SCOPE OF WORK

New Generator and UPS

NJ Public Health Environmental and Agricultural Laboratory
West Trenton, Mercer County, N.J.

Project No. A1351-00

STATE OF NEW JERSEY

Honorable Philip D. Murphy, Governor
Honorable Sheila Y. Oliver, Lt. Governor

DEPARTMENT OF THE TREASURY

Elizabeth Maher Muoio, Treasurer

DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION

Christopher Chianese, Director

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C. NJDPMC NO. A1344-00 STANDBY GENERATOR FEASIBILITY STUDY

I. OBJECTIVE

The objective of this project is add a 2000kW diesel generator and 200kW uninterruptible power supply for building labs to the existing standby power equipment at the New Jersey Public Health Environmental and Agricultural Laboratory in Ewing, New Jersey.

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 following discipline(s):

- **P002 Electrical Engineering**

The Consultant shall also have in-house capabilities or Sub-Consultants pre-qualified with DPMC in:

- **P005 Civil Engineering**
- **P025 Estimating/Cost Analysis**

As well as, **any and all** other Architectural, 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 $3,352,245.

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

B. CURRENT WORKING ESTIMATE (CWE)

The Current Working Estimate (CWE) for this project is $4,201,582.

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. 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.

PROJECT PHASE	ESTIMATED DURATION (Calendar Days)
1. Site Access Approvals & Schedule Design Kick-off Meeting	**14**
2. Design Development Phase 50% (Minimum)	**42**
• *Project Team & DPMC Plan/Code Unit Review & Comment*	14
3. Final Design Phase 100%	**42**
• *Project Team & DPMC Plan/Code Unit Review & Approval*	14
4. Final Design Re-Submission to Address Comments	**7**
• *Project Team & DPMC Plan/Code Unit Review & Approval*	14
5. Permit Application Phase	**7**
• *Issue Plan Release*	
6. Bid Phase	**42**
7. Award Phase	**28**
8. Construction Phase	**180**

B. CONSULTANT'S PROPOSED DESIGN & CONSTRUCTION SCHEDULE

The Consultant shall submit a project design and construction bar chart schedule with its 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 its 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 "Contract Deliverables - Project Close-Out Phase" 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

Based on the Notice to Proceed, Consultant shall update its approved schedule and shall distribute it at the design kickoff meeting. Note that this schedule shall be submitted in both paper format and on compact disk in a format compatible with *Microsoft Project*. 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 and Bulletins that may be issued on the project.

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, 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:

NJ Public Health Environmental and Agricultural Laboratory
3 Schwarzkopf Drive
West Trenton, NJ 08628

See **Exhibit 'B'** for the project site location map.

B. PROJECT TEAM MEMBER DIRECTORY

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

1. DPMC Representative:

Name: Joseph Polizzi, Design Project Manager
Address: Division of Property Management & Construction
20 West State Street, 3rd Floor
Trenton, NJ 08608-1206
Phone No: (609) 218-0260
E-Mail No: Joseph.Polizzi@treas.nj.gov

2. NJ Public Health Environmental and Agricultural Laboratory:

Name: David Markunas, Facilities Operations Manager
Address: NJ Public Health Environmental and Agricultural Laboratory
3 Schwarzkopf Drive
West Trenton, NJ 08628
Phone No: 609-406-6864
E-Mail No: david.markunas@treas.nj.gov

VI. PROJECT DEFINITION

A. BACKGROUND

The New Jersey Public Health, Environmental and Agricultural Laboratory (PHEAL) is a four story steel framed building that houses the Department of Health and the Department of Agriculture's laboratories.

The facility (PHEAL) is a 191,000 sf building comprised of 157,000 sf of open laboratory space. Initially opened in May 2011, services were gradually moved from the old facility in Trenton over the course of approximately one year, with the last program to move in August 2012.

Department of Health (DOH) services within the facility include: Public Health Laboratory Services (PHLS), Environmental Chemical Laboratory Services (ECLS), Office of Policy, Planning and Regulatory Compliance (OPPRC) and the Clinical Laboratory Improvement Services (CLIS).

