ 5,555,470
4	MATERIAL	\$ 2,109,318
5	EQUIPMENT	\$ 5,006,972
6	SUBCONTRACTS	\$ 0
7	DEMOBILIZATION COSTS	\$ 1,589,895
	TOTAL COST	\$59,000,000
	G&A / Fee	\$ 6,357,250
	TOTAL REVENUE	\$65,357,250

**ATTACHMENT 1.1 - GENERAL CONDITIONS REVISED SCOPE MAY 4, 2009
THROUGH DEC 31, 2011- CONTRACTOR'S AMENDED -
CONTINUING SCOPE OF WORK**

- 1) General Conditions Indirect Labor Schedule is included. This schedule stated the work description of the indirect trade worker, average shifts/week and average hours/day for a scheduled number of months.
- 2) Maintenance and protection of traffic control devices and movement of devices are excluded. The maintenance and protection of all patrons, pedestrians, and traffic are excluded, unless required for the performance of PCJV's remaining scope of Lump Sum Work Packages.
- 3) Flagmen at active PCJV gates are included and are phased out over time.
- 4) Flagmen located near US Post Office which were requested by NYCDOT are included through August 14, 2009.
- 5) Safety crane and safety crew on the 1&9 box structure are phased out over time, starting on July 31, 2009 and totally phased out by March 31, 2010.
- 6) Sweeper truck cleaning interior and exterior roadways expire on Oct. 31, 2009.
- 7) Site clean up, snow removal, dust control, and spoil clean up are excluded, unless attributable to our operations.
- 8) OSHA protection crew (day shift only) which is needed to furnish, install, remove and relocate railings and cover openings are included Any other general site work such as erection and removal of scaffolding, stair towers & etc which are caused by the actions of other contractors are excluded. PCJV is responsible to maintain any emergency stair tower that their staff utilizes in support of the scope of work in PCJV's Work Packages. Night time crew has been phased out on July 31, 2009.
- 9) One laborer at truck wash locations is included.
- 10) Site wide backhoe and operator has been phased out on July 31, 2009.
- 11) Any CPM schedule time extensions to work package and change orders could increase the general conditions cost and a PACC may need to be issued if not attributable to the Contractor's scope of work.
- 12) Demobilization of existing general conditions equipment and materials, exclusive of materials and supplies located at the storeroom housed at 550 Washington Street, are included. All wooden built shanties, steel & timber matted platforms and eye wash stations previously identified by the Port Authority, are to remain in place, in an as is condition. Any on-site relocation of existing shanties, cargo boxes is excluded if caused by actions outside the scope of this contract.
- 13) PA to furnish an on-site lay down location for the relocated warehouse (storeroom) at no cost to PCJV. All materials, small tools, etc. currently stored at 550 Washington Street, shall remain the property of the Port Authority and PCJV will continue to draw upon these general conditions materials and supplies as the balance of its work is executed.
- 14) Contractor's Supervision includes, but not limited to, all supervisors, superintendents, assistant superintendents, engineers, timekeepers, clerks, and secretaries.
- 15) Material and equipment required for the operation and maintenance of the existing Contractor's WTC Site Field Office is included. The rental & utility cost for this WTC Site Field Office is excluded.

ATTACHMENT 1.1 - GENERAL CONDITIONS REVISED SCOPE MAY 4, 2009
THROUGH DEC 31, 2011- CONTRACTOR'S AMENDED -
CONTINUING SCOPE OF WORK

- 16) Rental of the Contractor's WTC Site Field Office trailers, shanties and cargo boxes are included.
- 17) Rentals for the Contractor's equipment and construction aids are included.
- 18) Operation and maintenance of temporary structures are included.
- 19) Non-productive labor for WTC Site Safety, Security and Access including, but not limited to, security badging, WTC Site orientation and safety training (i.e.: Fall Protection, Man Lift Operation, Competent Person Training, Confined Space Training, NYCTA Track and PATH Training) is included.
- 20) The furnishing, installation, operation and maintenance of all temporary electrical power and lighting under the jurisdiction of Local 3 are excluded.
- 21) The furnishing, installation, operation and maintenance of all dewatering systems are excluded unless local dewatering is required in support of scope of work in PCJV's Work Packages.
- 22) Portable toilet facilities are included.
- 23) Surveying labor and supplies are included.
- 24) All Quality Control (QC) testing is included.
- 25) All Environmental (Lead, ACM, Air and Vibration Monitoring) Testing and Analysis is excluded, unless required to be performed by PCJV's staff in support of the scope of work in PCJV's Work Packages.
- 26) Coordination with other contractors and stakeholders within the WTC Site is included.
- 27) Receiving and unloading of general conditions materials is included.
- 28) General indirect trade labor including, but not limited to, Master Mechanic, Maintenance Foreman, Apprentice Mechanic, Survey, Teamster Foreman and on site teamsters, General Foremen, Trade Stewards, Compressor, Night Lighting and Generator Operators, and Gate Flagmen are included.
- 29) All temporary material, consumable items and tools, such as: PPE and safety equipment (hard hats, vests, safety glasses, ear plugs, respirators, harnesses, lanyards, safety cables, retractables, tyvek suits, gloves, eyewash stations, first aid kits, safety signage, fire extinguishers, and spill kits). Consumables (Blades, Bits, Hilti Shots, etc). Water Hoses, Backflow Preventors, Extension Cords and GFCI's are included.
- 30) Site Maintenance such as: Dust Control, Garbage and non construction materials debris removal, housekeeping, janitorial services and the implementation and enforcement of the Environmental Performance Commitments (EPCs) including mitigation and monitoring are excluded, unless caused by the performance of PCJV's work.
- 31) Labor, material and equipment to provide general site air for work activities associated with work packages is included.

**ATTACHMENT 1.1 - GENERAL CONDITIONS REVISED SCOPE MAY 4, 2009
THROUGH DEC 31, 2011- CONTRACTOR'S AMENDED -
CONTINUING SCOPE OF WORK**

**GENERAL CONDITIONS SUPERVISION
KEY PERSONNEL**

Name	Release Date
Darrell Waters	Nov 2009
Ken Harring	Nov 2009
Gary Winsper	Dec 2009
Walter Reichert	Dec 2009
William Glowasky	Dec 2009
Dudley Eisser	Dec 2009
Terry O'Connell	Mar 2010
Greg Shaw	Mar 2010
Rick Coonan	Jun 2011
William DeCamp	Dec 2011
Jerome Daraio	Jun 2011
Peter Daboul	Jun 2011
Tom Tyler	Jun 2011

ATTACHMENT 2 COST REIMBURSEMENT CONVERSION TO LUMP SUMS

Work Package	PA Authorized NTE Direct Costs Amount	PCJV Direct Costs thru 5/3/09	Approved by PA Desk Audit	Unsubstantiated/ Unaudited	Error Rate	Allowable Unsubstantiated Direct Costs	Settlement Adjustment	Total Approvable Direct Costs	Allowable G&A	Allowable Pre-GMP Fee	Final Approvable Direct Costs w/ G&A and Pre-GMP Fee		Direct Costs PTD thru Reg # 37	G&A PTD thru Reg # 37	Pre-GMP Fee PTD thru Reg # 37	Total PTD w/ G&A and Pre-GMP Fee thru Reg # 37	\$ Due PCJV	MOD # 4 Amount	MOD # 4 Reference	Notes
											Direct Costs	G&A and Pre-GMP Fee								
3b LEM	\$663,019	\$727,815	\$446,556	\$281,259	5.71%	\$265,199	\$0	\$711,755	\$35,588	\$38,289	\$785,632	\$636,067	\$31,803	\$52,299	\$720,169	\$65,463				Allowable Pre-GMP Fee capped by award letter.
4a LEM	\$3,107,488	\$1,809,899	\$1,141,410	\$668,489	5.71%	\$630,318	\$0	\$1,771,728	\$88,586	\$102,317	\$1,962,632	\$1,882,431	\$94,122	\$196,931	\$2,173,484	(\$210,852)				
4b LEM	\$1,864,033	\$2,778,729	\$1,750,149	\$1,028,580	5.71%	\$969,848	\$0	\$1,864,033	\$93,202	\$107,648	\$2,064,883	\$1,842,650	\$92,132	\$106,413	\$2,041,195	\$23,687				Total Approvable Direct Costs capped by 4B LS agreement
6a LEM	\$85,000	\$74,555	\$2,000	\$72,555	5.71%	\$68,412	\$0	\$70,412	\$3,521	\$4,066	\$77,999	\$73,106	\$3,655	\$4,222	\$80,983	(\$2,984)	\$4,621,224	1b(ii)		
6e LEM	\$238,095	\$113,745	\$101,098	\$12,647	5.71%	\$11,925	\$0	\$113,023	\$5,651	\$6,527	\$125,201	\$119,445	\$5,972	\$16,689	\$142,106	(\$16,905)				
9 LEM	\$24,500,000	\$26,254,621	\$21,548,338	\$4,706,283	5.71%	\$4,437,554	\$0	\$25,985,892	\$1,299,295	\$1,500,685	\$28,785,872	\$21,914,755	\$1,095,738	\$1,265,577	\$24,276,070	\$4,509,802				
9x LEM	\$1,000,000	\$187,823	\$159,650	\$28,173	0.00%	\$28,173	\$0	\$187,823	\$9,391	\$10,847	\$208,061	\$159,650	\$7,982	\$9,220	\$176,852	\$31,209				
18a LEM	\$9,027,308	\$8,051,438	\$3,698,338	\$4,353,100	5.71%	\$4,104,538	\$0	\$7,802,876	\$390,144	\$450,616	\$8,643,636	\$7,594,931	\$379,747	\$438,607	\$8,413,285	\$230,351				
18c LEM	\$280,000	\$265,278	\$192,418	\$72,860	5.71%	\$68,700	\$0	\$261,118	\$13,056	\$15,080	\$289,253	\$268,834	\$13,442	\$15,525	\$297,800	(\$8,547)				
GC- 100 Bway Advance Rental Payment	Included in \$130,444,271 below	\$195,572	\$185,793	\$9,779	0.00%	\$9,779	\$0	\$195,572	\$9,779	\$0	\$205,351	\$185,793	\$9,290	\$0	\$195,083	\$10,268	\$6,060,911	1b(i)		Allowable Pre-GMP Fee is already included in GC-LEM, ODC and Supervision numbers, which is capped by award letters.
GC- LEM*		\$51,868,003	\$39,874,616	\$11,993,387	5.71%	\$11,308,565	\$0	\$51,183,181	\$2,559,159											Allowable Pre-GMP Fee is prorated for 2nd Qtr 2009 and includes 1 month (April '09). Fee capped by award letters.
GC-ODC**	\$130,444,271	\$20,106,215	\$0	\$20,106,215	24.64%	\$15,152,044	\$1,136,507	\$16,288,551	\$814,428	\$7,533,157	\$144,944,599	\$125,101,008	\$6,252,236	\$7,540,711	\$138,893,956	\$6,050,643				
GC- Supervision		\$68,349,961	\$0	\$68,349,961	12.90%	\$59,532,816	\$3,863,493	\$63,396,309	\$3,169,815											
TOTALS:		\$180,783,654	\$69,100,366	\$111,683,288		\$96,587,871	\$5,000,000	\$169,832,273	\$8,491,614	\$9,769,232	\$188,093,119	\$159,778,670	\$7,986,120	\$9,646,193	\$177,410,984	\$10,682,135	\$10,682,135			
*Includes 5-Star costs of \$598,491.																				
**Includes SWAC.																				
Final Direct Cost Reductions by Port (amounts exclude G&A and Pre-GMP Fee)																				
Direct Cost LEM reduction attributable to error rate (excl. 4b): \$1,265,369																				
Direct Cost LEM reduction attributable to 4b LS agreement: \$914,696																				
Total Reduction: \$2,180,065																				
ODC reduction attributable to error rate: \$3,817,664																				
Supervision reduction attributable to error rate: \$4,953,652																				
Total Reduction: \$8,771,316																				
Grand Total Reduction: \$10,951,381																				
Note 1: NTE amount for GC is prorated thru April.																				

