SCOPE OF WORK

DATA CENTER UPGRADE AND GENERATOR INSTALLATION

Department of Transportation South Region Headquarters
Cherry Hill, Camden County, N.J.

PROJECT NO. T0476-00

STATE OF NEW JERSEY

Honorable Chris Christie, Governor
Honorable Kim Guadagno, Lt. Governor

DEPARTMENT OF THE TREASURY

Andrew P. Sidamon-Eristoff, Treasurer

DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION

Steven Sutkin, Director

Date: May 2, 2011
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I. OBJECTIVE

The objective of this project is to implement recommendations from a Data Center Facility Assessment by IBM Global Services and to install a supplemental power generation system to supply full peak electrical loads for prolonged periods during power loss. The facility assessment resulted in recommendations to upgrade architectural, electrical, mechanical, fire protection and monitoring systems. The power generation system is expected to consist of a 1,000 kW natural gas powered generator and associated switchgear.

II. CONSULTANT QUALIFICATIONS

A. CONSULTANT & SUB-CONSULTANT PRE-QUALIFICATIONS

The Consultant shall be a firm pre-qualified with the Division of Property Management & Construction (DPMC) in the P001 Architectural Professional Discipline with experience in computer facilities and have in-house capabilities or Sub-Consultants pre-qualified with DPMC in P002 Electrical Engineering, P003 HVAC Engineering, P010 Fire Protection Engineering and all other Engineering and Specialty Disciplines necessary to complete the project as described in this Scope of Work (SOW).

III. PROJECT BUDGET

A. CONSTRUCTION COST ESTIMATE (CCE)

The initial Construction Cost Estimate (CCE) for this project is $1,650,000.

The Consultant shall review this Scope of Work and provide a narrative evaluation and analysis of the accuracy of the proposed project CCE in their technical proposal based on their professional opinion.

B. CURRENT WORKING ESTIMATE (CWE)

The Current Working Estimate (CWE) for this project is $2,242,350.
The CWE includes the construction cost estimate and all consulting, permitting and administrative fees.

The CWE is the Client Agency’s financial budget based on this project Scope of Work and shall not be exceeded during the design and construction phases of the project unless DPMC approves the change in Scope of Work through a Contract amendment.

C. COST ESTIMATING

All CCE under $750,000 may be prepared by the Consultant’s in-house staff or their Sub-Consultant’s staff during each design phase of the project. However, if the CCE is $750,000 or larger, the Consultant or Sub-Consultant providing the estimate must be pre-qualified with DPMC in the P025 Estimating/Cost Analysis Specialty Discipline.

All cost estimates shall be adjusted for regional location, site factors, construction phasing, premium time, building use group, location of work within the building, temporary swing space, security issues, and inflation factors based on the year in which the work is to be performed.

All cost estimates must be submitted on a DPMC-38 Project Cost Analysis form at each design phase of the project with a detailed construction cost analysis in CSI format (2004 Edition) for all appropriate divisions and sub-divisions. The Project Manager will provide cost figures for those items which may be in addition to the CCE such as art inclusion, CM services, etc. and must be included as part of the CWE. This cost analysis must be submitted for all projects regardless of the Construction Cost Estimate amount.

D. CONSULTANT’S FEES

The construction cost estimate for this project shall not be used as a basis for the Consultant’s design and construction administration fees. The Consultant’s fees shall be based on the information contained in this Scope of Work document and the observations made and/or the additional information received during the pre-proposal meeting.
IV. PROJECT SCHEDULE

A. SCOPE OF WORK DESIGN & CONSTRUCTION SCHEDULE

The following schedule identifies the estimated design and construction phases for this project and the estimated durations.

<table>
<thead>
<tr>
<th>PROJECT PHASE</th>
<th>ESTIMATED DURATION (Calendar Days)</th>
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<tbody>
<tr>
<td>1. Schematic Design Phase</td>
<td>25% (Minimum) 60</td>
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<tr>
<td>• Project Team &amp; DPMC Plan/Code Unit Review &amp; Comment</td>
<td>14</td>
</tr>
<tr>
<td>2. Design Development Phase</td>
<td>50% (Minimum) 60</td>
</tr>
<tr>
<td>• Project Team &amp; DPMC Plan/Code Unit Review &amp; Comment</td>
<td>14</td>
</tr>
<tr>
<td>3. Final Design Phase</td>
<td>100% 42</td>
</tr>
<tr>
<td>• Project Team &amp; DPMC Plan/Code Unit Review &amp; Approval</td>
<td>14</td>
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<tr>
<td>4. Permit Application Phase</td>
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<tr>
<td>• Issue Permit</td>
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<tr>
<td>5. Bid Phase</td>
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<td>35</td>
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<td>6. Award Phase</td>
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<td>7. Construction Phase</td>
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B. CONSULTANT’S PROPOSED DESIGN & CONSTRUCTION SCHEDULE

The Consultant shall submit a project design and construction bar chart schedule with their technical proposal that is similar in format and detail to the schedule depicted in Exhibit ‘A’. The bar chart schedule developed by the Consultant shall reflect their recommended project phases, phase activities, activity durations.

The Consultant shall estimate the duration of the project Close-Out Phase based on the anticipated time required to complete each deliverable identified in Section XIV of this document entitled “Project Close-Out Phase Contract Deliverables” and include this information in the bar chart schedule submitted.
A written narrative shall also be included with the technical proposal explaining the schedule submitted and the reasons why and how it can be completed in the time frame proposed by the Consultant.

This schedule and narrative will be reviewed by the Consultant Selection Committee as part of the evaluation process and will be assigned a score commensurate with clarity and comprehensiveness of the submission.

C. CONSULTANT DESIGN SCHEDULE

The Project Manager will issue the Consultant’s approved project schedule at the first design kickoff meeting. This schedule will be binding for the Consultant’s activities and will include the start and completion dates for each design activity. The Consultant and Project Team members shall use this schedule to ensure that all design milestone dates are being met for the project. The Consultant shall update the schedule to reflect performance periodically (minimally at each design phase) for the Project Team review and approval. Any recommendations for deviations from the approved design schedule must be explained in detail as to the causes for the deviation(s) and impact to the schedule.

D. BID DOCUMENT CONSTRUCTION SCHEDULE

The Consultant shall include a construction schedule in Division 1 of the specification bid document. This schedule shall contain, at minimum, the major activities and their durations for each trade specified for the project. This schedule shall be in “bar chart” format and will be used by the Contractors as an aid in determining their bid price. It shall reflect special sequencing or phased construction requirements including, but not limited to: special hours for building access, weather restrictions, imposed constraints caused by Client Agency program schedules, security needs, lead times for materials and equipment, anticipated delivery dates for critical items, utility interruption and shut-down constraints, and concurrent construction activities of other projects at the site and any other item identified by the Consultant during the design phases of the project.

E. CONTRACTOR CONSTRUCTION PROGRESS SCHEDULE

The Contractor shall be responsible for preparing a coordinated combined progress schedule with the Sub-Contractors after the award of the contract. This schedule shall meet all of the requirements identified in the Consultant’s construction schedule. The construction schedule shall be completed in accordance with the latest edition of the Instructions to Bidders and General Conditions entitled, “Article 9, Construction Progress Schedule”.

The Consultant must review and analyze this progress schedule and recommend approval/disapproval to the Project Team until a satisfactory version is approved by the Project Team. The Project Team
must approve the baseline schedule prior to the start of construction and prior to the Contractor submitting invoices for payment.

The Consultant shall note in Division 1 of the specification that the State will not accept the progress schedule until it meets the project contract requirements and any delays to the start of the construction work will be against the Contractor until the date of acceptance by the State.

The construction progress schedule shall be reviewed, approved, and updated by the Contractor of schedule, Consultant, and Project Team members at each regularly scheduled construction job meeting and the Consultant shall note the date and trade(s) responsible for project delays (as applicable).

V. PROJECT SITE LOCATION & TEAM MEMBERS

A. PROJECT SITE ADDRESS

The location of the project site is:

New Jersey Department of Transportation
Cherry Hill Facility
One Executive Campus, Route 70 West
Cherry Hill, NJ 08002

See Exhibit ‘B’ for the project site map.

B. PROJECT TEAM MEMBER DIRECTORY

The following are the names, addresses, and phone numbers of the Project Team members.

1. DPMC Representative:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Martin Conrad, Project Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>Division Property Management &amp; Construction</td>
</tr>
<tr>
<td></td>
<td>20 West State Street, 3rd Floor</td>
</tr>
<tr>
<td></td>
<td>Trenton, NJ 08625</td>
</tr>
<tr>
<td>Phone No:</td>
<td>(609) 984-1656</td>
</tr>
<tr>
<td>E-Mail No:</td>
<td><a href="mailto:Martin.Conrad@treas.state.nj.us">Martin.Conrad@treas.state.nj.us</a></td>
</tr>
</tbody>
</table>
2. Client Agency Representative:

<table>
<thead>
<tr>
<th>Name</th>
<th>George Schwarz, Project Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Department of Transportation</td>
</tr>
<tr>
<td></td>
<td>P.O. Box 600</td>
</tr>
<tr>
<td></td>
<td>Trenton, NJ 08625-0600</td>
</tr>
<tr>
<td>Phone No</td>
<td>(609) 530-2878</td>
</tr>
<tr>
<td>E-Mail No</td>
<td><a href="mailto:George.Schwarz@dot.state.nj.us">George.Schwarz@dot.state.nj.us</a></td>
</tr>
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VI. PROJECT DEFINITION

A. BACKGROUND

The New Jersey Department of Transportation’s Traffic Operations Center (TOC), located at One Executive Campus off of Route 70 in Cherry Hill, is the nerve center of NJDOT’s highway response system serving the south New Jersey region. The TOC and associated data center are located on the second floor. The building also houses the NJ Motor Vehicle Commission (NJMVC) on the first floor.

The TOC manages and controls several cameras along the highway system that monitor traffic flow and provides real time information to radio and television broadcast media through the SmartRoutes system. The TOC receives information from Emergency Service Patrols and can dispatch ESP units to respond to incidents. The data center housing all of the computer systems that make this possible is located next to the TOC in a server room. The computer room also houses network node equipment that supports both the Garden State Network and NJ Turnpike Authority critical network traffic. In addition, disaster recovery equipment for the majority of DOT applications are hosted within this room.