B. FUNCTIONAL DESCRIPTION OF THE BUILDING

The PHEAL facility currently has one 2000 kW Diesel Generator that provides emergency power to the building and one 250 kW Diesel Generator that provides standby power to the building life safety loads such as emergency lighting and fire pump. These generators do not provide backup for entire building loads.

The Department of Health has re-evaluated its essential lab programs and has determined that all lab programs at the PHEAL are needed to operate uninterrupted in the event of a power failure. In addition, the facility has experienced power outages resulting in interruptions to experiments due to the loss of continuity of power.

Under DPMC Project A1344-00, the State procured the services of Gannett Fleming to evaluate the generator backup system at the PHEAL facility and recommend solutions to meet the needs of the facility. The evaluation resulted in multiple options, with cost estimates, for additional generator and UPS capacity. The options selected were Option 1 for a new 2000kW diesel generator and Option 3 for an uninterruptable power supply for building lab loads only. The "Standby Generator Feasibility Study" by Gannett Fleming, dated May 2021, is shown in **Exhibit 'C'**. The existing 2000kW diesel standby generator and existing 250kW diesel standby generator for life safety loads will remain.

VII. CONSULTANT DESIGN RESPONSIBILITIES

A. DESIGN REQUIREMENTS

1. Electrical:

The Consultant shall review the "Standby Generator Feasibility Study" by Gannett Fleming shown in **Exhibit 'C'** and provide the design, specifications and construction administration services to implement options 1 and 3 to add one new 2000kW diesel generator and a 200kW 208Y/120V uninterruptible power supply for the PHEAL. All associated switchboards, panelboards and switchgear shall be included in the design as detailed in the study.

The Consultant shall clearly identify which code article (NEC 700, 701 or 702) will be used for the design and ratings of equipment.

The Consultant shall specify the type of Energy Storage System (UPS) by the NEC 706.4 classification and how the provisions of NEC Article 706.3 will apply to this system.

If the connected electrical systems fall into a NEC 700 or 701 system, the consultant shall indicate what type of system(s) will be supplied by the generator, transfer switches/switchgear and UPS. The equipment that is specified needs to be listed for the use.

Any modifications to the existing electrical switch gear or panel boards shall be evaluated in accordance with NEC Article 90.7.

2. Site Planning:

The Consultant shall provide the design, specifications and construction administration services for all site planning to locate equipment to implement options 1 and 3, including pad construction, geotechnical testing, regrading, utility locating services and retaining wall construction as necessary.

3. Equipment Tests:

The design documents shall include detailed test requirements of the new equipment and systems. The Contractor and a certified testing firm shall perform operational tests of the completed installation to certify their proper operation. All test results shall be bound in a booklet and three (3) copies presented to the Project Manager for record.

4. Spare Parts:

A critical spare parts list shall be prepared for all appropriate items and purchased as part of this project. The Consultant shall include provisions for the manufacturer/vendor of the equipment to provide critical spare and maintenance parts as part of this project. All of the critical parts shall be reviewed and approved by the Client Agency.

B. 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 Uniform Construction Code N.J.A.C. 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 review and comply with the DPMC "Plan Review Instructions" which can be found on DPMC's web site at:

http://www.state.nj.us/treasury/dpmc/lists_and_publications.shtml

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 prepare the construction specifications in the Construction Specifications Institute (CSI) format entitled MasterFormat©, latest edition.

The project construction specifications shall include only those CSI MasterFormat© specification sections and divisions applicable to this specific project.

3. Submittal Schedule:

The Consultant shall include a submittal schedule in Division 1 of the specifications. The schedule (list of required submittals) shall identify the general conditions and/or specification section (number and name) and the type of submittal required (material data, product data, test results, calculations, etc.). The submittal schedule is a compilation of the submittals required on the project and is provided as an aid to the contractor.

4. Construction Cost Estimates:

The Consultant shall include with each design submittal phase identified in Paragraph IV.A, including the Permit Application Phase and Bid Phase, a detailed construction cost estimate itemized and summarized by the divisions and sections of the Construction Specification Institute (CSI) MasterFormat© latest edition applicable to the project.

The detailed breakdown of each work item shall include labor, equipment, material and total costs.

The construction estimate shall include all alternate bid items and all unit price items itemized and summarized by the divisions and sections of the specifications.