**ATTACHMENT 3: SUBCONTRACTOR/VENDOR CLAIMS KNOWN TO EXIST AS
OF MAY 3, 2009**

Subcontractor/Vendor
Selco Manufacturing Corp.
Nicholson Construction/E.E. Cruz
J.P. Hogan Coring & Sawing Corp.
Testa Corporation
Moretrench American Corporation
EMESA
L & M Fabricators and Machine Inc.
DCM Erectors, Inc.
TLT Babcock Inc.
Five Star Electric Corporation
Grand Mechanical Inc.
Crescent Contracting Corp.
Island Pavement Cutting, Inc.
GeoComp Corporation
New York Police Department
Egg Electric Inc.
Shamrock
Letitia

ATTACHMENT 4: ASSIGNMENTS & ASSUMPTION OF SUBCONTRACTS & PURCHASE ORDERS

This Attachment includes the following documents:

Attachment 4.1 – Draft Assignment & Assumption Agreement for Subcontracts where Work has Commenced

Attachment 4.2 – Draft Assignment & Assumption Agreement for Subcontracts where Work has Not Commenced and All Purchase Orders

Phoenix and the Port Authority have agreed in principle to execute Assignment and Assumption Agreements for the Subcontracts and Purchase Orders delineated below using the respective Assignment and Assumption Agreements provided in Attachment 4.1 and 4.2.

The Port Authority and Phoenix agree to execute Assignment and Assumption Agreements as provided in Attachment 4.1 for the following Subcontracts where Work has previously commenced:

➤ **Subcontracts**

- ✓ GC – Wang Engineering – Noise & Vibration Sitewide
- ✓ 9 – Geocomp – Line 1 Underpinning Instrumentation

The Port Authority and Phoenix agree to execute the Assignment and Assumption Agreement provided in Attachment 4.2 for Purchase Orders whether or not work has commenced, and for Subcontracts where Work has not yet started:

➤ **Subcontracts**

- ✓ Mana Fine Arts – Removal, Transportation and Storage of Art Work
- ✓ Geocomp – Instrumentation (WP 20)

➤ **Purchase Orders**

- ✓ 1I – TLT Babcock – Emergency Tunnel Axial Vane Fans
- ✓ 1I – TLT Babcock – Emergency Tunnel Axial Vane Fans – Electrical Equipment
- ✓ 1J – VAE Nortrack – Track Turnouts & Switch Machines
- ✓ 2/12 – Crescent Electrical Supply – Temp Electrical Substation Equipment
- ✓ 12 – Turtle & Hughes – Electrical Service Equipment
- ✓ 1G – Union Switch and Signal - Signal Control System
- ✓ RCC Fabricators - Purchase of Rail Cars

Any Subcontracts/Purchase Orders not delineated herein shall either be closed out, if such Work which directly relates solely to Phoenix' scope of work has been completed, terminated for convenience/canceled, or assigned and assumed as mutually agreed upon by the Parties.

**ATTACHMENT 4.1: DRAFT ASSIGNMENT & ASSUMPTION AGREEMENT FOR
SUBCONTRACTS WHERE WORK HAS COMMENCED**

ASSIGNMENT AND ASSUMPTION AGREEMENT

by

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

-and-

PHOENIX CONSTRUCTORS, JV

-and-

[INSERT NAME OF SUBCONTRACTOR/VENDOR]

pertaining to

WORLD TRADE CENTER TRANSPORTATION HUB

NEW YORK, NEW YORK

As of

2009

ASSIGNMENT & ASSUMPTION AGREEMENT

This **ASSIGNMENT AND ASSUMPTION AGREEMENT** (this "Agreement") is made as of the ___ day of _____, 2009, between **THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY**, having an office at 225 Park Avenue South, New York, New York 10003 ("Port Authority"), and **PHOENIX CONSTRUCTORS, JV**, having an office at 115 Broadway, New York, New York 10006 ("Phoenix"), and **[INSERT NAME OF SUBCONTRACTOR/VENDOR]**, a company having an office located at _____ (the "Subcontractor").

WITNESSETH:

WHEREAS, Phoenix and the Port Authority have entered into a contract entitled, Contract WTC-284.458 GC – World Trade Center Transportation Hub – General Construction Services dated _____ as amended by Modification 1, dated _____, Modification 2m dated _____, Modification 3, dated _____, and Modification 4, dated _____ (hereinafter referred to as the "Contract"); and

WHEREAS, Phoenix has entered into a subcontract with Subcontractor dated _____ for the performance _____ in furtherance of its obligations to the Port Authority under the Contract (hereinafter "Subcontract"); and

WHEREAS, the Subcontract provides for the unconditional right of Phoenix to assign the Subcontract; and

WHEREAS, Phoenix desires to assign the Subcontract to the Port Authority and the Port Authority desires to assume Phoenix's obligations, duties, rights, interests and liabilities thereunder in accordance with the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and conditions contained herein, Phoenix, the Port Authority and Subcontractor hereby agree to be bound by the terms set forth in this Assignment and Assumption Agreement.

ARTICLE I.

ASSIGNMENT & ASSUMPTION

1.1 Assignment of Subcontract and Assumption of Obligations.

(a) Phoenix hereby assigns, transfers and sets over all of its rights, title, interests and obligations under the Subcontract, which is annexed hereto as **Exhibit A**, to the Port Authority

and its successors, as at the date of this Assignment and in accordance with the terms and conditions of this Assignment.

(b) The Port Authority accepts the foregoing Assignment of Phoenix's rights and obligations under the Subcontract and assumes Phoenix's obligations under the Subcontract, as of the date of this Assignment and Assumption and in accordance with the terms and conditions of the Subcontract and this Assignment and Assumption Agreement as though it had originally entered into the Subcontract.

(c) Subcontractor agrees that Phoenix has the right to assign the Subcontract and agrees to the Port Authority's assumption of Phoenix's obligations, rights, interests and liabilities under the Subcontract.

1.2 Warranties by Phoenix.

Phoenix warrants the following to the Port Authority:

(a) A true, correct, complete and executed copy of the Subcontract is annexed hereto as Exhibit A;

(b) The Subcontract as annexed hereto is a valid and enforceable contract;

(c) There have been no prior assignments of the Subcontract by Phoenix;

(d) Phoenix is not in default of any of the obligations under the Subcontract;

(e) Subcontractor has been paid by Phoenix for all work performed under the Subcontract up to the date of this Assignment in accordance with the provisions of the Subcontract;

(f) Phoenix has no knowledge of any claim arising out of the performance of the Subcontract by Subcontractor or any third party whether or not the claim has been made as of the date of this Assignment; and

(g) The assignment of Phoenix's rights and obligations, pursuant to the Subcontract is undertaken in accordance with the assignment provisions of the Subcontract.

1.3 Warranties by Subcontractor

Subcontractor warrants the following to the Port Authority and Phoenix and agrees that:

(a) Subcontractor will complete the work of the Subcontract and perform each and every obligation thereof in accordance with the terms of the Subcontract;

(b) Subcontractor will be bound to the Authority in all respects as it formerly was bound to Phoenix; and

(c) Subcontractor releases and discharges Phoenix from any duties, obligations and liabilities arising from, or related to, the Subcontract.

(d) Subcontractor releases and discharges the Port Authority from any duties, obligations and liabilities arising from or related to, the Subcontract up to and including the date of this Assignment.

1.4 Warranties by the Port Authority.

The Port Authority warrants the following:

(a) The Port Authority will perform all obligations assigned in this Assignment and Assumption Agreement and in accordance with the terms and conditions of the Subcontract.

(b) The Port Authority will hold Phoenix and each of the partners that comprise Phoenix harmless for any claims arising from acts or omissions of the Port Authority occurring after the date of this Assignment and Assumption in connection with the Subcontract.

ARTICLE II.