The NJDOT plans to upgrade the TOC to become a regional disaster recovery site. The change in use to a disaster recovery site requires that the building host additional computers for emergency support staff that will relocate to the site during a major emergency or disaster. The change in use will also necessitate an upgrade to the existing architectural, electrical, mechanical, fire protection and monitoring systems in the Traffic Operations Center server room. To that end, in 2010 NJDOT commissioned IBM Global Services to conduct a facility assessment to provide recommendations to upgrade the data center to achieve a higher degree of reliability while anticipating future growth. This project seeks to implement most of those recommendations. The full report by IBM will be provided to the Consultant.
In addition, NJDOT would like to have a new supplemental generation system that will supply full power to the building, including the HVAC systems. Additional cooling equipment and computer systems are expected to increase the building’s base peak electrical load to 700 KVA, which will be served by what is expected to be an 800 kW to 1,000 kW (nominal) supplemental power generation system generator set.

B. FUNCTIONAL DESCRIPTION OF THE BUILDING

1. Architectural:

The building is located in Cherry Hill, NJ. It is a three (3) story steel frame structure totaling 50,500 square feet and is occupied by NJDOT and NJMVC. The State purchased the building in the mid 1990’s and subsequently renovated it for the current use.

The data center has limited floor space for growth. However, NJDOT believes there is room for six (6) additional cabinets. There is no accurate up-to-date floor plan drawing.

There is a crack in the concrete in front of the Eaton PowerWare UPS and under one of the CRAC units. A structural analysis of the floor will be needed to ensure it has the loading capacity for additional equipment. The roof may also need analysis for additional cooling equipment.

The data center walls are not all fire rated. It is recommended that the walls should be one hour fire rated. Openings through the walls between the data center and TOC should be sealed. The concrete floor is not sealed.

2. Electrical:

There is a single electrical service to a 1,200 amp, 480 volt main distribution panel for the building. The building is currently served by a diesel emergency generator located in the back of the building for fire and life safety, and UPS units for the computer systems. The existing diesel emergency generator and UPS units will remain for fire and life safety. The new natural gas fired supplemental power generation system is not intended for use on fire and life safety systems.

The data center has two UPS modules: an Eaton PowerWare UPS and a Liebert NPower UPS. Power is distributed to the UPS modules from two ATS’s (100 amp and 260 amp) in the main building electrical room on the first floor. The 260 amp ATS feeds panel EEP-1 (life safety equipment) and panel EEP-2 (Eaton PowerWare UPS and CRAC units). The 100 amp ATS feeds panel ELL-2 which feeds the Liebert NPower UPS. Most of the IT equipment is fed from a single UPS and single wall mounted panel board. The UPS’s are non-redundant and are therefore considered single points of failure. New UPS’s are recommended. The data center is configured with an “N” electrical system and consumes about 28 KW of power. NJDOT plans on adding six (6) additional server cabinets at about 8 KW per cabinet.
There is no transient voltage surge suppression system to protect the data center.

3. Mechanical:

The data center is cooled by two Data Aire computer room air conditioners (CRAC). Some of this cooling capacity is used to cool the adjoining Traffic Operations Center (TOC). The CRAC units have a 13 ton nominal capacity but are rated for a 10.5 ton sensible capacity at an operating temperature of 72 degrees F and 45% RH. More cooling is required. Cooling load calculations should take into account a larger UPS as part of the future expansion.

External heat rejection is provided by dry coolers on the roof. The glycol-water piping system connects to the CRAC units under the floor. The CRAC units have spot leak detectors. A cable leak detection system is recommended to provide better detection of fluid leaks.

The NJDOT would like to close off the air flow to the TOC from the CRAC unit and install two (2) additional cooling units in the data center. A separate air conditioning system will be needed for the TOC.

4. Fire Protection:

There are smoke detectors on the ceiling and in the return air plenum to the CRAC units. They are connected to the Simplex fire alarm panel. It is recommended that smoke detectors be installed under the raised floor.

There is no sprinkler system in the data center or the entire building. A full flood gaseous suppression system with abort buttons and telephones for emergency use should be installed. The data center fire alarm system should annunciate to the building fire alarm system.

5. Monitoring:

There are no temperature or humidity sensors except at the CRAC units. There are no cabinet mounted power distribution units with amperage monitoring for the branch circuit.

There is a remote Liebert UPS alarm panel in the TOC. The remaining UPS, CRAC units and generator have local alarms. There is no automated alarm system to notify IT and maintenance personnel.
VII. CONSULTANT DESIGN RESPONSIBILITIES

A. DATA CENTER UPGRADE REQUIREMENTS

The full report by IBM Global Services will be provided to the Consultant. The Consultant shall provide the design and specifications for the following:

1. Architectural:

Determine the structural integrity and capacity of the floor and roof, if used for cooling equipment.

Seal and fire rate all walls in the data center.

Clean and seal the concrete floor.

Install a floor grid label on the walls of the data center.

Update the electronic floor plan layout for the data center.

2. Electrical:

Replace existing UPS’s with two 80 KVA, 72 KW modules and upgrade the power distribution system in a 2N configuration for higher reliability. Consider redundant battery cabinets for each UPS. Provide a separate maintenance bypass panel for each UPS.

Reconfigure electrical power to the CRAC units and heat exchangers to ensure adequate cooling of data center equipment in the event a panel board has to be shut down for maintenance. Install ATS’s as required.

Provide additional wall mounted panel boards as needed to distribute power from the UPS’s. Provide panel schedules for the panel boards and label IT cabinets with circuit labels.

Replace the 100 amp ATS with a higher capacity ATS to be sized by Consultant. Review the sizing of the 260 amp ATS for possible replacement.

Provide for transient voltage surge suppression (TVSS) on all input panel boards that feed the UPS’s and cooling equipment.

Provide twist lock receptacles for all IT equipment and remove power strips and duplex/quad receptacles where possible.
Provide a label for emergency power off (EPO) button and install a clear plastic cover.

Provide grounding for the raised floor.

Create a single line electrical drawing and post it in the server room near the UPS’s and elsewhere as recommended by the Consultant.

Organize and label the network cabling in the data center.

Review options to install intelligent power distribution units within the server cabinets which will be fed from the two separate UPS’s, providing power redundancy to the cabinet.

3. Mechanical:

Close off air flow to the Traffic Operations Center (TOC) from the one CRAC unit and install two (2) additional localized cooling units/in-row cooling systems. If additional cooling equipment is placed on roof, provide structural analysis or provide on grade. Ensure heat dissipation from proposed larger UPS’s (see above) are factored into cooling capacities of new cooling units.

Provide a separate air conditioning system for the TOC.

Provide cabinet blanking panels in selected cabinets to reduce recirculation of cooling air. Orient new cabinets to establish a cold aisle.

Create a detailed drawing set and mechanical single line drawing for the existing cooling systems for future use.

4. Fire Protection:

Provide a full flood gaseous fire suppression system in the data center, including abort buttons and a telephone for emergency use. Provide new smoke detectors on the ceiling and under the raised floor. Connect new data center fire alarm control panel to the building fire alarm system.

5. Monitoring:

Install an automated alarm monitoring system for all critical equipment to notify facility personnel.

Install temperature and humidity sensors throughout the data center, especially in the areas of dense IT equipment.

Provide branch circuit monitoring or use cabinet mounted power distribution units (PDU’s) for this purpose.
Install a cable leak detection system.

6. **Add Alternates:**

The following shall be bid as an “Add Alternate” and will be awarded based on available project funding:

Perform an infrared scan on all electrical connections.

Perform a circuit breaker coordination study.

Perform Computational Fluid Dynamic (CFD) modeling on the entire room as a guideline in placing in-row cooling units.

Install security cameras in the critical areas of the data center.

**B. SUPPLEMENTAL POWER GENERATOR**

The power generation system will be capable of supplying the full peak electrical load for prolonged periods, as well as function as a backup, continuous generator during utility power loss. NJDOT preliminary studies have concluded that the peak electrical load will ultimately be 700 KVA, and that nominally an 800kW to 1,000 kW natural gas generator is required. The power generation system will require air permitting for continuous operation; therefore, a low NOx natural gas internal combustion engine will be used in the integrated generator set.

Provide complete engineering design and construction documents, including but not limited to all applicable calculations, drawings, details, special conditions, general conditions and technical specifications for construction and installation of the South Region Headquarters supplemental power generation system. The design documents will cover the technical and construction requirements for furnishing all equipment, utility work, tools, labor, supervision and materials for delivering, unloading, installing, testing and starting-up a turn-key system. The South Region Headquarters supplemental power generation system project will consist of the following:

1. **Site Work:**

   a. Supplemental power generator will be located adjacent to the existing diesel emergency generator (outdoors).

   b. Associated electrical equipment will be located within the existing electrical room, space permitting.
c. Install a new 480 V, underground feeder from new supplemental power generator to existing electrical room for building connections.

d. Install an underground natural gas pipe run from the meter located in the shipping/receiving area to the supplemental power generator.

e. Provide a mounting pad for the supplemental power generation system and all associated equipment.

2. General:

This section describes the operating requirements for the new supplemental power generation system, at The NJDOT South Region Headquarters in Cherry Hill.

a. The new supplemental power generation system shall include a natural gas engine, electrical generation equipment, Selective Catalytic Reduction (SCR) emission controls, cooling system for the engine capable of operating jacket and lube oil, provisions for future installation of heat recovery steam generator (HRSG) and associated equipment. It shall be located outdoors adjacent to the existing diesel emergency generator, which will remain.

b. It shall be contained in an exterior rated enclosure with sound attenuation as appropriate for the proposed location.

c. It shall be capable of continuous duty power generation at full or part load, provide automatic transfer to emergency power to serve the entire building load should the utility grid lose power, able to synchronize with the utility grid to supply power to the entire facility, be capable to peak shave in parallel with the utility grid, and capable to operate in island mode (isolated from the utility grid).

d. The new supplemental power generation system shall have black start capabilities. The engineer will consider the use of the existing diesel emergency generator for black start capability if applicable.

e. Tie in to the building electrical system shall be at the existing 480V MDP located in the existing electrical room on the first floor. The second floor server room shall be fed with a 120/208 V sub-panel. The new sub-panel will be located in the second floor server room.

f. The new UPS system located on the second floor server room shall provide back-up to the new sub-panel in case of utility power failure.

g. Due to limited space in the server room the UPS shall have a 480 V input and a 120/208 V output.
h. Communication for control, operation, status and maintenance of the energy infrastructure originating from the new supplemental power generation system shall be provided by a communication link with the existing Building Management Control System.