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.

The cost estimate shall include descriptions of all allowances and contingencies noted in the estimate.

All cost estimates must be submitted on a DPMC-38 Project Cost Analysis form at each design phase of the project supported by the detailed construction cost estimate. 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.

C. 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 documents will be provided to each Consulting firm at the pre-proposal meeting to assist in the bidding process.

- DPMC Project A0984-04: New Jersey Public Health Environmental and Agricultural Laboratory, January 28, 2011, HOK NY

Review these documents 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.

D. 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.

E. 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.

F. CONSTRUCTION BID DOCUMENT SUBMITTAL

In addition to submitting construction bid documents as defined in Section XIV Contract Deliverables, Consultant shall submit both specifications and drawings on compact disk (CD) in *Adobe Portable Document Format (.pdf).*

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 its 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. 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 and Project Team members, 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 requirements necessary 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 its 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 its 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 4.7.5 "Substitutions" 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.

If a CPM Schedule is required, review the provisions and have Contractor acknowledge the responsibility. Ask for the name of the CPM Scheduler and the "ballpark" costs.

5. Performance:

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

6. Letter of Recommendation:

The Consultant shall prepare a Letter of Recommendation for contract award to the Contractor submitting the lowest 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 its 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.

7. 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 fourteen (14) 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.

D. 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 its fee proposal.

E. CONSTRUCTION JOB MEETINGS, SCHEDULES, LOGS

The Consultant shall conduct all of the construction job meetings, to be held bi-weekly for the duration of construction, 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 three (3) working 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:

Based on the Submittal Schedule in Division 1 of the specifications, the Consultant shall develop and implement a submittal log that includes all of the required project submittals as identified in the general conditions and technical specifications. The submittal log shall be provided to the contractor at the pre-construction meeting. 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: project schedule, schedule of values, shop drawings, 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 the status of all required submissions.

F. 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, and to attend/chair meetings as may be required by the Project Manager to resolve special issues.

Consultant and Sub-Consultant(s) shall conduct weekly site inspection/field observation visits. Site inspection/field observation visits may be conducted in conjunction with regularly scheduled

bi-weekly construction job meetings, depending on the progress of work, for weeks that construction job meetings are scheduled. The Consultant and its Sub-Consultant(s) shall submit a field observation report for each site inspection to the Project Manager within three (3) calendar days of the site visit. 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 its 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.

G. SUB-CONSULTANT PARTICIPATION

It is the responsibility of the Consultant to ensure that they have provided adequate hours and/or time allotted in its technical proposal so that 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 three (3) 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.

H. 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 seven (7) 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 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 reproducible drawings from DPMC and transfer the AS-BUILT conditions to the original full sized signed reproducible drawings to reflect RECORD conditions within fourteen (14) 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 reproducible drawings to DPMC who will acknowledge receipt in writing. This hard copy set of drawings and two (2) sets of current release AUTO CAD discs shall be submitted to DPMC. The discs shall contain all AS-BUILT drawings in both ".dwg" (native file format for AUTO CAD) and ".pdf" (*Adobe* portable document format) file formats.

I. 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.

J. INSPECTIONS: SUBSTANTIAL & FINAL COMPLETION

The Consultant and 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.

K. 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 fourteen (14) 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.

L. CLOSE-OUT ACTIVITY TIME

The Consultant shall provide all activities and deliverables associated with the "Close-Out Phase" of this project as part of its 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.

M. 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 seven (7) 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.

The Consultant shall ensure that the training session is video recorded by the Contractor. A copy of the recording shall be transmitted to the Project Manager on compact disk who will forward the material to the Client Agency for future reference.

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.

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.

N. 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 seven (7) 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 Approval:

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 (latest edition) for all appropriate divisions and sub-divisions 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 its 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 Article 10.1 "Changes in the Work".

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 its 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. NJ UNIFORM CONSTRUCTION CODE PERMIT

The project construction documents must comply with the latest adopted edition of the NJ Uniform Construction Code (NJUCC).

The latest NJUCC Adopted Codes and Standards can be found at:

http://www.state.nj.us/dca/divisions/codes/codreg/

The Consultant shall complete the NJUCC permit application and all applicable technical sub-code sections with all technical site data required. 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 DPMC Project Manager.