MISCELLANEOUS PROVISIONS

2.1 Severability.

Any term or provision of this Assignment that is invalid or unenforceable will be ineffective only to the extent of such invalidity or unenforceability, without affecting the validity or enforceability of any of the other terms or provisions of this Assignment.

2.2 Amendment.

This Assignment may only be modified or amended by a written instrument duly executed by the parties hereto.

2.3 Further Assignment.

The parties hereto agree that any further assignment of rights or obligations under the Subcontract or assignment of this Assignment may only be undertaken in accordance with the assignment requirements of the Subcontract.

2.4 Dispute Resolution.

If the parties hereto are unable to resolve a dispute that arises under this Assignment or the Subcontract, then the parties will resort to the dispute resolution mechanisms set forth within Contract WTC-284.458GC.

2.5 Governing Law.

This Assignment shall be governed by, construed in accordance with and enforced under the laws of the State of New York, both as to interpretation and performance, without regard to conflicts of law provisions.

2.6 Execution in Counterparts.

This Assignment may be executed in any number of counterparts and by each party hereto in separate counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement.

2.7 Non-Liability of Commissioners/Officers.

Neither the Commissioners of the Port Authority, nor any officer, employee, agent or representative thereof shall be charged personally with any liability or held liable under any term or provision of this Assignment or because of its execution or attempted execution or because of any breach or alleged breach thereof.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the
date first above written.

PHOENIX CONSTRUCTORS, JV

FLUOR ENTERPRISES, INC.

By: _____

Title: _____

Date: _____

SKANSKA USA CIVIL NORTHEAST, INC.

By: _____

Title: _____

Date: _____

GRANITE CONSTRUCTION NORTHEAST, INC.

By: _____

Title: _____

Date: _____

BOVIS LEND LEASE LMB, INC.

By: _____

Title: _____

Date: _____

THE PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: _____

Title: _____

Date: _____

Insert Subcontractor's Name

By: _____

Title: _____

Date: _____

**ATTACHMENT 4.2: DRAFT ASSIGNMENT & ASSUMPTION AGREEMENT FOR
SUBCONTRACTS WHERE WORK HAS NOT COMMENCED AND
ALL PURCHASE ORDERS**

ASSIGNMENT AND ASSUMPTION AGREEMENT

by

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

-and-

PHOENIX CONSTRUCTORS, JV

-and-

[INSERT NAME OF VENDOR OR SUPPLIER]

pertaining to

WORLD TRADE CENTER TRANSPORTATION HUB

NEW YORK, NEW YORK

As of

2009

ASSIGNMENT & ASSUMPTION AGREEMENT

This **ASSIGNMENT AND ASSUMPTION AGREEMENT** (this “**Agreement**”) is made as of the ____ day of _____, 2009, between **THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY**, having an office at 225 Park Avenue South, New York, New York 10003 (“**Port Authority**”), **PHOENIX CONSTRUCTORS, JV**, having an office at 115 Broadway, New York, New York 10006 (“**Phoenix**”), and [**INSERT NAME OF VENDOR OR SUPPLIER**], a company having an office located at _____ (the “**Vendor**”).

WITNESSETH:

WHEREAS, Phoenix and the Port Authority have entered into a contract entitled, Contract WTC-284.458 GC – World Trade Center Transportation Hub – General Construction Services dated _____ as amended by Modification 1, dated _____, Modification 2m dated _____, Modification 3, dated _____, and Modification 4, dated _____ (hereinafter referred to as the “**Contract**”); and

WHEREAS, Phoenix has entered into a Purchase Order Agreement with Vendor, dated _____ for furnishing and delivery of _____ in furtherance of Phoenix’s obligations to the Port Authority under the Contract (hereinafter “**Purchase Order**”); and

WHEREAS, the Purchase Order provides for the unconditional right of Phoenix to assign the Purchase Order; and

WHEREAS, Phoenix desires to assign the Purchase Order to the Port Authority and the Port Authority desires to assume Phoenix’s obligations, duties, rights, interests and liabilities thereunder in accordance with the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and conditions contained herein, Phoenix, the Port Authority and Vendor hereby agree to be bound by the terms set forth in this Assignment and Assumption Agreement.

ARTICLE I.

ASSIGNMENT & ASSUMPTION

1.1 Assignment of Purchase Order and Assumption of Obligations.

(a) Phoenix hereby assigns, transfers and sets over all of its rights, title, interests and obligations under the Purchase Order, which is annexed hereto as **Exhibit A**, to the Port Authority and

its successors, as of the date of this Assignment and in accordance with the terms and conditions of this Assignment.

(b) The Port Authority accepts the foregoing Assignment of Phoenix's rights and obligations under the Purchase Order and assumes Phoenix's obligations thereunder, as of the date of this Assignment and Assumption and in accordance with the terms and conditions of the Purchase Order and this Assignment and Assumption Agreement, as though it had originally entered into the Purchase Order with Vendor.

(c) Vendor agrees that Phoenix has the right to assign the Purchase Order and agrees to the Port Authority's assumption of Phoenix's obligations rights, interests and liabilities thereunder.

1.2 Warranties by Phoenix.

Phoenix warrants the following to the Port Authority:

(a) A true, correct, complete and executed copy of the Purchase Order is annexed hereto as Exhibit A;

(b) The Purchase Order, as annexed hereto, is a valid and enforceable contract;

(c) There have been no prior assignments of the Purchase Order by Phoenix;

(d) Phoenix is not in default of any of the obligations under the Purchase Order;

(e) Vendor has been paid by Phoenix for all work performed under the Purchase Order up to the date of this Assignment in accordance with the provisions thereof;

(f) Phoenix has no knowledge of any claim arising out of the performance of the Purchase Order by Vendor or any third party whether or not the claim has been made as of the date of this Assignment; and

(g) The assignment of Phoenix's rights and obligations, pursuant to the Purchase Order is undertaken in accordance with the assignment provisions thereof.

1.3 Warranties by Vendor

Vendor warrants the following to the Port Authority and Phoenix and agrees that:

(a) Vendor will complete the work provided for in Purchase Order and perform each and every obligation thereof in accordance with the terms thereof;

(b) Vendor will be bound to the Authority in all respects as it formerly was bound to Phoenix; and

(c) Vendor unconditionally releases and discharges Phoenix from any duties, obligations and liabilities arising from, or related to, the Purchase Order.

1.4 Warranties by the Port Authority.

The Port Authority warrants the following:

(a) The Port Authority will assume and perform all obligations assigned to it under this Assignment and Assumption Agreement, and it will otherwise undertake the obligations assigned and assumed by it in accordance with the terms and conditions of the Purchase Order.

(b) The Port Authority will hold Phoenix and each of the partners that comprise Phoenix harmless from and against any claims arising out of, or in any way related to, the Purchase Order.

ARTICLE II.

MISCELLANEOUS PROVISIONS

2.1 Severability.

Any term or provision of this Assignment that is invalid or unenforceable will be ineffective only to the extent of such invalidity or unenforceability, without affecting the validity or enforceability of any of the other terms or provisions of this Assignment.

2.2 Amendment.

This Assignment may only be modified or amended by a written instrument duly executed by the parties hereto.

2.3 Further Assignment.

The parties hereto agree that any further assignment of rights or obligations under the Purchase Order or assignment of this Assignment and Assumption Agreement may only be undertaken in accordance with the assignment requirements of the Purchase Order.

2.4 Dispute Resolution.

If the parties hereto are unable to resolve a dispute that arises under this Assignment and Assumption Agreement or the Purchase Order, then the parties will resort to the dispute resolution mechanisms set forth within Contract WTC-284.458GC.

2.5 Governing Law.

This Assignment and Assumption Agreement shall be governed by, construed in accordance with and enforced under the laws of the State of New York, both as to interpretation and performance, without regard to conflicts of law provisions.

2.6 Execution in Counterparts.

This Assignment may be executed in any number of counterparts and by each party hereto in separate counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement.

2.7 Non-Liability of Commissioners/Officers.

Neither the Commissioners of the Port Authority, nor any officer, employee, agent or representative thereof shall be charged personally with any liability or held liable under any term or provision of this Assignment or because of its execution or attempted execution or because of any breach or alleged breach thereof.

IN WITNESS WHEREOF, the parties have executed this Assignment and Assumption Agreement as of the date first above written.

PHOENIX CONSTRUCTORS, JV

FLUOR ENTERPRISES, INC.

By: _____

Title: _____

Date: _____

SKANSKA USA CIVIL NORTHEAST INC.

By: _____

Title: _____

Date: _____

GRANITE CONSTRUCTION NORTHEAST, INC.

By: _____

Title: _____

Date: _____

BOVIS LEND LEASE LMB, INC.