3. System Description:

The construction Contractor shall install a new supplemental power generation system that shall be designed for continuous duty operation at full load and for peak shaving power. The new supplemental power generation system shall operate in parallel with the electric utility grid, and shall automatically provide power to the entire building should a utility grid power outage occur. It is not intended that any power shall be exported to the grid for sale. The new supplemental power generation system shall be configured to provide for full building power requirements, including HVAC systems. The new electrical service and UPS will tie into the new generator system. The existing diesel generator will remain intact to provide power for life safety systems and satisfy fire code regulations.

a. General:

The new supplemental power generation system shall utilize an 800 kW to 1,000 kW (nominal), natural gas fueled reciprocating engine/generator set. The unit shall be rated for continuous duty at the rated output. The unit shall be self contained with the engine and generator on a single structural steel base. The engine shall be designed to run on natural gas fuel only, and shall require a natural gas pressure of approximately 5 psig nominal. The engineer shall determine if a gas compressor is required to increase the system pressure. The engine shall be direct coupled (no gearbox) to the generator. The Manufacturer must have a similar system in operation locally (within 2 hours) that can be visited. The Manufacturer’s experience and performance with such applications shall be included as part of the submittal requirements. The Manufacturer must have a repair parts depot close to the Cherry Hill, NJ area. Distance to the parts depot shall be included as part of the submittal requirements. A Manufacturer’s authorized service representative must be able to respond to a service call within 4 hours.

b. Gas Engine/Generator Sequence of Operation:

The engine generator shall be equipped with synchronizing equipment and be capable of operating under the following conditions:

1. The engine generator shall be capable of operating in parallel with the utility in a base loaded supplemental generation mode. The engine control systems shall manage/operate in a load-following, isosynchronous, load-sharing mode and inhibit the export of power to the utility.

   i. In the event of a loss of the normal connection to the utility grid, the generator shall automatically transfer to operate in the isolated, load following, isosynchronous mode and continue to provide power for the facility’s full load at rated frequency and voltage.
1. The existing diesel emergency generator will automatically start and provide emergency life safety power.

ii. Upon restoration of the utility grid service, the generator shall automatically resynchronize to the utility system and restore parallel operations.

2. The engine generator will be capable of operating in island mode at the Owner’s discretion, isolated from the utility grid. Isolation will be done manually. The engine control systems shall manage/operate in a load following mode.

i. In the event of manual isolation from the utility grid, the generator shall automatically transfer to operate in the isolated, load following mode and continue to provide power for the facility’s full load at rated frequency and voltage.

1. The existing diesel emergency generator will automatically start and provide emergency life safety power.

ii. Upon manual reconnection to the utility grid service, the generator shall automatically resynchronize to the utility system and restore parallel operations.

c. Gas Engine/Generator Set Equipment Requirements:

The construction Contractor shall purchase and install the 800 kW to 1,000 kW (nominal), 480 V. natural gas continuous duty supplemental power generation system and all associated equipment and material, which will include but not be limited to:

1. An exterior grade, weatherproof enclosure with exhaust stack and auxiliary electric heat, with code appropriate sound attenuation.

2. Capability for future conversion to a combined heat and power (CHP) system, i.e., conversion kit to install heat recovery steam generator (HRSG) and condensate system in the future.

3. Generator paralleling switchgear for emergency automatic transfer and load following capability.

4. Black start capability.

5. Automatic transfer upon utility power failure.

6. Automatic startup, synchronizing, parallel, and load following during emergency operation.
7. Island mode capability (operate in stand-alone mode by manually opening utility isolation breaker).

8. Soft generator loading and unloading back to utility upon return of full, stable utility power.

9. Soft generator loading and unloading in emergency or island mode.

10. Capability to operate as a peaking unit at full or part load while connected and synchronized to the grid (at no time will the generator export power to the utility grid).

11. Digital voltage regulator with power factor and VAR control.


13. Required emission controls to meet air quality permitting requirements of the State of New Jersey as a continuous duty electric generator. Area may be used to support an SCR catalyst and will require a storage tank with heat trace tape, insulation blankets, and expansion joints.

14. Local, weatherproof instrument and controls for full start up, operation and monitoring, consisting of, but not limited to:
   i. Tachometer
   ii. Electric generating meter
   iii. Coolant temperature
   iv. Hours of operation meter (totalizing)
   v. Local and remote alarm annunciators
   vi. Interface module with remote communication capability
   vii. Switchgear automation
   viii. Output Voltage (V)
   ix. Output Amperage (A)
   x. Output Kilowatts (kW)

15. Low pressure gas fuel system (5 psi nominal)
   i. Fuel natural gas train
   ii. Fuel filter
   iii. Electronic air to fuel ratio control
   iv. Electronic fuel metering valve
   v. Natural gas shutoff valve at package

16. Electronic ignition system.
17. Gas pressure meter/regulator at package.

18. Exhaust muffler.

19. Package to be integrated and mounted on frame with vibration dampers.

20. Full protection devices.

21. Natural gas shall be provided by Contractor from the utility meter. Contractor to supply all required filter(s), piping, valves, and gas booster (if required) not supplied with new generator set.

22. Full installation supervision by Original Equipment Manufacturer (OEM) or authorized representative as required to completion.

23. Startup service by OEM manufacturer or authorized representative.

24. Operation and maintenance training – two full days for up to ten (10) people.

d. Controls:

The new supplemental power generation system shall have an integrated monitoring and control system for the generator set and electric interconnection with the building power bus.

The engine generator set control console shall be free-standing and shall include engine control, engine protection and generator protection systems. The system shall be fully electronic and include sequencing, alarm and shutdown communication, and readout of critical parameters. A 24 Volt DC lead acid battery package and charger shall be provided.

1. Contractor to provide and install fully programmed computerized system to control startup and synchronizing of all systems as needed, including but not limited to:

   i. Provide fully integrated turn-key electronic controls system, all associated equipment and material, labor and construction supervision services for both local control of the system (by generator set OEM vendor) and remote system controls via site Building Management System.

   ii. Remote system controls to be fully integrated with existing Building Management System.

      1. Graphical user interface at Building Management System controls office.
2. Communication programming to exchange signals with existing Building Management System.

3. Contractor shall perform all required programming and points mapping to and from existing Building Management Controls.

   iii. All devices connected to NJDOT communications network will meet NJDOT Networking Standards.

   iv. All installed equipment shall be Underwriters Laboratory (UL) listed and/or approved.

C. GENERAL DESIGN OVERVIEW

1. Design Detail:

Section VII of this Scope of Work is intended as a guide for the Consultant to understand the overall basic design requirements of the project and is not intended to identify each specific design component related to code and construction items. The Consultant shall provide those details during the design phase of the project ensuring that they are in compliance with all applicable codes, regulating authorities, and the guidelines established in the DPMC Procedures for Architects and Engineers Manual.

The Consultant shall understand that construction documents submitted to DPMC shall go beyond the basic requirements set forth by the current copy of the Uniform Construction Code NJAC 5:23-2.15(f). Drawings and specifications shall provide detail beyond that required to merely show the nature and character of the work to be performed. The construction documents shall provide sufficient information and detail to illustrate, describe and clearly delineate the design intent of the Consultant and enable all Contractors to uniformly bid the project.

The Consultant shall ensure that all of the design items described in this scope of work are addressed and included in the project drawings and specification sections where appropriate.

It shall be the Consultant’s responsibility to provide all of the design elements for this project. Under no circumstance may they delegate the responsibility of the design; or portions thereof, to the Contractor unless specifically allowed in this Scope of Work.

2. Specification Format:

The Consultant shall ensure that the project design specifications are formatted in the revised and expanded version of the Construction Specifications Institute (CSI) format entitled “Master Format 2004 Edition: Numbers and Titles.”
The Consultant shall review all of the CSI Master Format 2004 specification sections listed and remove those that do not apply and edit those that remain so they are consistent and specific to this project scope of work.

D. PROJECT COMMENCEMENT

A pre-design meeting shall be scheduled with the Consultant and the Project Team members at the commencement of the project to obtain and/or coordinate the following information:

1. Project Directory:

Develop a project directory that identifies the name and phone number of key designated representatives who may be contacted during the design and construction phases of this project.

2. Site Access:

Develop procedures to access the project site and provide the names and phone numbers of approved escorts when needed. Obtain copies of special security and policy procedures that must be followed during all work conducted at the facility and include this information in Division 1 of the specification.

3. Project Coordination:

Review and become familiar with any current and/or future projects at the site that may impact the design, construction, and scheduling requirements of this project. Incorporate all appropriate information and coordination requirements in Division 1 of the specification.

4. Existing Documentation:

Copies of the following document will be provided to each Consulting firm at the pre-proposal meeting to assist in the bidding process.

- Data Center Facility Assessment for State of New Jersey DOT and STOC, June 7, 2010, IBM Global Services

Review this document and any additional information that may be provided at a later date such as reports, studies, surveys, equipment manuals, as-built drawings, etc. The State does not attest to the accuracy of the information provided and accepts no responsibility for the consequences of errors by the use of any information and material contained in the documentation provided. It shall be the responsibility of the Consultant to verify the contents and assume full responsibility for any determination or conclusion drawn from the material used. If the information provided is insufficient, the Consultant shall take the appropriate actions necessary to obtain the additional information required.
All original documentation shall be returned to the provider at the completion of the project.

5. Scope of Work:

Review the design and construction administration responsibilities and the submission requirements identified in this Scope of Work with the Project Team members. Items such as: contract deliverables, special sequencing or phased construction requirements, special hours for construction based on Client Agency programs or building occupancy, security needs, delivery dates of critical and long lead items, utility interruptions or shut down constraints for tie-ins, weather restrictions, and coordination with other project construction activities at the site shall be addressed.

This information and all general administrative information; including a narrative summary of the work for this project, shall be included in Division 1 of the specification. The Consultant shall assure that there are no conflicts between the information contained in Division 1 of the specification and the DPMC General Conditions.

6. Project Schedule:

Review and update the project design and construction schedule with the Project Team members.

E. BUILDING & SITE INFORMATION

The following information shall be included in the project design documents.

1. Building Classification:

Provide the building Use Group Classification and Construction Type on the appropriate design drawing.

2. Building Block & Lot Number:

Provide the site Block and Lot Number on the appropriate design drawing.

3. Building Site Plan:

Only when the project scope involves site work, or when the design triggers code issues that require site information to show code compliance, shall a site plan be provided that is drawn in accordance with an accurate boundary line survey. The site plan shall include but not be limited to the following as may be applicable.