The Consultant may obtain copies of all NJUCC permit applications at the following website:

http://www.state.nj.us/dca/divisions/codes/forms/

All other required project permits shall be obtained and paid for by the Consultant in accordance with the procedures described in Paragraph IX.B.

1. Prior Approval Certification Letters:

The issuance of a construction permit for this project may be contingent upon acquiring various "prior approvals" as defined by N.J.A.C. 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 N.J.A.C. 7:14B, Pinelands Commission, Highlands Council, Well Construction and Maintenance; Sealing of Abandoned Wells with N.J.A.C. 7:9D, 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 N.J.A.C. 5:23-2.15(a)5, a permit cannot be issued until the letter(s) of certification is received.

2. Multi-building or Multi-site Permits:

A project that involves many buildings and/or sites requires that a separate permit shall 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.

3. Special Inspections:

In accordance with the requirements of the New Jersey Uniform Construction Code N.J.A.C. 5:23-2.20(b), Bulletin 03-5 and Chapter 17 of the International Building Code, the Consultant shall be responsible for the coordination of all special inspections during the construction phase of the project.

Bulletin 03-5 can be found at:

http://www.state.nj.us/dca/divisions/codes/publications/pdf_bulletins/b_03_5.pdf

a. Definition:

Special inspections are defined as an independent verification by a certified Special Inspector for **Class I buildings and smoke control systems in any class building**. The special inspector is to be independent from the Contractor and responsible to the Consultant so that there is no possible conflict of interest.

Special inspectors shall be certified in accordance with the requirements in the New Jersey Uniform Construction Code.

b. Responsibilities:

The Consultant shall submit with the permit application, a list of special inspections and the agencies or special inspectors 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.

B. 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."**

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.

C. STATE INSURANCE APPROVAL

If requested by the using agency or DPMC design management, plans and specifications shall be submitted to the State insurance underwriter for review and comment. The plans shall be sent directly by the consultant and a copy of the comments, if any, shall be provided to the DPMC

Plan & Code Review Unit for its information. The Consultant shall review all the comments and, with agreement of the Project Team, 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.nj.gov/health/workplacehealthandsafety/peosh/peosh-health-standards/iaq.shtml

E. PERMIT MEETINGS

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

F. 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.

The One Call Program is known as the "New Jersey Underground Facility Protection Act", refer to N.J.A.C. 14:2.

G. CONSULTANT FEE

The Consultant shall determine the efforts required to complete and submit all permit applications, obtain and prepare supporting documentation, attend meetings, etc., and include the total cost in the base bid of its fee proposal under the "Permit Phase".

X. GENERAL REQUIREMENTS

A. SCOPE CHANGES

The Consultant must request any changes to this Scope of Work in writing. An approved DPMC 9c Consultant Amendment Request form reflecting authorized scope changes must be received by the Consultant prior to undertaking any additional work. The DPMC 9c 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 9c 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. 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 programs described on the "New Jersey's Clean Energy Program" website at: http://www.njcleanenergy.com to determine if any proposed upgrades to the mechanical and/or electrical equipment and systems for this project qualify for "New Jersey Clean Energy Program" rebates and incentives such as SmartStart, Pay4Performance, Direct Install or any other incentives.

The Consultant shall be responsible to complete the appropriate registration forms and applications, provide any applicable worksheets, manufacturer's specification sheets, calculations, attend meetings, and participate in all activities with designated representatives of the programs 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 its fee proposal.

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 permits, certificates, and approvals required to complete this project.

2. Permit Costs:

The Consultant shall estimate 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 its fee proposal line item entitled **"Permit Fee Allowance"**, refer to Paragraph IX.A. 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 will be paid for by the State.

3. Applications:

The Consultant shall complete and submit all permit applications to the appropriate permitting authorities and the costs shall be paid from the Consultant's permit fee allowance. A copy of the application(s) and the original permit(s) obtained by the Consultant shall be given to the DPMC 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 its fee proposal under the "Permit Phase" column.