By: _____

Title: _____

Date: _____

THE PORT AUTHORITY OF NEW YORK
AND NEW JERSEY

By: _____

Title: _____

Date: _____

Insert Vendor's Name

By: _____

Title: _____

Date: _____

ATTACHMENT 5: GENERAL CONDITIONS PAYMENT SCHEDULE
MAY 4, 2009 THROUGH DEC 31, 2011

General Conditions		
Month	Value	% of Total
May-09	\$ 5,882,152	9.0%
Jun-09	\$ 5,882,152	9.0%
Jul-09	\$ 5,882,152	9.0%
Aug-09	\$ 5,228,580	8.0%
Sep-09	\$ 5,228,580	8.0%
Oct-09	\$ 3,267,862	5.0%
Nov-09	\$ 3,267,862	5.0%
Dec-09	\$ 2,614,290	4.0%
Jan-10	\$ 1,960,717	3.0%
Feb-10	\$ 1,960,717	3.0%
Mar-10	\$ 1,960,717	3.0%
Apr-10	\$ 1,960,717	3.0%
May-10	\$ 1,960,717	3.0%
Jun-10	\$ 1,633,931	2.5%
Jul-10	\$ 1,307,145	2.0%
Aug-10	\$ 1,307,145	2.0%
Sep-10	\$ 1,307,145	2.0%
Oct-10	\$ 980,359	1.5%
Nov-10	\$ 980,359	1.5%
Dec-10	\$ 980,359	1.5%
Jan-11	\$ 980,359	1.5%
Feb-11	\$ 980,359	1.5%
Mar-11	\$ 980,359	1.5%
Apr-11	\$ 980,359	1.5%
May-11	\$ 980,359	1.5%
Jun-11	\$ 980,359	1.5%
Jul-11	\$ 653,572	1.0%
Aug-11	\$ 653,572	1.0%
Sep-11	\$ 653,572	1.0%
Oct-11	\$ 653,572	1.0%
Nov-11	\$ 653,572	1.0%
Dec-11	\$ 653,572	1.0%
Total	\$65,357,250	100.0%

ATTACHMENT 6: THE PORT AUTHORITY'S LETTER OF MAY 21, 2009

PC

File

THE PORT AUTHORITY OF NY & NJ

Director of Construction

May 21, 2009

Mr. Richard Cavallaro
President
Slattery Skanska
16-16 Whitestone Expressway
Whitestone, NY 11357

Mr. James Abadie
Senior Vice President
Bovis Lend Lease
200 Park Avenue, 9th Floor
New York, NY 10166

Mr. Eugene Kelley
Regional Manager
Granite Construction Northeast, Inc.
120 White Plains Road, Suite 310
Tarrytown, NY 10591

Mr. Robert Prieto
Senior Vice President
Fluor Corporation
212 Carnegie Center, Suite 206
Princeton, NJ 08540

SUBJECT: POTENTIAL CONFLICT OF INTEREST

Dear Phoenix Constructors JV Partners:

The Port Authority of NY & NJ ("PA") Office of Inspector General ("OIG") has several concerns brought about by WTC Hub Transportation ("Hub Project") Contract Modification # 4. One concern in particular is Phoenix Constructors JV ("PCJV") member firms' ability to bid or propose on future WTC Hub work. Because PCJV has had personnel involved in this project who had access to files, documents and drawings, the PCJV member firms have information that has not been made available yet to other potential bidders or proposers. Therefore, employees of the PCJV member firms presently working on the Hub Project for PCJV can have no role in the

115 Broadway
New York, NY 10006
T: 212 435 5529 F: 212 435 5512

preparation of bids or proposals by the PCJV member firms individually or as a joint venture, not PCJV for work on the Hub Project or in the work itself if a bid or proposal is successful.

In order to maintain a "level playing field" going forward, while allowing PCJV member firms the ability to bid or propose, several steps should be taken immediately to prevent conflict of interest situations, and to minimize the appearance of a conflict of interest. These steps should include, but not be limited to, the following:

- Firewalls should be established to prevent PCJV personnel still working on the Hub project from having contact with PCJV member firm personnel who will work on bids or proposals for future work on the Hub Project.
- Within each PCJV member firm, staff should be segregated so that it is clear who will still be working on the Hub Project for PCJV and who will be working for each of the JV member firms.
- A Conflict of Interest ("COI") Mitigation Plan should be developed for each of the PCJV member firms that is interested in bidding or proposing on future work. The Mitigation Plan should address several issues specifically dealing with mitigating any potential conflicts. Some of the items a Mitigation Plan should include, depending upon the circumstances, are the following:

1) A proposed organizational chart/structure/firewall designed to keep separate, as specific by project, and to allow for no overlap between team members and resources including, but not limited to: equipment, materials, staffing, laydown areas, and office facilities on said projects.

2) Specific plan(s) intended to maintain the separation and integrity, as specific by project, of the following to include, but not limited to: confidential and/or privileged information, documents, plans, drawings, estimates and other financial data.

3) Specific plan to maintain proper and independent billing procedure(s) designed to address the avoidance of double and improper billings.

4) Specific plan to educate employees, on all levels, of the importance of said mitigation plan to promote the awareness and importance of mitigation and its roll in preventing fraud, waste, and abuse, and verification of such education/training and individual understanding.

5) Specific plan to internally oversee and/or audit the above-listed plans and procedures to ensure compliance.

6) Specific contingency plan, notification, and approval process for waivers where there is a necessary, reasonable, and business related purpose for overlap in and/or sharing of staff members and/or resources.

7) Specific contingency plan in addressing a direct or suspected violation of said mitigation plan. All violations must be reported to the Port Authority, including its Inspector General.

8) Any consultant or contractor of the PCJV member firms must cooperate with the Port Authority's Inspector General's Office and its Integrity Monitor Firm, in auditing the Mitigation Plan for compliance. This cooperation must include access to all necessary documentation and interviews of employees.

The PA will not award a PCJV firm member a contract on the Hub Project until they have a Mitigation Plan approved. A Mitigation Plan must be approved for each contract (the same plan may be appropriate for multiple contracts).

In addition, the PA will not award a Hub Project contract to a PCJV member firm until an agreement has been reached with PCJV on a settlement of PCJV's involvement in Contract WTC-284.458 GC – General Contracting Services. The PA, in its sole discretion, shall determine whether a settlement has been reached.

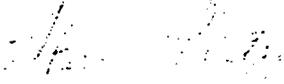
While the first part of this letter addresses potential conflicts of interest situations, another equally important matter that needs to be addressed concerns document security. All steps should be taken to ensure that all materials that have been obtained or generated for the Hub Project are retrieved from employees who will be leaving the project. These items must be returned to the Authority or destroyed. A list of all employees leaving the project must be maintained and provided to the Authority routinely, but in no case greater than on a weekly basis. In addition, the PA must approve PCJV's removal of any key staff from the project. The PA, in its sole discretion, will determine whether a removed PCJV employee is 'key staff'.

Additionally, although PCJV employees should have signed a Non-Disclosure Agreement when they were first assigned to the Hub Project, or when first provided access to certain confidential documents, a new Agreement should be signed agreeing to the following points:

- Will hold in confidence and protect all Information regarding the Hub Project.
- Will only use the Information for the purposes of the Hub Project.
- Will not use, disclose, communicate or transmit the Information to any employee of a PCJV member not assigned to the Hub Project.
- Will not seek access to the Information except to the extent necessary to fulfill PCJV's obligations to the PA.
- Acknowledge that even after the termination of PCJV's contract with the Port Authority, or the employee's separation from PCJV or a PCJV member, they remain obligated to hold the Information in confidence and not to use, disclose, communicate or transmit the Information.

If you have any questions about these guidelines, please contact me at 212-435-5529.

Sincerely,



Steven Plate
Director
WTC Construction

ATTACHMENT 7: LUMP SUM VALUES OF WORK PACKAGES AS OF MAY 3, 2009

Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
0	General Conditions						\$2,293,268	\$114,663	\$132,436	\$2,540,367
		07/11/06	LS	Wang Engineering LLC	Noise and Vibration Control and Abatement and Cultural Historic Recourse Protection Plans		\$123,600	\$6,180	\$7,138	\$136,918
		01/11/07	LS	Egg Electric	Furnish, fabricate and deliver temporary power distribution center		\$161,000	\$8,050	\$9,298	\$178,348
		03/07/07	LS	Wang Engineering LLC	Sitewide Noise and Vibration Monitoring Control (5 locations)	C/O #57: \$58,228	\$372,000	\$18,600	\$21,483	\$412,083
		04/13/07	LS	Boston Properties	Alter existing sidewalk bridge, parapet wall, drains, etc.	No REE	\$40,250	\$2,013	\$2,324	\$44,587
		05/02/07	LS	Smalls Electric	Temp Construction Power		\$283,000	\$14,150	\$16,343	\$313,493
		06/07/07	LS	Egg Electric	F&I cord; connect feeders and test cabling and fan operation in H&M area.	Electric MATOC # 6.1. Original LS for \$23,635. Final Egg invoice though was for \$23,428.	\$23,428	\$1,171	\$1,353	\$25,953
		06/07/07	LS	Egg Electric	F&I safety lighting and temp light stringers (H&M area). Original LS for \$12,457.	Electric MATOC # 6.2. Final Egg invoice though was for \$12,469.	\$12,469	\$623	\$720	\$13,813
		06/15/07	LS	Egg Electric	Install 2 HP fans and related electric equipment in H&M area	Electric MATOC # 7	\$1,932	\$97	\$112	\$2,140
		07/23/07	LS	Egg Electric	H&M light and power	Electric MATOC # 9	\$5,241	\$262	\$303	\$5,806
		11/21/07	LS	Egg Electric	Lighting for tieback installation in area of Elev 309 H&M.	Electric MATOC # 13	\$3,770	\$188	\$218	\$4,176
		12/03/07	LS	Kleinberg Electric	Relocate traffic signals and street lights.	Electric MATOC # 15	\$11,990	\$600	\$692	\$13,282
		01/29/08	LS	Egg Electric	Relocate 4 conduits and cabling to outside of the 1/9 box	Electric MATOC # 21	\$57,500	\$2,875	\$3,321	\$63,696
		03/10/08	LS	Kleinberg Electric	Temp electric power to support instrumentation monitoring	Electric MATOC #24	\$12,000	\$600	\$693	\$13,293
		03/13/08	LS	Kleinberg Electric	Relocate street lights and signals on Church St.	Electric MATOC #25	\$7,415	\$371	\$428	\$8,213
		03/22/08	LS	Kleinberg Electric	Remove light poles and signal wiring along west side of Church St. and North Side of Liberty St.	Electric MATOC #22	\$26,134	\$1,307	\$1,509	\$28,950
		04/17/08	LS	Kleinberg Electric	Streetlight work at Church St.	Electric MATOC #27	\$23,166	\$1,158	\$1,338	\$25,662
		05/01/08	LS	Kleinberg Electric	Streetlight work at Dey St.	Electric MATOC #29	\$5,362	\$268	\$310	\$5,939
		05/20/08	LS	Crescent Contracting	PAPD trailer sanitary and water lines	Plumbing MATOC #3	\$45,000	\$2,250	\$2,599	\$49,849
		05/21/08	LS	Five Star Electric	Power Distribution Center and Construction Power for site due to demo of Temp PATH	Electric MATOC #28	\$347,000	\$17,350	\$20,039	\$384,389
		06/18/08	LS	EJ Electric	F&I 205 ft. 4" RGS conduits on Liberty St.	Electric MATOC #31	\$59,000	\$2,950	\$3,407	\$65,357
		07/10/08	LS	Five Star Electric	550 Washington St Electric work	Electric MATOC # 33	\$12,500	\$625	\$722	\$13,847
		07/10/08	LS	Kleinberg Electric	Street traffic signals at Vesey and Church	Electric MATOC # 34	\$8,840	\$442	\$511	\$9,793
		07/31/08	LS	EJ Electric	Electric and lighting for top of north end of 1/9 box	Electric MATOC # 35	\$29,000	\$1,450	\$1,675	\$32,125