- The size and location of new and existing buildings and additions as well as other structures.
- The distance between buildings and structures and to lot lines.
• Established and new site grades and contours as well as building finished floor elevations.
• New and existing site utilities, site vehicular and pedestrian roads, walkways and parking areas.

4. Site Location Map:

Provide a site location map on the drawing cover sheet that identifies the vehicular travel routes from major roadways to the project construction site and the approved access roads to the Contractor’s worksite staging area.

F. DESIGN MEETINGS & PRESENTATIONS

1. Design Meetings:

Conduct the appropriate number of review meetings with the Project Team members during each design phase of the project so they may determine if the project meets their requirements, question any aspect of the contract deliverables, and make changes where appropriate. The Consultant shall describe the philosophy and process used in the development of the design criteria and the various alternatives considered to meet the project objectives. Selected studies, sketches, cost estimates, schedules, and other relevant information shall be presented to support the design solutions proposed. Special considerations shall also be addressed such as: Contractor site access limitations, utility shutdowns and switchover coordination, phased construction and schedule requirements, security restrictions, available swing space, material and equipment delivery dates, etc.

It shall also be the responsibility of the Consultant to arrange and require all critical Sub-Consultants to be in attendance at the design review meetings.

Record the minutes of each design meeting and distribute within seven (7) calendar days to all attendees and those persons specified to be on the distribution list by the Project Manager.

2. Design Presentations:

The minimum number of design presentations required for each phase of this project is identified below for reference:

Design Development Phase: One (1) oral presentation at phase completion.

Final Design Phase: One (1) oral presentation at phase completion.
VIII. CONSULTANT CONSTRUCTION RESPONSIBILITIES

A. GENERAL CONSTRUCTION ADMINISTRATION OVERVIEW

This section of the Scope of Work is intended as a guide for the Consultant to understand their overall basic construction administration responsibilities for the project and does not attempt to identify each specific activity or deliverable required during this phase. The Consultant shall obtain that information from the current publication of the DPMC Procedures for Architects and Engineers Manual and any additional information provided during the Consultant Selection Process.

B. PRE-BID MEETING

The Consultant shall attend, chair, record and distribute minutes of the Contractor pre-bid meetings. When bidders ask questions that may affect the bid price of the project, the Consultant shall develop a Bulletin(s) to clarify the bid documents in the format described in the Procedures for Architects and Engineers Manual, Section 9.2 entitled “Bulletins.” These Bulletins must be sent to DPMC at least seven (7) calendar days prior to the bid opening date. DPMC will then distribute the document to all bidders.

C. BID OPENING

The Consultant must attend the bid opening held at the designated location.

In the event that the construction bids received exceed the Consultant’s approved final cost estimate by 5% or more, the Consultant shall redesign and/or set up sufficient approved alternate designs, plans and specifications for the project work, to secure a bid that will come within the allocation specified by the State without impacting the programmatic requirements of the project. Such redesign work and changes to plans, including reproduction costs for submission in order to obtain final approval and permits, shall be undertaken by the Consultant at no additional cost to the State.

D. POST BID REVIEW MEETING, RECOMMENDATION FOR AWARD

The Consultant; in conjunction with the Project Manager, shall review the bid proposals submitted by the various Contractors to determine the low responsible bid for the project. The Consultant; in conjunction with the Project Manager, shall develop a post bid questionnaire based on the requirements below and schedule a post bid review meeting with the Contractor’s representative to review the construction costs and schedule, staffing, and other pertinent information to ensure they understand the Scope of the Work and that their bid proposal is complete and inclusive of all required to deliver the project in strict accordance with the plans and specifications.
1. Post Bid Review:

Review the project bid proposals including the alternates, unit prices, and allowances within seven (7) calendar days from the bid due date. Provide a bid tabulation matrix comparing all bids submitted and make a statement about the high, low, and average bids received. Include a comparison of the submitted bids to the approved current construction cost estimate. When applicable, provide an analysis with supporting data, detailing why the bids did not meet the construction cost estimate.

2. Review Meeting:

Arrange a meeting with the apparent low bid Contractor to discuss their bid proposal and other issues regarding the award of the contract. Remind the Contractor that this is a Lump Sum bid. Request the Contractor to confirm that their bid proposal does not contain errors. Review and confirm Alternate pricing and Unit pricing and document acceptance or rejection as appropriate.

Comment on all omissions, qualifications and unsolicited statements appearing in the proposals. Review any special circumstances of the project. Ensure the Contractor’s signature appears on all post bid review documents.

3. Substitutions:

Inquire about any potential substitutions being contemplated by the Contractor and advise them of the State’s guidelines for the approval of substitutions and the documentation required. Review the deadline and advise the Contractor that partial submissions are not acceptable. Submission after the deadline may be rejected by the State.

Equal substitutions that are proposed by the Contractor that are of lesser value must have a credit change order attached with the submittal (See Article 4 of the General Conditions). The State has the right to reject the submission if there is no agreement on the proposed credit. Contractor will be responsible to submit a specified item.

4. Schedule:

Confirm that the Contractor is aware of the number of calendar days listed in the contract documents for the project duration and that the Contractor’s bid includes compliance with the schedule duration and completion dates. Particular attention shall be given to special working conditions, long lead items and projected delivery dates, etc. Review project milestones (if applicable). This could give an indication of Contractor performance, but not allow a rejection of the bid.

Review the submittal timeframes per the Contract documents. Ask the Contractor to identify what products will take over twenty-eight (28) calendar days to deliver from the point of submittal approval.
5. **Performance:**

Investigate the past performance of Contractor by contacting Architects and owners (generally three of each) that were listed in their DPMC pre-qualification package and other references that may have been provided. Inquire how the Contractor performed with workmanship, schedule, project management, change orders, cooperation, paper work, etc.

6. **Superintendent:**

Remind the Contractor that a full-time non-working superintendent is required per the General Conditions, who must be responsible to address Contract issues. (Article 4.3.2.).

7. **Letter of Recommendation:**

The Consultant shall prepare a Letter of Recommendation for contract award to Contractor submitting the low responsible bid within three (3) calendar days from the post bid review meeting. The document shall contain the project title, DPMC project number, bid due date and expiration date of the proposal. It shall include a detailed narrative describing each post bid meeting agenda item identified above and a recommendation to award the contract to the apparent low bid Contractor based on the information obtained during that meeting. Describe any acceptance or rejection of Alternate pricing and Unit pricing.

Comment on any discussion with the Contractor that provides a sense of their understanding of the project and any special difficulties that they see, and how they might approach those problems.

Attach all minutes of the Post bid meeting and any other relevant correspondence with the Letter of Recommendation and submit them to the Project Manager.

8. **Conformed Drawings:**

The Consultant shall prepare and distribute two (2) sets of drawings stamped “Conformed Drawings” to the Project Manager that reflect all Bulletins and/or required changes, additions, and deletions to the pertinent drawings within twenty-eight (28) calendar days of the construction contract award date.

Any changes made in Bulletins, meeting minutes, post bid review requirements shall also be reflected in the specification.

E. **DIRECTOR’S HEARING**

The Consultant must attend any Director’s hearing(s) if a Contractor submits a bid protest. The Consultant shall be present to interpret the intent of the design documents and answer any technical questions that may result from the meeting. In cases where the bid protest is upheld, the Consultant
shall submit a new “Letter of Recommendation” for contract award. The hours required to attend the potential hearings and to document the findings shall be estimated by the Consultant and the costs will be included in the base bid of their fee proposal.

F. CONSTRUCTION JOB MEETINGS, SCHEDULES, LOGS

The Consultant shall conduct all of the construction job meetings in accordance with the procedures identified in the A/E manual and those listed below.

1. Meetings:

The Consultant and Sub-Consultant(s) shall attend the pre-construction meeting and all construction job meetings during the construction phase of the project. The Consultant shall chair the meeting, transcribe and distribute the job-meeting minutes for every job meeting to all attendees and to those persons specified to be on the distribution list by the Project Manager. The Agenda for the meeting shall include, but not be limited to the items identified in the Procedures for Architects and Engineers Manual, Section 10.3.1, entitled “Agenda.”

Also, the Consultant is responsible for the preparation and distribution of minutes within seven (7) calendar days of the meeting. The format to be used for the minutes shall comply with those identified in the “Procedures for Architects and Engineers Manual,” Section 10.3.4, entitled, “Format of Minutes.” All meeting minutes are to have an “action” column indicating the party that is responsible for the action indicated and a deadline to accomplish the assigned task. These tasks must be reviewed at each job progress meeting until it is completed and the completion date of each task shall be noted in the minutes of the meeting following the task completion.

2. Schedules:

The Consultant; with the input from the Client Agency Representative and Project Manager, shall review and recommend approval of the project construction schedule prepared by the Contractor. The schedule shall identify all necessary start and completion dates of construction, construction activities, submittal process activities, material deliveries and other milestones required to give a complete review of the project.

The Consultant shall record any schedule delays, the party responsible for the delay, the schedule activity affected, and the original and new date for reference.

The Consultant shall ensure that the Contractor provides a two (2) week “look ahead” construction schedule based upon the current monthly updated schedule as approved at the bi-weekly job meetings and that identifies the daily planned activities for that period. This Contractor requirement must also be included in Division 1 of the specification for reference.
3. **Submittal Log:**

The Consultant shall develop and implement a submittal log that will identify all of the required project submittals as identified in the design specification. The dates of submission shall be determined and approved by all affected parties during the pre-construction meeting.

Examples of the submissions to be reviewed and approved by the Consultant and Sub-Consultant (if required) include: shop drawings, change orders, Request for Information (RFI), equipment and material catalog cuts, spec sheets, product data sheets, MSDS material safety data sheets, specification procedures, color charts, material samples, mock-ups, etc. The submittal review process must be conducted at each job progress meeting and shall include the Consultant, Sub-Consultant, Contractor, Project Manager, and designated representatives of the Client Agency.

The Consultant shall provide an updated submittal log at each job meeting that highlights all of the required submissions that are behind schedule during the construction phase of the project.

G. **CONSTRUCTION SITE ADMINISTRATION SERVICES**

The Consultant and Sub-Consultant(s) shall provide construction site administration services during the duration of the project. The Consultant and Sub-Consultant(s) do not necessarily have to be on site concurrently if there are no critical activities taking place that require the Sub-Consultant’s participation.