Any funds remaining in the permit allowance 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 (latest 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 W. Wright 6/30/2021

JAMES WRIGHT, MANAGER DATE
DPMC PROJECT PLANNING & INITIATION

SOW APPROVED BY: 7/13/21

DAVID MARKUNAS, FAC. OPERATIONS MANAGER DATE
NJ PUBLIC HEALTH ENVIRONMENTAL AND
AGRICULTURAL LABORATORY

SOW APPROVED BY: 07/14/2021

JOSEPH POLIZZI, PROJECT MANAGER DATE
DPMC PROJECT MANAGEMENT GROUP

SOW APPROVED BY: 7/19/21

RICHARD FLODMAND, DEPUTY DIRECTOR DATE
DIV PROPERTY MGT & CONSTRUCTION

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 seven (7) calendar 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
7.4.4 Site Evaluation
7.4.5 Borings, Surveys, and Soils Analysis (provided with plan submission)
7.4.8 Regulatory Agency Approvals
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
Electrical Drawings, Riser Diagram, Panel Schedules, Service Size
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 seven (7) calendar 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:
8.4.4 Site Evaluation
8.4.5 Borings, Surveys, Soils Analysis (provided with plan submission)
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

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Figure 8.4.16 Submission Checklist (Final Review Phase)
Figure 8.6.12-b Bid Proposal Form (Form DPMC -3)
Figure 8.6.12-c Notice of Advertising (Form DPMC -31)
Figure 8.6.16 Submission Checklist (Permit Phase)
Figure 8.7 Bid Clearance Form (Form DPMC -601)

BIDDING AND CONTRACT AWARD

9.0 Bidding Phase Requirements

9.01 Original Drawings signed & sealed by A/E and drawings on compact disk (CD) in *Adobe Portable Document Format (.*pdf)
9.02 One Unbound Specification Color Coded per A/E Manual Section 8.4.11 and specifications on compact disk (CD) in *Adobe Portable Document Format (.*pdf)
` 9.03 Bid Documents Checklist

9.04 Bid Proposal Form
9.05 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(s) of Recommendation for Award & Cost Analysis

9.5 Attend Post Bid Review Meeting(s)

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 3 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

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Figure 10.3.4-b Field Report
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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
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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 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.