ATTACHMENT 7: LUMP SUM VALUES OF WORK PACKAGES AS OF MAY 3, 2009

Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		08/19/08	LS	Kleinberg Electric	Traffic signal reconfiguration on Church St.	Electric MATOC # 38	\$9,014	\$451	\$521	\$9,985
		09/24/08	LS	Crescent Contracting	Sprinkler system work at 550 Washington St.	Plumbing MATOC #5	\$15,000	\$750	\$866	\$16,616
		10/02/08	LS	Kleinberg Electric	Light pole removal.	Electric MATOC # 39	\$9,304	\$465	\$537	\$10,306
		10/24/08	LS	Five Star Electric	Fire alarm work at 61 Bway	Electric MATOC # 37	\$98,700	\$4,935	\$5,700	\$109,335
		11/06/08	LS	Jenny Engineering	Scaffold system for elevation 286 to 309	Design and Engineering MATOC # 27	\$8,000	\$400	\$462	\$8,862
		01/16/09	LS	Egg Electric	Power and Lighting under 1/9 Box	see also NTE award	\$474,229	\$23,711	\$27,387	\$525,327
		02/09/09	LS	Kleinberg Electric	Traffic signal relocation	Electric MATOC # 40	\$7,425	\$371	\$429	\$8,225
1 g.	Signal Controls Purchase Order						\$550,000	\$27,500	\$31,763	\$609,263
		05/07/07	LS	Union Switch and Signal	Furnish Signal Control System Modifications		\$550,000	\$27,500	\$31,763	\$609,263
1 h.	Temp Escalator/Elevator Purchase Order						\$4,504,100	\$225,205	\$260,112	\$4,989,417
		08/18/06	LS	Schindler Elevator	Furnish, install and maintain elevators and escalators for the Temp Path Station	\$111,600 of amount is for 36 month maintenance after final completion	\$4,504,100	\$225,205	\$260,112	\$4,989,417
1 i.	Fan Plant Equipment Purchase Order						\$8,703,400	\$435,170	\$502,621	\$9,641,191
		07/19/07	LS	TLT Babcock	Supply tunnel emergency vane axial fans and ancillary electrical equipment	C/O #53: \$1,139,971.60	\$8,703,400	\$435,170	\$502,621	\$9,641,191
1 j.	Track Turnout Purchase Order						\$1,163,156	\$58,158	\$67,172	\$1,288,486
		02/13/07	LS	Vae Nortrack Inc.	Track turnout procurement	C/O #52: \$76,200	\$1,163,156	\$58,158	\$67,172	\$1,288,486
2.	Temporary Substation						\$4,668,749	\$233,437	\$269,620	\$5,171,807
		12/22/06	LS	Crescent Electrical Supply Company	Supply temporary substation equipment	Contract covers 12 also. Amount is apportioned per E. Dejak. Change Order #70:\$112,500+m/ups	\$4,668,749	\$233,437	\$269,620	\$5,171,807
3 b.	Demolition of Ramp "J" and Existing Utilities						\$247,000	\$12,350	\$14,264	\$273,614
		06/26/06	LS	Gottlieb Skanska, Inc.	Structural steel demo and disposal.	Contract covers 4a also. Amount is apportioned per Phoenix.	\$247,000	\$12,350	\$14,264	\$273,614

ATTACHMENT 7: LUMP SUM VALUES OF WORK PACKAGES AS OF MAY 3, 2009

Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
3 e.	Existing Emergency Egress Tower Relocation (design only)	11/21/07	LS	Medina Consultants	Design temp egress stair replacement and stair removal	Design & Engineering MATOC # 1; Originally approved on 7/16/07 for \$51,500. Revised upward. C/O #63: \$9,800	\$64,305	\$3,215	\$3,714	\$71,234
4 a.	East Bathtub Site Preparation	05/22/06	LS	Gottlieb Skanska, Inc.	Structural steel demo and disposal.	Contract covers 3b also. Amount is apportioned per Phoenix. PCJV may have completed this work (open issue). Modified by 5/15/09 letter to include bond costs of \$5,856.	\$1,249,406	\$62,470	\$72,153	\$1,384,029
		06/22/06	LS	Gottlieb Skanska, Inc.	Fence Modification and Relocation		\$510,000	\$25,500	\$29,453	\$564,953
		07/12/06	LS	Coastal Environmental Group, Inc.	Lead Abatement and Fireproofing removal and disposal		\$130,850	\$6,543	\$7,557	\$144,949
		07/28/06	LS	EJ	Electrical	Missing PA letter	\$191,700	\$9,585	\$11,071	\$212,356
4 b.	East Bathtub Slurry Wall Construction	08/22/06	LS	Grand Mechanical	Mechanical Work	SMS may have completed this work.	\$200,892,623	\$9,744,631	\$11,255,049	\$221,892,303
		09/12/06	LS	4 J's Plbg & Htg Corp	Slurry Wall Plumbing and Fire Protection	C/O #31: \$4,918.29.	\$83,800	\$4,190	\$4,839	\$92,829
		10/05/06	LS	Kiewit Constructors/Trevicos Corp. JV	Slurry Wall work	C/O #30: \$21,724.02; C/O #32: \$22,492.16; C/O #33: \$12,291. C/O #46: \$209,761.94; C/O #58: \$647,443	\$1,164,355	\$58,218	\$67,242	\$1,289,814
		10/06/06	LS	Nicholson Construction/EE Cruz, JV	Install tie-back anchors		\$34,110,000	\$1,705,500	\$1,969,853	\$37,785,353
		10/20/06	LS	Egg Electric	Electrical	Modified by 5/15/09 Letter to include bond costs of \$11,477. C/O #50: \$8,575.94 C/O #51: \$12,264	\$19,500,000	\$975,000	\$1,126,125	\$21,601,125
		01/02/07	LS	Navillus Tile Inc.	F&I Masonry		\$1,322,877	\$66,144	\$76,396	\$1,465,417
		01/02/07	LS	Strocchia Iron Works	F&I Structural and Miscellaneous Steel		\$138,000	\$6,900	\$7,970	\$152,870
4 b.1		01/08/07	LS	Int'l Tentnology Co.	F&I Entrance canopy and lighting		\$179,900	\$8,995	\$10,389	\$199,284
							\$275,000	\$13,750	\$15,881	\$304,631

ATTACHMENT 7: LUMP SUM VALUES OF WORK PACKAGES AS OF MAY 3, 2009

Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		01/09/07	LS	Wang Engineering	Furnish Instrumentation	C/O #21:\$568,720; C/O #55: \$157,978; C/O#78: \$170,622.43; C/O #85: \$24,240	\$1,130,000	\$56,500	\$65,258	\$1,251,758
4 b.1		02/07/07	LS	Glenridge Fabricators	Supply, fabricate, deliver and erect structural steel framing, steel stair assemblies, handrails, guardrails, and elevator canopy.		\$864,000	\$43,200	\$49,896	\$957,096
		02/09/07	LS	Testa Corporation	Demo of H&M Tunnel	Asbestos abatement of concrete mastic to be done by PA task order contractor	\$5,850,000	\$292,500	\$337,838	\$6,480,338
		02/13/07	LS	Moretrench American	East Bath tub Slurry Wall Dewatering	C/O #64 (NTE): \$56,605; C/O#80 (NTE): \$43,305+5%PC fee; C/O #82: \$287,690.56	\$6,375,000	\$318,750	\$368,156	\$7,061,906
		02/16/07	LS	Nicholson Construction/EE Cruz, JV	Jet grouting	This package applies to 9 also and has been apportioned by PCP. REE is value of work as package was apportioned after bid. C/O#79: 96,051+5% m/lup (T&M)	\$770,000	\$38,500	\$44,468	\$852,968
4 b.2		03/07/07	LS	Phoenix	Secant Wall	Note this work is not funded by FTA.	\$21,500,000	\$1,075,000	\$1,241,625	\$23,816,625
		03/08/07	LS	Coastal Environmental Group	Underground storage tanks, fuel supply and return lines, vent lines, pumps, meters and valve fittings.	Testa may have completed this work. Scrap value issue also.	\$175,400	\$8,770	\$10,129	\$194,299
4 b.1		03/20/07	LS	Visual Graphics	Remove/relocate signs and install 2 new concourse signs		\$62,635	\$3,132	\$3,617	\$69,384
4 b.1		03/26/07	LS	Phoenix	PATH canopy and stair removal and sitework		\$980,000	\$49,000	\$56,595	\$1,085,595
4 b.1		04/17/07	LS	Egg Electric	Temp PATH electric demo/relocation and new power for PATH Canopy		\$150,000	\$7,500	\$8,663	\$166,163
4 b.1		04/17/07	LS	Testa Corporation	Demo of existing canopy		\$275,000	\$13,750	\$15,881	\$304,631
4 b.1		04/25/07	LS	Voorsanger Architects Design	Design services: stair relocation	Originally issued as NTE for \$300,000 on 11/16/06. Increased and converted to LS. REE is final cost.	\$386,400	\$19,320	\$22,315	\$428,035
4 b.1		05/02/07	LS	L. Martone and Sons, Inc.	Roofing for Temp WTC Path Station Entrance		\$21,750	\$1,088	\$1,256	\$24,094
4 b.1		05/03/07	LS	Fine Painting Co. Inc.	Painting: steel, stair handrails, and bollards for temp stairs.	7/31/07 letter corrects 5/3/07 letter which incorrectly referenced only 6B. REE adjusted to exclude 6b portion	\$93,597	\$4,680	\$5,405	\$103,682
		05/14/07	LS	Glenridge Fabricators	Remove and re-install cross-bracing for Burma Road		\$72,700	\$3,635	\$4,198	\$80,533
		05/31/07	LS	JP Hogan Coring and Sawing Corp	Concrete cutting		\$4,394,661	\$219,733	\$253,792	\$4,868,186