The services required shall include, but not be limited to; field observations sufficient to verify the quality and progress of construction work, conformance and compliance with the contract documents, or to attend/chair meetings as may be required by the Project Manager to resolve special issues.

A field observation visit may be conducted in conjunction with regularly scheduled construction job meetings, depending on the progress of work. The Consultant and their Sub-Consultant(s) shall submit a field observation report for each site inspection to the Project Manager. Also, they shall conduct inspections during major construction activities including, but not limited to the following examples: concrete pours, steel and truss installations, code inspections, final testing of systems, achievement of each major milestone required on the construction schedule, and requests from the Project Manager. The assignment of a full time on-site Sub-Consultant does not relieve the Consultant of their site visit obligation.

The Consultant shall refer to Section XIV. Contract Deliverables of this Scope of Work subsection entitled “Construction Phase” to determine the extent of services and deliverables required during this phase of the project.
H. SUB-CONSULTANT PARTICIPATION

It is the responsibility of the Consultant to ensure that they have provided adequate hours and/or time allotted in their technical proposal so that their Sub-Consultants may participate in all appropriate phases and activities of this project or whenever requested by the Project Manager. This includes the pre-proposal site visit and the various design meetings and construction job meetings, site visits, and close-out activities described in this Scope of Work. Field observation reports and/or meeting minutes are required to be submitted to the Project Manager within seven (7) calendar days of the site visit or meeting. All costs associated with such services shall be included in the base bid of the Consultant’s fee proposal.

I. DRAWINGS

1. Shop Drawings:

Each Contractor shall review the specifications and determine the numbers and nature of each shop drawing submittal. Five (5) sets of the documents shall be submitted with reference made to the appropriate section of the specification. The Consultant shall review the Contractor’s shop drawing submissions for conformity with the construction documents within fourteen (14) calendar days of receipt. The Consultant shall return each shop drawing submittal stamped with the appropriate action, i.e. “Approved”, “Approved as Noted”, “Approved as Noted Resubmit for Records”, “Rejected”, etc.

2. As-Built & Record Set Drawings:

The Contractor(s) shall keep the contract drawings up to date at all times during construction and upon completion of the project, submit their AS-BUILT drawings to the Consultant with the Contractor(s) certification as to the accuracy of the information prior to final payment. All AS-BUILT drawings submitted shall be entitled AS-BUILT above the title block and dated. The Consultant shall review the Contractor(s) AS-BUILT drawings at each job progress meeting to ensure that they are up to date. Any deficiencies shall be noted in the progress meeting minutes.

The Consultant shall acknowledge acceptance of the AS-BUILT drawings by signing a transmittal indicating they have reviewed them and that they reflect the AS-BUILT conditions as they exist.

Upon receipt of the AS-BUILT drawings from the Contractor(s), The Consultant shall obtain the original mylars from DPMC and transfer the AS-BUILT conditions to the original full sized signed mylars to reflect RECORD conditions within twenty-eight (28) calendar days of receipt of the AS-BUILT information.

The Consultant shall note the following statement on the original RECORD-SET drawings. “The AS-BUILT information added to this drawing(s) has been supplied by the Contractor(s). The (Architect) (Engineer) does not assume the responsibility for its accuracy other than conformity with the design
concept and general adequacy of the AS-BUILT information to the best of the (Architect’s) (Engineer’s) knowledge.”

Upon completion, The Consultant shall deliver the RECORD-SET original mylars to DPMC who will acknowledge their receipt in writing. This hard copy set of drawings and three (3) sets of current release AUTO CAD discs shall be submitted to DPMC and the discs shall contain all AS-BUILT drawings in “.dwg” (native file format for AUTO CAD), “.tif” (Tagged Image File) file formats and PDF file format.

**J. CONSTRUCTION DEFICIENCY LIST**

The Consultant shall prepare, maintain and continuously distribute an on-going deficiency list to the Contractor, Project Manager, and Client Agency Representative during the construction phase of the project. This list shall be separate correspondence from the field observation reports and shall not be considered as a punch list.

**K. INSPECTIONS: SUBSTANTIAL & FINAL COMPLETION**

The Consultant and their Sub-Consultant(s) accompanied by the Project Manager, Code Inspection Group, Client Agency Representative and Contractor shall conduct site inspections to determine the dates of substantial and final completion. The Project Manager will issue the only recognized official notice of substantial completion. The Consultant shall prepare and distribute the coordinated punch list, written warranties and other related DPMC forms and documents, supplied by the Contractor, to the Project Manager for review and certification of final contract acceptance.

If applicable, the punch list shall include a list of attic stock and spare parts.

**L. CLOSE-OUT DOCUMENTS**

The Consultant shall review all project close-out documents as submitted by the Contractors to ensure that they comply with the requirements listed in the “Procedure for Architects and Engineers’ Manual.” The Consultant shall forward the package to the Project Manager within twenty-eight (28) calendar days from the date the Certificate of Occupancy/Certificate of Approval is issued. The Consultant shall also submit a letter certifying that the project was completed in accordance with the contract documents, etc.
M. CLOSE-OUT ACTIVITY TIME

The Consultant shall provide all activities and deliverables associated with the “Close-Out Phase” of this project as part of their Lump Sum base bid. The Consultant and/or Sub-Consultant(s) may not use this time for additional job meetings or extended administrative services during the Construction Phase of the project.

N. TESTING, TRAINING, MANUALS, AND ATTIC STOCK

The Consultant shall ensure that all equipment testing, training sessions and equipment manuals required for this project comply with the requirements identified below.

1. Testing:

All equipment and product testing conducted during the course of construction is the responsibility of the Contractor. However, the Consultant shall ensure the testing procedures comply with manufacturers recommendations. The Consultant shall review the final test reports and provide a written recommendation of the acceptance/rejection of the material, products or equipment tested within fourteen (14) calendar days of receipt of the report.

2. Training:

The Consultant shall include in the specification that the Contractor shall schedule and coordinate all equipment training with the Project Manager and Client Agency representatives. It shall state that the Contractor shall submit the Operation and Maintenance (O&M) manuals, training plan contents, and training durations to the Consultant, Project Manager and Client Agency Representative for review and approval prior to the training session.

All costs associated with the training sessions shall be borne by the Contractor installing the equipment. A signed letter shall be prepared stating when the training was completed and must be accompanied with the training session sign-in sheet as part of the project close-out package.

3. Operation & Maintenance Manuals:

The Consultant shall coordinate and review the preparation and issuance of the equipment manuals provided by the Contractor(s) ensuring that they contain the operating procedures, maintenance procedures and frequency, cut sheets, parts lists, warranties, guarantees, and detailed drawings for all equipment installed at the facility.

A troubleshooting guide shall be included that lists problems that may arise, possible causes with solutions, and criteria for deciding when equipment shall be repaired and when it must be replaced.
Include a list of the manufacturer’s recommended spare parts for all equipment being supplied for this project.

The Consultant shall ensure that the training session is videotaped by the Contractor. A transmittal copy must be presented to the Project Manager who will forward the document to the Client Agency for future reference.

A list of names, addresses and telephone numbers of the Contractors involved in the installations and firms capable of performing services for each mechanical item shall be included. The content of the manuals shall be reviewed and approved by the Project Manager and Client Agency Representative.

The Consultant shall include in the specification that the Contractor must provide a minimum of ten (10) “throwaway” copies of the manual for use at the training seminar and seven (7) hardbound copies as part of the project close-out package.

4. Attic Stock:

The Consultant shall determine and recommend whether “attic stock” should be included for all aspects of the project. If required, the Consultant shall specify attic stock items to be included in the project.

Prior to project close-out, the Consultant must prepare a comprehensive listing of all items for delivery by the Contractor to the Owner and in accordance with the appropriate specification/plan section. Items shall include, but not be limited to: training sessions, O&M manuals, as-built drawings, itemized attic stock requirements, and manufacturer guarantees/warranties.

O. CHANGE ORDERS

The Consultant shall review and process all change orders in accordance with the contract documents and procedures described below.

1. Consultant:

The Consultant shall prepare a detailed request for Change Order including a detailed description of the change(s) along with appropriate drawings, specifications, and related documentation and submit the information to the Contractor for the change order request submission. This will require the use of the current DPMC 9b form.

2. Contractor:

The Contractor shall submit a DPMC 9b Change Order Request form to the Project Manager within twenty (20) calendar days after receiving the Change Order from the Consultant. The document shall
identify the changed work in a manner that will allow a clear understanding of the necessity for the change. Copies of the original design drawings, sketches, etc. and specification pages shall be highlighted to clarify and show entitlement to the Change Order.

Copies shall be provided of job minutes or correspondence with all relative information highlighted to show the origin of the Change Order. Supplementary drawings from the Consultant shall be included if applicable that indicate the manner to be used to complete the changed work. A detailed breakdown of all costs associated with the change, i.e. material, labor, equipment, overhead, Sub-Contractor work, profit and bond, and certification of increased bond shall be provided.

If the Change Order will impact the time of the project, the Contractor shall include a request for an extension of time. This request shall include a copy of the original approved project schedule and a proposed revised schedule that reflects the impact on the project completion date. Documentation to account for the added time requested shall be included to support entitlement of the request such as additional work, weather, other Contractors, etc. This documentation shall contain dates, weather data and all other relative information.

3. Recommendation for Award:

The Consultant shall evaluate the reason for the change in work and provide a detailed written recommendation for approval or disapproval of the Change Order Request including backup documentation of costs in CSI format and all other considerations to substantiate that decision.

4. Code Review:

The Consultant shall determine if the Change Order request will require Code review and shall submit six (6) sets of signed and sealed modified drawings and specifications to the DPMC Plan & Code Review Unit for approval, if required. The Consultant must also determine and produce a permit amendment request if required.

5. Cost Estimate:

The Consultant shall provide a detailed cost estimate of the proposed Change Order Request, as submitted by the Contractor, in CSI format (2004 Edition) for all appropriate divisions and subdivisions using a recognized estimating formula. The estimate shall then be compared with that of the Contractor’s estimate. If any line item in the Consultant’s estimate is lower than the corresponding line item in the Contractor’s estimate, the Consultant in conjunction with the Project Manager is to contact the Contractor by telephone and negotiate the cost differences. The Consultant shall document the negotiated agreement on the Change Order Request form. If the Contractor’s total dollar value changes based on the negotiations, the Consultant shall identify the changes on the Change Order Request form accordingly.
When recommending approval or disapproval of the change order, the Consultant shall be required to prepare and process a Change Order package that contains at a minimum the following documents:

- DPMC 9b Change Order Request
- DPMC 10 Consultant’s Evaluation of Contractor’s Change Order Request
- Consultant’s Independent detailed Cost Estimate
- Notes of Negotiations

6. **Time Extension:**

When a Change Order Request is submitted with both cost and time factors, the Consultant’s independent cost estimate is to take into consideration time factors associated with the changed work. The Consultant is to compare their time element with that of the Contractor’s time request and if there is a significant difference, the Consultant in conjunction with the Project Manager is to contact the Contractor by telephone and negotiate the difference.

When a Change Order Request is submitted for time only, the Consultant is to do an independent evaluation of the time extension request using a recognized scheduling formula.

Requests for extension of contract time must be done in accordance with the General Conditions Section 14.2.2.

7. **Submission:**

The Consultant shall complete all of the DPMC Change Order Request forms provided and submit a completed package to the Project Manager with all appropriate backup documentation within seven (7) calendar days from receipt of the Contractor’s change order request. The Consultant shall resubmit the package at no cost to the State if the change order package contents are deemed insufficient by the Project Manager.

8. **Meetings:**

The Consultant shall attend and actively participate at all administrative hearings or settlement conferences as may be called by Project Manager in connection with such Change Orders and provide minutes of those meetings to the Project Manager for distribution.

9. **Consultant Fee:**

All costs associated with the potential Contractor Change Order Requests shall be anticipated by the Consultant and included in the base bid of their fee proposal. If the Client Agency Representative requests a scope change; and it is approved by the Project Manager, the Consultant may be entitled to be reimbursed through an amendment and in accordance with the requirements stated in paragraph 10.01 of this Scope of Work.
IX. PERMITS & APPROVALS

A. REGULATORY AGENCY PERMITS

The Consultant shall comply with the following guidelines to ensure that all required permits, certificates, and approvals required by State regulatory agencies are obtained for this project.

1. NJ Uniform Construction Code Permit:

The Consultant shall complete the NJUCC permit application and all applicable technical sub-code sections with all technical site data listed. The Agent section of the application and certification section of the building sub-code section shall be signed. These documents shall be forwarded to the Project Manager who will send them to the Department of Community Affairs (DCA) and all permit application costs will be paid by DPMC from encumbered funds for the project.

The Consultant may obtain access and copies of all NJUCC Building, Fire, Plumbing, Electrical and Elevator permit applications at the following website: www.nj.gov/dca/codes

The project construction documents must comply with the latest adopted edition of the NJ Uniform Construction Code that is in effect at the Final Design Phase of this project.

All other required project permits shall be obtained and paid for by the Consultant in accordance with the procedures described in paragraph 2. below.

2. Other Regulatory Agency Permits, Certificates, and Approvals:

The Consultant shall identify and obtain all other State Regulatory Agency permits, certificates, and approvals that will govern and affect the work described in this Scope of Work. An itemized list of these permits, certificates, and approvals shall be included with the Consultant’s Technical Proposal and the total amount of the application fees should be entered in the Fee Proposal line item entitled, “Permit Fee Allowance.” See Section XIV. 6.4.8 for a preliminary list of Regulatory Agency approvals.

The Consultant may refer to the Division of Property Management and Construction “Procedures for Architects and Engineers Manual”, Section 6.4.8, which presents a compendium of State permits, certificates, and approvals that may be required for this project.

The Consultant shall determine the appropriate phase of the project to submit the permit application(s) in order to meet the approved project milestone dates.

Where reference to an established industry standard is made, it shall be understood to mean the most recent edition of the standard unless otherwise noted. If an industry standard is found to be revoked,
or should the standard have undergone substantial change or revision from the time that the Scope of Work was developed, the Consultant shall comply with the most recent edition of the standard.

3. Prior Approval Certification Letters:

The issuance of a construction permit for this project may be contingent upon acquiring various prior approvals as defined by NJAC 5:23-1.4. It is the Consultant’s responsibility to determine which prior approvals, if any, are required. The Consultant shall submit a general certification letter to the DPMC Plan & Code Review Unit Manager during the Permit Phase of this project that certifies all required prior approvals have been obtained.

In addition to the general certification letter discussed above, the following specific prior approval certification letters, where applicable, shall be submitted by the Consultant to the DPMC Plan & Code Review Unit Manager: Soil Erosion & Sediment Control, Water & Sewer Treatment Works Approval, Coastal Areas Facilities Review, Compliance of Underground Storage Tank Systems with NJAC 7:14 b, Pinelands Review, Compliance of Abandoned Wells with NJAC 7:9-9, Certification that all utilities have been disconnected from structures to be demolished, Board of Health Approval for Potable Water Wells, Health Department Approval for Septic Systems. It shall be noted that in accordance with NJAC 5:23-2.15(a)5, a permit cannot be issued until the letter(s) of certification is received.

B. BARRIER FREE REQUIREMENTS

The Consultant, in cooperation with the Client Agency Representative, shall assure that this project complies with the NJUCC Barrier Free Sub code where applicable.

C. STATE INSURANCE APPROVAL

The Consultant shall respond in writing to the FM Global Insurance Underwriter plan review comments through the DPMC Plan & Code Review Unit Manager as applicable. The Consultant shall review all the comments and modify the documents while adhering to the project’s SOW requirements, State code requirements, schedule, budget, and Consultant fee.

D. PUBLIC EMPLOYEES OCCUPATIONAL SAFETY & HEALTH PROGRAM

A paragraph shall be included in the design documents, if applicable to this project that states: The Contractor shall comply with all the requirements stipulated in the Public Employees Occupational Safety & Health Program (PEOSHA) document, paragraph 12:100-13.5 entitled “Air quality during renovation and remodeling”. The Contractor shall submit a plan demonstrating the measures to be utilized to confine the dust, debris, and air contaminants in the renovation or construction area of the project site to the Project Team prior to the start of construction.
The link to the document is: http://www.state.nj.us/health/ehp/peoshweb/iaqstd.pdf

E. MULTI-BUILDING OR MULTI-SITE PERMITS

A project that involves many buildings and/or sites requires that a separate permit be issued for each building or site. The Consultant must determine the construction cost estimate for each building and/or site location and submit that amount where indicated on the permit application.

F. PERMIT MEETINGS

The Consultant shall attend and chair all meetings with Permitting Agencies necessary to explain and obtain the required permits.

G. MANDATORY NOTIFICATIONS

The Consultant shall include language in Division 1 of the specification that states the Contractor shall assure compliance with the New Jersey “One Call” Program (1-800-272-1000) if any excavation is to occur at the project site.


H. CONSTRUCTION TRAILER PERMITS

If construction trailers are required for the project then the Consultant shall include language in the Supplemental General Conditions that states the Contractor(s) shall be responsible to obtain and pay for each construction trailer permit directly from the Department of Community Affairs. (General Contractor for Single Bid-Lump Sum All Trades contract, and each Contractor for Separate Bids & Single Bid contract).

DCA will allow a single permit application to cover more than one trailer per Contractor provided the building, plumbing, and electrical technical sub-code sections, as applicable, specify the correct numbers and costs. The trailers will not require a plan review.

DCA will inspect each construction trailer and issue a Certificate of Occupancy (CO) separate from the main building construction.
Storage trailers with no utility connections are exempt from this requirement.

**I. SPECIAL INSPECTIONS**

In accordance with the requirements of the New Jersey Uniform Construction Code, Bulletin 03-5 and as clarified further by the Department of Community Affairs, the Consultant shall be responsible for the coordination of all special inspections during the construction phase of the project.

1. **Definition:**

   Special inspections are defined as an independent verification by a qualified person (special Inspector) rendered to the code official for **Class I buildings only**. The special inspector is to be independent from the Contractor and responsible to the building owner or owner’s agent so that there is no possible conflict of interest.

2. **Responsibilities:**

   The Consultant shall submit with the permit application, a list of special inspections and the firm(s) that will be responsible to carry out the inspections required for the project. The list shall be a separate document, on letter head, signed and sealed.

3. **Special Inspections:**

   The following special inspections, as applicable to this project, shall be performed in accordance with Chapter 17 of the International Building Code, New Jersey Edition, as defined below.

   - Steel construction, in accordance with Section 1704.3.
   - Concrete construction, in accordance with Section 1704.4.
   - Masonry construction, in accordance with Section 1704.5.
   - Soils, in accordance with Section 1704.7.
   - Pile foundations, in accordance with Section 1704.8.
   - Seismic resistance for Design Category D buildings, in accordance with Section 1707.
   - Structural testing for isolation damping systems in seismic Design Category D buildings, in accordance with Section 1708.
   - A quality assurance plan for seismic resistance of seismic Design Category D buildings, in accordance with Sections 1705.1 and 1705.2.

   Special inspectors shall be licensed in accordance with the requirements in the New Jersey Uniform Construction Code.
X. GENERAL REQUIREMENTS

A. SCOPE CHANGES

The Consultant must request any changes to this Scope of Work in writing. An approved DPMC 9d Consultant Amendment Request form reflecting authorized scope changes must be received by the Consultant prior to undertaking any additional work. The DPMC 9d form must be approved and signed by the Director of DPMC and written authorization issued from the Project Manager prior to any work being performed by the Consultant. Any work performed without the executed DPMC 9d form is done at the Consultant’s own financial risk.

B. ERRORS AND OMISSIONS

The errors and omissions curve and the corresponding sections of the “Procedures for Architects and Engineers Manual” are eliminated. All claims for errors and omissions will be pursued by the State on an individual basis and resolved during the close-out phase of the project. The State will review each error or omission with the Consultant and determine the actual amount of damages, if any, resulting from each negligent act, error or omission.

C. ENERGY INCENTIVE PROGRAM

The Consultant shall review the Program Overview described on the NJ Smart Start Buildings website at: http://www.njsmartstartbuildings.com/ to determine if any proposed upgrades to the mechanical and/or electrical equipment and systems for this project will qualify for the “New Jersey Smart Start Building Energy Incentive Program”.

The Consultant shall be responsible to complete the Smart Start Registration Form and the Application Forms, provide any applicable worksheets, manufacturer’s specification sheets, calculations, attend meetings, and participate in all activities with designated representatives of the Smart Start Program and Utility Companies to obtain the entitled financial incentives and rebates for this project. All costs associated with this work shall be estimated by the Consultant and the amount included in the base bid of their fee proposal.