ATTACHMENT 7: LUMP SUM VALUES OF WORK PACKAGES AS OF MAY 3, 2009

Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		06/29/07	LS	Phoenix	Balance of self-performed work: excavation to 240, jacking, bracing, demo, truck/dispose concrete and steel, etc. Note, this excludes T&M work thru 6/6/07.	Includes Kiewit slurry panels 34, 35, 36 and Testa Demolition change/order work, as well as all remaining subcontractors; C/O #26: NTE \$92,748. Note, C/O #26 may be changed to Pkg 9. C/O #40: NTE \$15,367 (incl Egg work too). C/O #41: NTE \$24,694.33; C/O#43: NTE \$74,823.66; C/O #45: \$187,545.82; C/O #60: \$13,334 (SMS work); C/O#81: \$394,719; C/O#84: \$5,480,973 LS +\$1,600/hr for nte 387 hrs	\$95,000,000	\$4,750,000	\$5,486,250	\$105,236,250
		12/19/07	LS	Kleinberg Electric	Relocation of lights and signs on Church Street.	Electrical MATOC # 11; Originally approved for \$20,080 on 7/26/07. Revised for deletion of scope.	\$12,348	\$617	\$713	\$13,679
		04/08/08	LS	Kiewit Constructors/Trevicos Corp. JV	Bonus money		\$1,000,000	\$0	\$0	\$1,000,000
		05/21/08	LS	Medina Consultants	Cross bracing design for 1/9 box	Design and Engineering MATOC #18	\$5,200	\$260	\$300	\$5,760
		05/22/08	LS	Phoenix	Supplemental Agreement #1 to the \$95million LS agreement	Adds \$5mm outright (EV is \$1mm/mth beginning with April Req) and another NTE \$14mm bonus provision. No markup.	\$5,000,000	\$0	\$0	\$5,000,000
		10/07/08	LS	Nicholson Construction/EE Cruz, JV	Jet grouting and mini piles for Z wall	Z-Wall never built. Prior award letter dated 4/11/07 for \$2,195,000 superseded. CV reduced to \$0.	\$0	\$0	\$0	\$0
4 c.	Demolition of Temporary Concourse and North H&M Structure						\$28,500,000	\$1,425,000	\$1,645,875	\$31,570,875
		06/06/08	LS	Phoenix	Demo of Temp Station and H&M Structure, excavation to 240, bracing under 1/9 box under PATH station	Includes self and sub work.	\$28,500,000	\$1,425,000	\$1,645,875	\$31,570,875
4 d.	Vesey Street Watermain Relocation						\$777,000	\$38,850	\$44,872	\$860,722

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Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		07/14/06	LS	Phoenix	Water main relocation in Vesey St.	C/O #48: \$52,528.09 which supersedes NTE \$47,619 PIN 4D-20.	\$777,000	\$38,850	\$44,872	\$860,722
4 e.	East Basement Perimeter Fence Graphics						\$0	\$0	\$0	\$0
		10/07/08	LS	Signs and Decals Corp	Furnish and install fence graphics panels on existing perimeter fence	Original award dated 9/5/06 for \$157,500. Minimal work done, sub couldn't document and reduced value to \$0. CV reduced to \$0 as a result.	\$0	\$0	\$0	\$0
5 a.	Platform D Early Foundations						\$2,120,000	\$106,000	\$122,430	\$2,348,430
		05/18/06	LS	Phoenix	Construction of footings, a portion of shear wall and a ductbank	C/O #1: \$0. C/O #3: \$697,000. Note, Tom S. to pursue adjustment for \$30-\$67k for temp shoring work included in Phoenix LS but performed by and paid to Francis Lee - 2/9/07 C/O #4:\$15,487; C/O #9:\$154,509	\$1,840,000	\$92,000	\$106,260	\$2,038,260
		06/19/06	LS	Kleinberg	Electrical	Missing PA letter	\$190,000	\$9,500	\$10,973	\$210,473
		09/13/06	LS	Francis Lee	Structural Steel		\$90,000	\$4,500	\$5,198	\$99,698
5 b.	Ductbank Relocation						\$10,201,598	\$510,080	\$589,142	\$11,300,820
5 b.1		10/05/06	LS	Phoenix	Demolition and removal of temporary retaining wall - approx 170 lf		\$19,564	\$978	\$1,130	\$21,672
		10/13/06	LS	KJC Waterproofers	Waterproofing	This is apportioned with 5a C/O #3 also.\$17,000 for 5a and \$10,000 for 5b (see ltr dated 10/7/08). C/O #6: \$16,000.	\$10,000	\$500	\$578	\$11,078
5 b.2		11/07/06	LS	Phoenix	Excavation, handling, disposal, shoring and slab preservation		\$1,460,000	\$73,000	\$84,315	\$1,617,315

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Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		11/08/06	LS	E-J Electric	Electrical	Work covers 6e also. Amount is apportioned per Phoenix and includes entire adjustment of \$50,000 for W/Comp per 01/25/07 PA letter due to OCIP exclusion for electricians. Modified by 5/15/09 letter to include bond costs of \$34,179. C/O #16: \$2,085.79; C/O #28: \$8,837.75; C/O #44: \$14,615.55; C/O#62: \$4,198	\$4,080,079	\$204,004	\$235,625	\$4,519,708
		11/09/06	LS	Turtle & Hughes	Furnish electric wire and cable		\$1,304,955	\$65,248	\$75,361	\$1,445,564
		01/02/07	LS	Glenridge Fabricators Inc.	F&I Structural Steel and Miscellaneous Metals		\$185,000	\$9,250	\$10,684	\$204,934
5 b.3		01/05/07	LS	Phoenix	Remaining work inclusive of demo, temporary construction, concrete, drainage and backfill.	This letter superceded NTE letter dated 12/5/06 for \$238,095. CO #10: \$2,796; C/O #15: \$11,700; C/O #19: \$53,100; C/O #22: \$45,960; NTE C/O #27: \$59,760 pre-markup; NTE C/O # 38: \$24,762 pre-markup (incl. E-J work also). C/O # 47: NTE \$7,688.31	\$3,100,000	\$155,000	\$179,025	\$3,434,025
		04/11/07	LS	Island Lathing and Plastering, Inc.	Fireproofing	This supercedes the previously approved Lawrence Wohl NTE \$28,800 Unit Price contract which was never used due to scope changes made prior to award to Wohl	\$42,000	\$2,100	\$2,426	\$46,526
6 a.	North Access Structural Steel						\$5,300,265	\$265,013	\$306,090	\$5,871,369
		12/22/06	LS	Phoenix	Supply, fabrication, delivery and erection of structural steel and deck	C/O #12: \$19,896; C/O #17: \$10,104; C/O #18: \$7,362.45; C/O #36: \$63,924.17; C/O #37: \$27,950.34.	\$5,300,265	\$265,013	\$306,090	\$5,871,369
6 b.	North Access Construction						\$37,730,453	\$1,886,523	\$2,178,934	\$41,795,909
		02/08/07	LS	Universal Builders Supply	F&I one single rack and pinion 4,000 lbs. hoist		\$460,000	\$23,000	\$26,565	\$509,565
		02/27/07	LS	Harbor Island Contracting, Inc.	North Temp Access Concrete	Modified by 5/15/09 letter to include bond costs of \$43,000.	\$2,182,000	\$109,100	\$126,011	\$2,417,111
		03/07/07	LS	Commodore Construction	F&I masonry		\$1,029,700	\$51,485	\$59,465	\$1,140,650
		03/08/07	LS	L. Martone	F&I Roofing		\$827,000	\$41,350	\$47,759	\$916,109

ATTACHMENT 7: LUMP SUM VALUES OF WORK PACKAGES AS OF MAY 3, 2009

Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		03/21/07	LS	Phoenix	North access construction	Amt revised by 3/21/07 LS letter which superceded 2/5/07 NTE letter for \$47,619+m/up and original 1/17/07 NTE letter for \$9,524+m/up.	\$91,000	\$4,550	\$5,255	\$100,805
		05/03/07	LS	Fine Painting	Painting	7/31/07 letter corrects 5/3/07 letter which incorrectly referenced only 6B. REE adjusted to exclude 4B.1 portion	\$198,621	\$9,931	\$11,470	\$220,022
		05/03/07	LS	Olympic Plumbing and Heating Services	Plumbing		\$432,000	\$21,600	\$24,948	\$478,548
		05/03/07	LS	Grand Mechanical Corp	HVAC		\$1,311,609	\$65,580	\$75,745	\$1,452,935
		06/15/07	LS	Five Star Electric Corp	F&I Electrical Subsystems		\$15,390,000	\$769,500	\$888,773	\$17,048,273
		06/28/07	LS	Seiko Iron Works	Misc and Ornamental Iron Works	Amount revised upward by \$32,400 via 8/6/07 letter to reflect steel change and bond costs. REE not adjusted however. Modified by 5/15/09 letter to reduce bond costs by \$56,352.	\$4,246,048	\$212,302	\$245,209	\$4,703,560
		11/21/07	LS	Egg Electric	Antenna relocation; scope reduction reduced 6/29/07 value from \$80,300 to \$2,007.50	Electric MATOC # 8	\$2,008	\$100	\$116	\$2,224
		07/05/07	LS	Lawrence B. Wohl, Inc.	F&I fireproofing		\$269,463	\$13,473	\$15,561	\$298,498
		07/06/07	LS	Kalwall Corporation	F&I translucent fiberglass skylights and wall panels		\$223,204	\$11,160	\$12,890	\$247,254
		07/09/07	LS	Signs and Decal Corp	F&I signs		\$322,500	\$16,125	\$18,624	\$357,249
		08/02/07	LS	Rael Automatic Sprinkler Company, Inc.	Fire Protection		\$628,900	\$31,445	\$36,319	\$696,664
		09/25/07	LS	New England Construction Co. Inc.	Drywall and Carpentry		\$1,700,000	\$85,000	\$98,175	\$1,883,175
		11/16/07	LS	Jenny Engineering	Load capacity checks on 12 lighting support grates.	Design and Engineering MATOC # 12;	\$6,000	\$300	\$347	\$6,647
		11/29/07	LS	Jenny Engineering	Temp reinforced gravity wall.	Design and Engineering MATOC # 13.	\$14,500	\$725	\$837	\$16,062
		11/30/07	LS	Egg Electric	NYCT EDR feeder replacement	Electric MATOC # 19	\$41,500	\$2,075	\$2,397	\$45,972

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Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		01/15/08	LS	Phoenix	Self-performed work, subcontractor and self-performed acceleration and PIN/PACC work; misc. work.	This supersedes prior 10/31/07 6B NTE award of \$5mm+m/up. Also includes prior 4/26/07 6A.4 NTE award of \$75k +m/up (removal of steel at EI 264 and EI 289) and 6A C/O #20. C/O #73: \$19,500 + m/ups; C/O #76: \$411,000+m/ups; C/O#83: \$2,676,596.70	\$8,340,000	\$417,000	\$481,635	\$9,238,635
		07/16/08	LS	Medina Consultants	Bracket design along slurry wall for RGS	Design and Engineering MATOC # 19	\$5,400	\$270	\$312	\$5,982
		09/15/08	LS	Medina Consultants	Temporary PATH partition wall design.	Design and Engineering MATOC # 22	\$5,900	\$295	\$341	\$6,536
		12/10/08	LS	Jenny Engineering	Temp install of bridge bracket support into 8" CMU wall	Design and Engineering MATOC # 29	\$3,100	\$155	\$179	\$3,434
6 e.	Temporary Substation Ductbank (Temp Electric Service Raceway)						\$113,877	\$5,694	\$6,576	\$126,147
		11/08/06	LS	E-J Electric	Electrical.	Work covers 5b also. Amount is apportioned per Phoenix. C/O #5: \$0.	\$108,177	\$5,409	\$6,247	\$119,833
		09/13/07	LS	Kleinberg	Conduit modifications; Vesey St. Slurry Wall.	Electric MATOC # 12; Originally approved on 8/3/07 for \$3,800 + material. Revised on 9/13/07 to reflect extra day.	\$5,700	\$285	\$329	\$6,314
8.	East/West Connector Structural						\$19,219,155	\$960,958	\$1,109,906	\$21,290,019
8.1		07/03/07	LS	Phoenix	EW Shear wall located along "BS-1" line. Includes reinforced concrete wall and anchor bolts and steel templates.	This LS supersedes the prior CR NTE award on 5/9/07 for \$20,000 plus markups (see also 6/5/09 letter clarifying this). Amount excludes footprint protection which will be under general conditions per S. Leone. Change Order #54: \$4,744/mth for approx 6mths; C/O #61: \$164,664; C/O #66: \$125,000	\$2,700,000	\$135,000	\$155,925	\$2,990,925
		08/28/07	LS	EMESA	Steel fab and intumescent paint coating		\$5,375,130	\$268,757	\$310,414	\$5,954,300

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Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		10/03/07	LS	DCM Erectors	Steel and metal deck erection	Modified by 5/15/09 letter to reduce bond costs by \$43,775.	\$3,856,225	\$192,811	\$222,697	\$4,271,733
		11/21/07	LS	Jenny Engineering	Temp shoring to support arches during construction of grade slab above	Design and Engineering MATOC #11; Includes LS component of \$18,160 and NTE component of \$11,860	\$30,020	\$1,501	\$1,734	\$33,255
		09/25/08	LS	Phoenix	Balance of SP and Sub work through Add # 3	Original PA letter dated 4/24/08 but signed by Phoenix 5/6/08. LS amt subsequently revised to account for new waterproofing sub.	\$7,257,780	\$362,889	\$419,137	\$8,039,806
8 b.	Arch Formwork (concrete mock-up no. 1)						\$160,000	\$8,000	\$9,240	\$177,240
		09/21/06	LS	JCI/Joy Contractors	Construct and deliver 8 concrete mock-ups.	Work stopped after design. Need to reduce amount after verification.	\$160,000	\$8,000	\$9,240	\$177,240
9.	Temporary 1-Line Underpinning						\$55,192,441	\$2,759,622	\$3,187,363	\$61,139,426
9 b.		06/02/06	LS	Phoenix	F&I 54 temporary steel casings along centerline of subway tunnel, including F&I timber roof protection and shielding, core drilling of existing roof and toe bench, removals and grouting	C/O #24: \$30,702; C/O #25: \$28,637; C/O #35: \$23,662. Open issue: 9c Crescent work done via this Lump Sum?	\$624,032	\$31,202	\$36,038	\$691,271
9 c.		07/13/06	LS	Geocomp Corp	F&I instrumentation and provide monitoring for 10 months	Modified by 5/15/09 letter to include bond costs of \$22,500.	\$1,145,900	\$57,295	\$66,176	\$1,269,371
9 c.		07/26/06	LS	Egg Electric	Relocation of existing 25Hz signal cable and tray, and FDNY Sound Powered Phone System. If required, relocation of existing signal cable crosses and signal messenger system at no additional cost to PA		\$136,140	\$6,807	\$7,862	\$150,809
9 c.		08/18/06	LS	Kleinberg Electric Inc.	Electrical Support during weekend General Order work		\$136,200	\$6,810	\$7,866	\$150,876
9 c.		08/28/06	LS	4 J's Pibg & Htg Corp	Relocate existing Fire Standpipe during one General Order Shutdown		\$170,000	\$8,500	\$9,818	\$188,318
9 c.		09/13/06	LS	Egg Electric Inc.	Relocate existing 3rd rail cables, transitions and jumpers		\$250,400	\$12,520	\$14,461	\$277,381
		10/06/06	LS	Nicholson Construction/EE Cruz, JV	Install, test and QA for micro-piles for 1-line underpinning.	C/O#67:\$99,357; C/O#68:\$49,500	\$17,500,000	\$875,000	\$1,010,625	\$19,385,625
9 c.		11/16/06	LS	Phoenix	Underpinning of 1-Line Subway Tunnel	C/O #2: \$2,500; C/O #23: \$22,568	\$3,555,000	\$177,750	\$205,301	\$3,938,051
		01/22/07	LS	Coastal Environmental	Lead abatement		\$75,000	\$3,750	\$4,331	\$83,081

ATTACHMENT 7: LUMP SUM VALUES OF WORK PACKAGES AS OF MAY 3, 2009

Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		02/16/07	LS	Nicholson Construction/EE Cruz, JV	Jet grouting	This package applies to 4b also and has been apportioned by PCP. REE adjusted to exclude 4b amount. Modified by 5/15/09 letter to include bond costs of \$90,000.	\$13,090,000	\$654,500	\$755,948	\$14,500,448
		03/02/07	LS	Phoenix	Ironworker and Dock-builder trade labor only. No material.	Material purchased by Phoenix under the NTE package	\$17,900,000	\$895,000	\$1,033,725	\$19,828,725
		04/11/07	LS	Fine Painting	Paint all exposed primed and unpainted new and existing steel surfaces of the underpinning steel		\$162,490	\$8,125	\$9,384	\$179,998
		04/11/07	LS	Kleinberg Electric Inc.	Electrical work		\$130,000	\$6,500	\$7,508	\$144,008
		09/27/07	LS	Crescent Contracting	Water and sewer pipe work	Plumbing MATOC # 2	\$20,784	\$1,039	\$1,200	\$23,023
		09/28/07	LS	Egg Electric Inc.	Heat trace work	Electric MATOC # 16	\$2,226	\$111	\$129	\$2,466
		10/09/07	LS	Phoenix	Test pile program.	Skanska Underpinning and Foundation did this work. REE is actual costs.	\$92,495	\$4,625	\$5,342	\$102,462
		10/29/07	LS	Moretrench American	Steam Anchor tiebacks		\$74,000	\$3,700	\$4,274	\$81,974
		12/19/07	LS	Kleinberg Electric Inc.	Weekend Electric GO work	Electric MATOC # 10; Original award on 7/13/07 for \$108,594 was revised to add more GOs.	\$123,073	\$6,154	\$7,107	\$136,334
		04/23/08	LS	Kleinberg Electric Inc.	Signal Head Repeater	Electric MATOC # 18	\$1,980	\$99	\$114	\$2,193
		05/16/08	LS	Kleinberg Electric Inc.	Weekend Electric GO work	Electric MATOC # 30	\$2,720	\$136	\$157	\$3,013
10 a.1	West Bathtub Foundations (Part 1)						\$300,000	\$15,000	\$17,325	\$332,325
10.1		11/07/06	LS	Phoenix		C/O #14: \$3,115.41	\$300,000	\$15,000	\$17,325	\$332,325
10 a.2	West Bathtub Foundations (Part 2)						\$7,948,940	\$397,447	\$459,051	\$8,805,438
		04/25/07	LS	Phoenix	Excavation, disposal, formwork, rebar, concrete, etc.	C/O #42: NTE \$52,281; C/O #65: \$24,000	\$7,000,000	\$350,000	\$404,250	\$7,754,250
		04/27/07	LS	Wang Engineering Services	Instrumentation south mezz foundations		\$162,000	\$8,100	\$9,356	\$179,456
		05/03/07	LS	Lambco Erecting	F&I support steel and embedded steel plates		\$149,100	\$7,455	\$8,611	\$165,166
		05/07/07	LS	Taggart Associates	Plumbing		\$21,000	\$1,050	\$1,213	\$23,263
		05/07/07	LS	Egg Electric	Electric		\$34,840	\$1,742	\$2,012	\$38,594