D. AIR POLLUTION FROM ARCHITECTURAL COATINGS

The Consultant shall include in the appropriate sections of the specification the requirement that all architectural coatings applied at the project site shall comply with the NJDEP Administrative Code Title 7, Chapter 27, Subchapter 23, entitled “Prevention of Air Pollution from Architectural Coatings”.
Architectural coatings shall mean materials applied for protective, decorative, or functional purposes to stationary structures or their appurtenances, portable buildings, pavements, or curbs. The coating materials include, but are not limited to, paints, varnishes, sealers, and stains.

XI. ALLOWANCES

A. PERMIT FEE ALLOWANCE

The Consultant shall obtain and pay for all of the project permits in accordance with the guidelines identified below.

1. Permits:

The Consultant shall determine the various State permits, certificates, and approvals required to complete this project.

2. Permit Costs:

The Consultant shall determine the application fee costs for all of the required project permits, certificates, and approvals (excluding the NJ Uniform Construction Code permit) and include that amount in their fee proposal line item entitled “Permit Fee Allowance”. A breakdown of each permit and application fee shall be attached to the fee proposal for reference.

NOTE: The NJ Uniform Construction Code permit is excluded since it is obtained and paid for by DPMC.

3. Applications:

The Consultant shall fill out and submit all permit applications to the appropriate permitting authorities and the costs shall be paid from the Consultant’s permit fee allowance provided. A copy of the application(s) and the original permit(s) obtained by the Consultant shall be given to the Project Manager for distribution during construction.

4. Consultant Fee:

The Consultant shall determine what is required to complete and submit the permit applications, obtain supporting documentation, attend meetings, etc., and include the total cost in the base bid of their fee proposal under the “Permit Phase” column.
Any funds remaining in the permit allowance account will be returned to the State at the close of the project.

XII. SUBMITTAL REQUIREMENTS

A. CONTRACT DELIVERABLES

All submissions shall include the Contract Deliverables identified in Section XIV of this Scope of Work and described in the DPMC Procedures for Architects and Engineers Manual.

B. CATALOG CUTS

The Consultant shall provide catalog cuts as required by the DPMC Plan & Code Review Unit during the design document review submissions. Examples of catalog cuts include, but are not limited to: mechanical equipment, hardware devices, plumbing fixtures, fire suppression and alarm components, specialized building materials, electrical devices, etc.

C. PROJECT DOCUMENT BOOKLET

The Consultant shall submit all of the required Contract Deliverables to the Project Manager at the completion of each phase of the project. All reports, meeting minutes, plan review comments, project schedule, cost estimate in CSI format (2004 Edition), correspondence, calculations, and other appropriate items identified on the Submission Checklist form provided in the A/E Manual shall be presented in an 8½” x 11” bound “booklet” format.

D. DESIGN DOCUMENT CHANGES

Any corrections, additions, or omissions made to the submitted drawings and specifications at the Permit Phase of the project must be submitted to DPMC Plan & Code Review Unit as a complete document. Corrected pages or drawings may not be submitted separately unless the Consultant inserts the changed page or drawing in the original documents. No Addendums or Bulletins will be accepted as a substitution to the original specification page or drawing.
E. SINGLE-PRIME CONTRACT

All references to “separate contracts” in the Procedures for Architects and Engineers Manual, Chapter 8, shall be deleted since this project will be advertised as a “Single Bid” (Lump Sum All Trades) contract. The single prime Contractor will be responsible for all work identified in the drawings and specifications.

The drawings shall have the required prefix designations and the specification sections shall have the color codes as specified for each trade in the DPMC Procedure for Architects and Engineers Manual.

The Consultant must still develop the Construction Cost Estimate (CCE) for each trade and the amount shall be included on the DPMC-38 Project Cost Analysis form where indicated. This document shall be submitted at each design phase of the project and updated immediately prior to the advertisement to bid.
XIII. SOW SIGNATURE APPROVAL SHEET

This Scope of Work shall not be considered a valid document unless all signatures appear in each designated area below.

The Client Agency approval signature on this page indicates that they have reviewed the design criteria and construction schedule described in this project Scope of Work and verifies that the work will not conflict with the existing or future construction activities of other projects at the site.

SOW PREPARED BY: JAMES WRIGHT, PROJECT MANAGER
DPMC SCOPE DEVELOPMENT UNIT

SOW APPROVED BY: JAMES MCKENNA, MANAGER
DPMC SCOPE DEVELOPMENT UNIT

SOW APPROVED BY: GEORGE SCHWARZ, MANAGER
DEPARTMENT OF TRANSPORTATION

SOW APPROVED BY: MARTIN CONRAD, PROJECT MANAGER
DPMC PROJECT MANAGEMENT GROUP

SOW APPROVED BY: RICHARD FLODMAND, DEPUTY DIRECTOR
DIV PROPERTIES MGT & CONSTRUCTION

DATE 5/2/11
DATE 5/2/11
DATE 05-12-11
DATE
DATE 5/16/11
XIV. CONTRACT DELIVERABLES

The following is a listing of Contract Deliverables that are required at the completion of each phase of this project. The Consultant shall refer to the DPMC publication entitled, “Procedures for Architects and Engineers,” Volumes I and II, 2nd Edition, dated January, 1991 to obtain a more detailed description of the deliverables required for each item listed below.

The numbering system used in this “Contract Deliverables” section of the scope of work corresponds to the numbering system used in the “Procedures for Architects and Engineers” manual and some may have been deleted if they do not apply to this project.

DESIGN DEVELOPMENT PHASE: 50% Complete Design Documents (Minimum)

7.1 Project Schedule (Update Bar Chart Schedule)

7.2 Meetings & Minutes (Minutes within 5 working days of meeting)

7.3 Correspondence

7.4 Submission Requirements

7.4.1 A/E Statement of Site Visit, As-Built Drawing Verification (if available)
7.4.2 Space Analysis & Program Requirements
7.4.3 Special Features Description: architectural, electrical, mechanical, fire protection, monitoring features, etc.
7.4.4 Site Evaluation
7.4.5 Borings, Surveys, and Soils Analysis (as applicable)
7.4.7 Design Rendering/Sketches
7.4.8 Regulatory Agency Approvals
7.4.9 Confirm Utility Availability (On Site & Public)
   Gas Service
   Fire Service
   Electric Service
7.4.10 Drawings: 6 sets
   Cover Sheet (See A/E Manual for format)
   Site Plan
   Site Utility Plan
   Floor Plans
   Elevations
   Sections/Details
Structural Drawings, Seismic Design Load Criteria
HVAC Drawings, Heating & Cooling Equipment Schedules
Plumbing Drawings, Pipe Distribution & Riser Details, Fixture Schedule
Fire Protection Drawings, Hydraulic Calcs, Water Pressure & Flow Data
Electrical Drawings, Riser Diagram, Panel Schedules, Service Size, Lighting Design
Emergency Power Equipment & Source

7.4.11 Specifications: 6 sets (See A/E Manual for format, include Division 1 and edit to describe the administrative and general requirements of the project)

7.4.12 Current Working Estimate in CSI Format & Cost Analysis 38 Form
7.4.13 Bar Chart of Design and Construction Schedule
7.4.14 Oral Presentation of Submission to Project Team
7.4.15 SOW Compliance Statement
7.4.16 This Submission Checklist (See A/E Manual, Figure 6.4.16 for format)
7.4.17 Deliverables Submission in Booklet Form: 7 sets

7.5 Approval

7.5.1 Respond to Submission Comments

7.6 Submission Forms

Figure 7.4.12 Current Working Estimate/Cost Analysis
Figure 7.4.16 Submission Checklist

FINAL DESIGN PHASE  100% Complete Construction Documents

This Final Design Phase may require more than one submission based on the technical quality and code conformance of the design documents.

8.1 Schedule (Update Bar Chart Schedule)

8.2 Meeting & Minutes (Minutes within 5 working days of meeting)

8.3 Correspondence

8.4 Submission Requirements

8.4.1 A/E Statement of Site Visit
8.4.2 Space Analysis
8.4.3 Special Features Description: architectural, electrical, mechanical, fire protection, monitoring features, etc.
8.4.4 Site Evaluation
8.4.5 Borings, Surveys, Soils Analysis (as applicable)
8.4.7 Renderings and Photographs
8.4.8 Regulatory Agency Approvals (Include itemized list specific to this project)
8.4.10 Drawings: 6 sets
8.4.11 Specifications: 6 sets
8.4.12 Current Working Estimate in CSI Format & Cost Analysis 38 Form
8.4.13 Bar Chart of Design and Construction Schedule
8.4.14 Oral Presentation of this Submission to Project Team
8.4.15 Plan Review/SOW Compliance Statement
8.4.16 This Submission Checklist
8.4.17 Deliverables Submission in Booklet Form: 7 sets

8.5 Approvals

8.5.1 Respond to Submission Comments

PERMIT APPLICATION PHASE

This Permit Application Phase should not include any additional design issues. Design documents shall be 100% complete at the Final Design Phase.

8.6 Permit Application Submission Requirements

8.6.1 - 8.6.7: If all of the deliverables of these sections have been previously submitted to DPMC and approved there are no further deliverables due at this time
8.6.8 Regulatory Agency Approvals
   (a) UCC Permit Application & Technical Sub-codes completed by A/E
8.6.9 Utility Availability Confirmation
8.6.10 Signed and Sealed Drawings: 6 sets
8.6.11 Signed and Sealed Specifications: 6 sets
8.6.12 Current Working Estimate/Cost Analysis
8.6.13 Bar Chart Schedule
8.6.14 Project Presentation (N/A this Project)
8.6.15 Plan Review/SOW Compliance Statement
8.6.16 Submission Checklist

8.7 Approvals

8.8 Submission Forms

Figure 8.4.12 Current Working Estimate/Cost Analysis
BIDDING AND CONTRACT AWARD

9.0 Bidding Phase Requirements

9.0.1 Original Drawings signed & sealed by A/E, one (1) set Discs (dwg, tif, pdf formats)
9.0.2 One Unbound Specification Color Coded per A/E Manual Section 8.4.11
9.0.3 Bid Documents Checklist
9.0.4 Bid Proposal Form
9.0.5 Notice for Advertising