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Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
		05/15/07	LS	Hayward Baker	F&I mini piles and rock anchors; south mezzanine foundations	C/O #29: \$37,000; C/O#72: \$43,292	\$517,000	\$25,850	\$29,857	\$572,707
		05/15/07	LS	D-Star Waterproofing	Waterproofing		\$65,000	\$3,250	\$3,754	\$72,004
12.	Electrical Service Equipment Purchase Order						\$27,001,402	\$1,350,070	\$1,559,331	\$29,910,803
		12/22/06	LS	Crescent Electrical Supply Company	Supply six spot networks for permanent electric.	Contract covers 2 also. Amount is apportioned per E. Dejak.	\$10,895,625	\$544,781	\$629,222	\$12,069,629
		11/02/07	LS	Turtle and Hughes Inc.	Furnish electrical service equipment	Sch Values: 15% Shop; 10% Release of Fab; 20% Witness Testing; 40% Ship to Storage; 15% Ship to Jobsite	\$15,832,777	\$791,639	\$914,343	\$17,538,759
		07/28/08	LS	Turtle and Hughes Inc.	Furnish optional extra electrical service equipment: breakers and vertical sections	No REE for extra equipment done, as original REE done on entire original scope of work.	\$273,000	\$13,650	\$15,766	\$302,416
18 a.	9A Underpass - Early Construction						\$17,714,684	\$885,734	\$1,023,023	\$19,623,442
		01/04/07	LS	Hellman Electric Corp	MPT Electrical	C/O #13: \$12,236	\$396,000	\$19,800	\$22,869	\$438,669
		01/10/07	LS	Wang Engineering	Furnish instrumentation work and monitoring		\$766,000	\$38,300	\$44,237	\$848,537
		02/21/07	LS	4J's Plumbing and Heating	Relocate inlets (siamese connections)		\$73,550	\$3,678	\$4,248	\$81,475
		02/21/07	LS	Atlantic Concrete Cutting	Wire-saw cutting, wall-saw cutting and walk-behind saw cutting	C/O #39: \$5,300.	\$77,100	\$3,855	\$4,453	\$85,408
		03/29/07	LS	Phoenix	Secant piles, guide wall and disposal of contaminated soil		\$12,500,000	\$625,000	\$721,875	\$13,846,875
		05/08/07	LS	Hayward Baker	F&I north projection tieback anchors and Vesey St tiebacks	Supersedes initial 4/30/07 award letter of \$1,569,000 + m/ups to include Tie Backs for both North Projection and Vesey Street. C/O #49 NTE \$259,420 + Sub fee of \$38,913 + PC fee of \$14,917 (5%); C/O #56 NTE: \$213,946	\$2,622,500	\$131,125	\$151,449	\$2,905,074
		07/12/07	LS	Nico Asphalt Paving	Milling, paving, and striping work	C/O # 59: \$106,010	\$191,820	\$9,591	\$11,078	\$212,489
		07/23/07	LS	Jenny Engineering	Design calcs for road plate thickness	Design and Engineering MATOC # 2	\$850	\$43	\$49	\$942
		11/07/07	LS	Jenny Engineering	Design drilling rig platform and design underpinning for 78" sewer		\$24,897	\$1,245	\$1,438	\$27,580

ATTACHMENT 7: LUMP SUM VALUES OF WORK PACKAGES AS OF MAY 3, 2009

Work Pkg	Work Package Title	PA Letter Date	Contract Type	Contractor	Work Description	Comments	Contract Value (pre-markup)	Phoenix G&A @ 5%	Phoenix Fee @ 5.5%	Contract Value (CV)
18 a.2		11/19/08	LS	Phoenix	WFC Brookfield Caissons	Funded by Brookfield Properties, not FTA; EE is same as CV as none was done due to Brookfield negotiating directly with PCJV	\$1,061,967	\$53,098	\$61,329	\$1,176,394
18 b.	9A Underpass - Main/North Vent Building	03/03/08	LS	D-Star Waterproofers	Waterproofing		\$953,500	\$47,675	\$55,065	\$1,056,240
		04/07/08	LS	Wang Engineering	Instrumentation and monitoring		\$1,754,057	\$87,703	\$101,297	\$1,943,057
18 b.1		05/15/08	LS	Phoenix	North Projection and 9A Underpass SP and Sub work; PA letter is dated 3/11/08 but Phoenix signed on 5/15/08.	Supersedes T&M letter dated 8/28/07 for \$1,805,460+m/ups and includes prior material awards for Acrow bridges, wide flange beams and structural steel under that T&M.	\$4,437,000	\$221,850	\$256,237	\$4,915,087
18 b.2		07/29/08	LS	Phoenix	9A Underpass and North Projection: Demolition, Excavation, and Construction of the East Cofferdam and N/Projection Roof (SP and Sub Work)	Includes North Proj. steel fabrication procurement, previously authorized under the 18B T&M. C/O # 69 (1941 bulkhead): \$1,667,470.59+m/ups (\$1,213,602 LS; \$444,668.59 unit price; \$9,200 T&M). C/O#77: \$1,938,595+m/ups (\$1,451,467 LS; \$444,958 unit price; \$42,170 T&M).	\$36,000,000	\$1,800,000	\$2,079,000	\$39,879,000
18 b.4		08/21/08	LS	Phoenix	Tower 1 column steel and concrete footing (SP and Sub Work)		\$375,890	\$18,795	\$21,708	\$416,393
18 b.5		10/28/08	LS	L&M Fabrication	Tower 1 Concrete Header Beam Temporary Support Steel	Material procurement only. To be installed under PCJV 18b.5 LS.	\$109,847	\$5,492	\$6,344	\$121,683
18 b.5		10/28/08	LS	Hayward Baker	Drilled Minipiles		\$3,314,000	\$165,700	\$191,384	\$3,671,084
		11/17/08	LS	Phoenix	Tower 1 Concrete Deep Beam and Concrete Column		\$3,200,000	\$160,000	\$184,800	\$3,544,800
		11/21/08	LS	Norberto Construction	Shotcrete		\$1,863,000	\$93,150	\$107,588	\$2,063,738
18 c.	North Projection Demolition						\$40,000	\$2,000	\$2,310	\$44,310
		02/06/07	LS	E-J Electric	Light and power for north projection		\$40,000	\$2,000	\$2,310	\$44,310

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20 a.	Early Works and Trestle Construction						\$9,486,524	\$410,826	\$474,504	\$10,371,854
		11/13/07	LS	Morrow Equipment Co. LLC	Tower Crane 36 month lease with option to buy; \$100k initial delivery and \$78k/mth	Terminated 2/09. Amount reduced to reflect 15 months rent and delivery charge from Michigan to Virginia. New agreement dated 3/4/09 with PCJV is for no markups.	\$1,270,000	\$0	\$0	\$1,270,000
		01/31/08	LS	Phoenix	Phase 1 Trestle over 1/9 box. CANCELLED by PA.	Material (caissons and misc. NOIPs), Metallurgical Services (NOIP 2935), and Muesler Engineering costs to remain under 9/7/07 T&M award.	\$8,216,524	\$410,826	\$474,504	\$9,101,854
21	West Bathtub Structures (includes pkgs. 3e constr., 5c, 6c, 6c.1, 6x, 10.2 bulletins 1 and 2, 10.3, and 20bcd.1						\$85,351,508	\$4,267,575	\$4,929,050	\$94,548,133
		12/04/07	LS	Jenny Engineering	Temp wall bracing for new north/south shear wall between PATH col. C and SW corner. This is 5c scope.	Design and Engineering MATOC # 7	\$19,980	\$999	\$1,154	\$22,133
		12/05/07	LS	Kleinberg Electric	6x electric scope	Electric MATOC # 20; Change Order #71: \$47,500+m/ups	\$320,000	\$16,000	\$18,480	\$354,480
		12/12/07	LS	Phoenix	Temp egress stair replacement (3e construction scope)	Includes self-performed and sub-work. Modified by 5/15/09 letter to reduce bond costs for Seiko by \$11,060. C/O#75: \$64,081+m/ups.	\$2,801,340	\$140,067	\$161,777	\$3,103,184
		01/04/08	LS	York Sign Industries	F&I Temp egress stairs (6x scope)		\$39,510	\$1,976	\$2,282	\$43,767
		02/12/08	LS	York Sign Industries	F&I Temp Pre-Engineered Egress stairs and Temp. Roof Scaffolding (6x scope)		\$220,000	\$11,000	\$12,705	\$243,705
		03/11/08	LS	Phoenix	5c N/S Wall from El. 255 to 307	PA letter dated 3/11/08, but PC didn't sign until 4/30/08; C/O #74: \$173,030+m/ups	\$9,500,000	\$475,000	\$548,625	\$10,523,625
		03/19/08	LS	Phoenix	6c, 6c.1, 20bcd.1 Steel: FFE	PA letter dated 3/19/08, but PC didn't sign until 4/30/08	\$44,281,878	\$2,214,094	\$2,557,278	\$49,053,250
		03/24/08	LS	Kleinberg Electric	Provide 3 pull boxes at Liberty St. Slurry Wall	Electric MATOC # 26	\$3,800	\$190	\$219	\$4,209

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		06/04/08	LS	Phoenix	6x Stair Erection and Shed Removal; 10.2 Bulletins 1 and 2; 10.3; and Painting for entire 21 package. Final LS award on WP 21.	Includes self-performed and sub-work. Ltr signed by PCJV on 6/23/08. Supersedes and eliminates 10/22/07 NTE award of \$2.35mm+markups.	\$28,165,000	\$1,408,250	\$1,626,529	\$31,199,779
TOTALS:							\$583,501,147	\$28,811,557	\$33,277,349	\$645,590,054