9.1 Chair Pre-Bid Conference/Mandatory Site Visit

9.2 Prepare Bulletins

9.3 Attend Bid Opening

9.4 Recommendation for Contract Award

9.4.1 Prepare Letter of Recommendation for Award & Cost Analysis

9.5 Attend Pre-Construction Meeting

9.6 Submission Checklist

9.7 Submission Forms

Figure 9.4.1 Cost Analysis
Figure 9.6 Submission Checklist

CONSTRUCTION PHASE

10.1 Site Construction Administration
10.2 Pre-Construction Meeting

10.3 Construction Job Meetings

10.3.1 Agenda: Schedule and Chair Construction Job Meetings
10.3.2 Minutes: Prepare and Distribute Minutes within 5 working days of meeting
10.3.3 Schedules; Approve Contractors’ Schedule & Update
10.3.4 Minutes Format: Prepare Job Meeting Minutes in approved format, figure 10.3.4-a

10.4 Correspondence

10.5 Prepare and Deliver Conformed Drawings

10.7 Approve Contractors Invoicing and Payment Process

10.8 Approve Contractors 12/13 Form for Subs, Samples and Materials

10.10 Approve Test Reports

10.11 Approve Shop Drawings

10.12 Construction Progress Schedule

10.12.1 Construction Progress Schedule

10.13 Review & Recommend or Reject Change Orders

10.13.1 Scope Changes
10.13.2 Construction Change Orders
10.13.3 Field Changes

10.14 Construction Photographs

10.15 Submit Field Observation Reports

10.16 Submission Forms

Figure 10.3.4-a Job Meeting Format of Minutes
Figure 10.3.4-b Field Report
Figure 10.6 DPMC Insurance Form-24
Figure 10.6-a Unit Schedule Breakdown
Figure 10.6-b Monthly Estimate for Payment to Contractor DPMC 11-2
Figure 10.6-c Monthly Estimate for Payment to Contractor DPMC 11-2A
Figure 10.6-d Invoice DPMC 11
Figure 10.6-e Prime Contractor Summary of Stored Materials DPMC 11-3
Figure 10.6-f Agreement & Bill of Sale certificate for Stored Materials DPMC 3A
Figure 10.7-a Approval Form for Subs, Samples & Materials DPMC 12
Figure 10.7-b Request for Change Order DPMC 9b
Figure 10.9 Transmittal Form DPMC 13
Figure 10.10 Submission Checklist

PROJECT CLOSE-OUT PHASE

11.1 Responsibilities: Plan, Schedule and Execute Close-Out Activities

11.2 Commencement: Initiate Close-Out w/DPMC 20A Project Close-Out Form

11.3 Develop Punch List & Inspection Reports

11.4 Verify Correction of Punch List Items

11.5 Determination of Substantial Completion

11.6 Ensure Issuance of “Temporary Certificate of Occupancy or Approval”

11.7 Initiation of Final Contract Acceptance Process

11.8 Submission of Close-Out Documentation

11.8.1 As-Built & Record Set Drawings, 3 sets AUTOCAD Discs Delivered to DPMC
11.8.2 (a) Maintenance and Operating manuals, Warranties, etc.: 7 sets each
(b) Guarantees
(c) Testing and Balancing Reports
(d) Shop Drawings
(e) Letter of Contract Performance
11.8.3 Final Cost Analysis-Insurance Transfer DPMC 25
11.8.4 This Submission Checklist

11.9 Final Payment

11.9.1 Contractors Final Payment
11.9.2 A/E Invoice and Close-Out Forms for Final Payment

11.10 Final Performance Evaluation of the A/E and the Contractors
11.11 Ensure Issuance of a “Certificate of Occupancy or Approval”

11.12 Submission Forms

- Figure 11.2 Project Close-Out Documentation List DPMC 20A
- Figure 11.3-a Certificate of Substantial Completion DPMC 20D
- Figure 11.3-b Final Acceptance of Consultant Contract DPMC 20C
- Figure 11.5 Request for Contract Transition Close-Out DPMC 20X
- Figure 11.7 Final Contract Acceptance Form DPMC 20
- Figure 11.8.3-a Final Cost Analysis
- Figure 11.8.3-b Insurance Transfer Form DPMC 25
- Figure 11.8.4 Submission Checklist

XV. EXHIBITS

The attached exhibits in this section will include a sample project schedule, and any supporting documentation to assist the Consultant in the design of the project such as maps, drawings, photographs, floor plans, studies, reports, etc.

A. SAMPLE PROJECT SCHEDULE FORMAT
B. PROJECT SITE MAP
C. PHOTOS

END OF SCOPE OF WORK
**Responsible Group Code Table**

The codes below are used in the schedule field "GRP" that identifies the group responsible for the activity. The table consists of groups in the Division of Property Management & Construction (DPMC), as well as groups outside of the DPMC that have responsibility for specific activities on a project that could delay the project if not completed in the time specified. For reporting purposes, the groups within the DPMC have been defined to the supervisory level of management (i.e., third level of management, the level below the Associate Director) to identify the "functional group" responsible for the activity.

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
<th>REPORTS TO ASSOCIATE DIRECTOR OF:</th>
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<tbody>
<tr>
<td>CM</td>
<td>Contract Management Group</td>
<td>Contract Management</td>
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<tr>
<td>CA</td>
<td>Client Agency</td>
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<td>CSP</td>
<td>Consultant Selection and Prequalification Group</td>
<td>Technical Services</td>
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<td>A/E</td>
<td>Architect/Engineer</td>
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<td>PR</td>
<td>Plan Review Group</td>
<td>Technical Services</td>
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<td>CP</td>
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<td>Planning &amp; Administration</td>
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<td>CON</td>
<td>Construction Contractor</td>
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<td>OEU</td>
<td>Office of Energy and Utility Management</td>
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<tr>
<td>PD</td>
<td>Project Development Group</td>
<td>Planning &amp; Administration</td>
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**EXHIBIT 'A'**
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<th>Description</th>
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<td>Schedule/Conduct Predesign/Project Kick-Off Meeting</td>
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<td>CV002</td>
<td>Prepare Program Phase Submittal</td>
<td>AE</td>
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<tr>
<td>CV003</td>
<td>Distribute Program Submittal for Review</td>
<td>CM</td>
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<td>CV004</td>
<td>Review &amp; Approve Program Submittal</td>
<td>CA</td>
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<td>CV005</td>
<td>Prepare &amp; Submit Project Cost Analysis (DPMC-38)</td>
<td>CM</td>
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<td>CV006</td>
<td>Review &amp; Approve Program Submittal</td>
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<td>CV007</td>
<td>Review &amp; Approve Program Submittal</td>
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<td>CV008</td>
<td>Consolidate &amp; Return Program Submittal Comments</td>
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<td>CV009</td>
<td>Prepare Schematic Phase Submittal</td>
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<td>Distribute Schematic Submittal for Review</td>
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<td>CV015</td>
<td>Prepare Design Development Phase Submittal</td>
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<td>CV016</td>
<td>Distribute D. D. Submittal for Review</td>
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<td>CV017</td>
<td>Prepare &amp; Submit Project Cost Analysis (DPMC-38)</td>
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<td>CV018</td>
<td>Review &amp; Approve Design Development Submittal</td>
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<td>Consolidate &amp; Return D.D. Submittal Comments</td>
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<td>CV021</td>
<td>Prepare Final Design Phase Submittal</td>
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<td>CV023</td>
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<td>CV024</td>
<td>Review &amp; Approve Final Design Submittal</td>
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<tr>
<td>CV025</td>
<td>Review Final Design Submitt for Constructability</td>
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**NOTE:**
Refer to section "TV Project Schedule" of the Scope of Work for contract phase durations.

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<td>CV005</td>
<td>Review &amp; Approve Final Design Submittal</td>
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<td>CV006</td>
<td>Consolidate &amp; Return Final Design Comments</td>
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<td>CV007</td>
<td>Prepare &amp; Submit Permit Application Documents</td>
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<td>CV008</td>
<td>Prepare &amp; Submit Bidding Cost Analysis (DPMC 38)</td>
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<td>CV009</td>
<td><strong>Plan: Review-Permit Acquisition</strong></td>
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<td>CV001</td>
<td>Review Constr. Documents &amp; Secure UCC Permit</td>
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<td>CV010</td>
<td>Provide Funding for Construction Contracts</td>
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<td>CV011</td>
<td>Secure Bid Clearance</td>
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<td><strong>Advertise-Bid-Award</strong></td>
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<td>CV021</td>
<td>Advertise Project &amp; Bid Construction Contracts</td>
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<td>CV022</td>
<td>Open Construction Bids</td>
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<td>Evaluate Bids &amp; Prep. Recommendation for Award</td>
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<td>Evaluate Bids &amp; Prep. Recommendation for Award</td>
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<td>Complete Recommendation for Award</td>
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<td>CV026</td>
<td>Award Construction Contracts / Issue NTP</td>
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<td><strong>Construction</strong></td>
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<td>CV031</td>
<td>Project Construction Start / Issue NTP</td>
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<td>CV032</td>
<td>Contract Start / Contract Work (25%) Complete</td>
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<td>CV033</td>
<td>Preconstruction Meeting</td>
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<td>CV034</td>
<td>Begin Preconstruction Submittals</td>
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<td>CV035</td>
<td>Longest Lead Procurement Item Ordered</td>
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<td>CV036</td>
<td>Lead Time for Longest Lead Procurement Item</td>
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<td>CV037</td>
<td>Prepare &amp; Submit Shop Drawings</td>
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<td>CV038</td>
<td>Complete Construction Submittals</td>
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<td>CV039</td>
<td>Roughing Work Start</td>
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<td>CV040</td>
<td>Perform Roughing Work</td>
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<td>CV041</td>
<td>Contract Work (50%+) Complete</td>
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<td>CV042</td>
<td>Longest Lead Procurement Item Delivered</td>
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<td>CV043</td>
<td>Contract Work (75%) Complete</td>
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**NOTE:**
Refer to section "IV Project Schedule" of the Scope of Work for contract phase durations.

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**Exhibit "A"**
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<td>Roughing Work Complete</td>
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<td>CV0021</td>
<td>Interior Finishes Start</td>
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<td>CV0022</td>
<td>Install Interior Finishes</td>
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<td>CV0030</td>
<td>Contract Work to Substantial Completion</td>
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<td>CV0073</td>
<td>Complete Deferred Punch List/Seasonal Activities</td>
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NOTE:
Refer to section "IV Project Schedule" of the Scope of Work for contract phase durations.
DOT Traffic Operations Center

EXHIBIT ‘B’
Data Aire CRAC units
EXHIBIT ‘C’
Eaton PowerWare and Liebert NPower UPS's

EXHIBIT 'C'
Data Center Equipment

EXHIBIT 'C'
Data Center Equipment

EXHIBIT ‘C’