END OF SCOPE OF WORK

February 7, 1997
Rev.: January 29, 2002

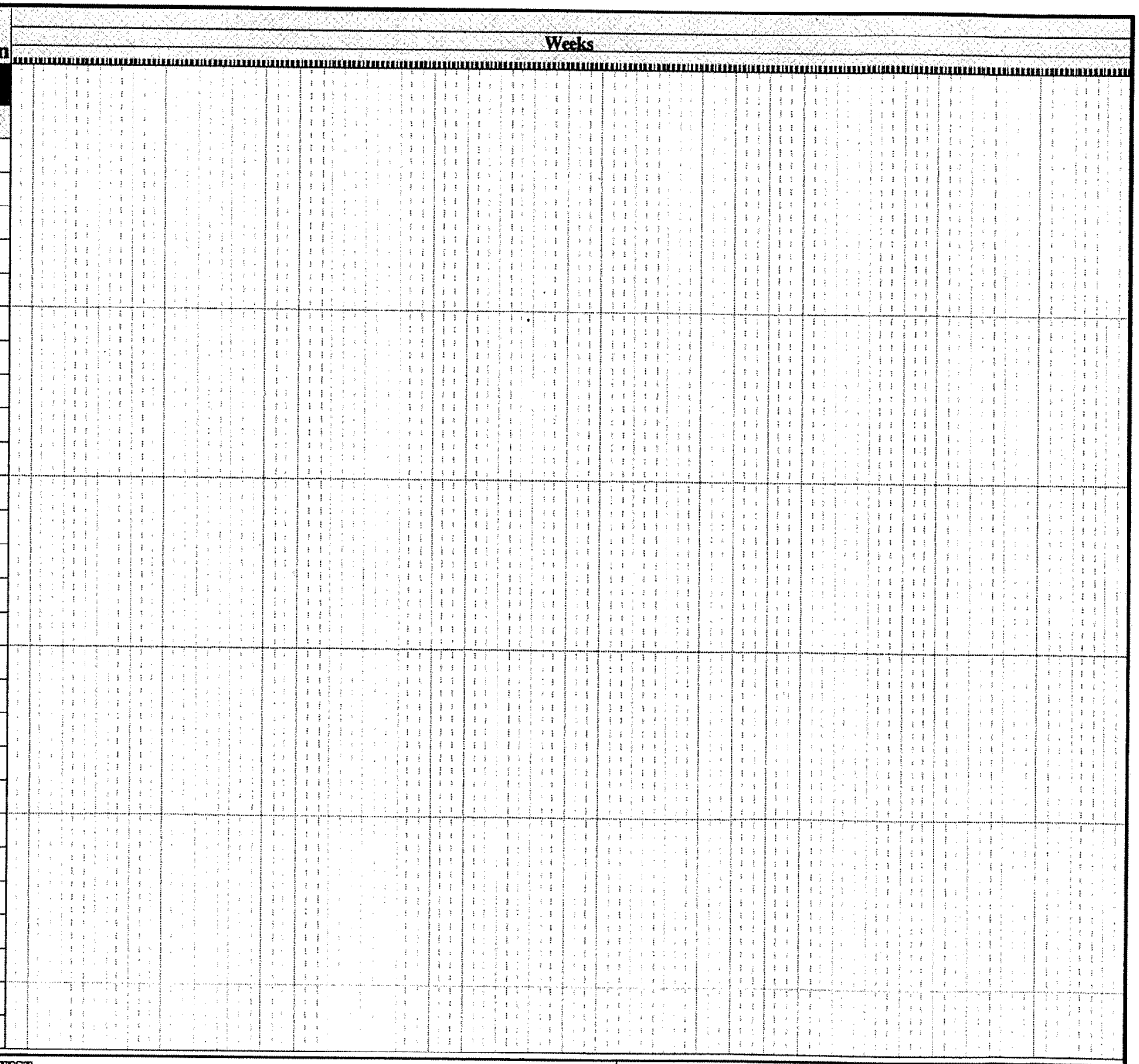
Responsible Group Code Table

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.

CODE	DESCRIPTION	REPORTS TO ASSOCIATE DIRECTOR OF:
CM	Contract Management Group	Contract Management
CA	Client Agency	N/A
CSP	Consultant Selection and Prequalification Group	Technical Services
A/E	Architect/Engineer	N/A
PR	Plan Review Group	Technical Services
CP	Construction Procurement	Planning & Administration
CON	Construction Contractor	N/A
FM	Financial Management Group	Planning & Administration
OEU	Office of Energy and Utility Management	N/A
PD	Project Development Group	Planning & Administration

EXHIBIT 'A'

Activity ID	Description	Rspn
<PROJ>		
Design		
CV3001	Schedule/Conduct Predesign/Project Kick-Off Mtg.	CM
CV3020	Prepare Program Phase Submittal	AE
CV3021	Distribute Program Submittal for Review	CM
CV3027	Prepare & Submit Project Cost Analysis (DPMC-38)	CM
CV3022	Review & Approve Program Submittal	CA
CV3023	Review & Approve Program Submittal	PR
CV3024	Review & Approve Program Submittal	CM
CV3025	Consolidate & Return Program Submittal Comments	CM
CV3030	Prepare Schematic Phase Submittal	AE
CV3031	Distribute Schematic Submittal for Review	CM
CV3037	Prepare & Submit Project Cost Analysis (DPMC-38)	CM
CV3032	Review & Approve Schematic Submittal	CA
CV3033	Review & Approve Schematic Submittal	PR
CV3034	Review & Approve Schematic Submittal	CM
CV3035	Consolidate & Return Schematic Submittal Comment	CM
CV3040	Prepare Design Development Phase Submittal	AE
CV3041	Distribute D. D. Submittal for Review	CM
CV3047	Prepare & Submit Project Cost Analysis (DPMC-38)	CM
CV3042	Review & Approve Design Development Submittal	CA
CV3043	Review & Approve Design Development Submittal	PR
CV3044	Review & Approve Design Development Submittal	CM
CV3045	Consolidate & Return D.D. Submittal Comments	CM
CV3050	Prepare Final Design Phase Submittal	AE
CV3051	Distribute Final Design Submittal for Review	CM
CV3052	Review & Approve Final Design Submittal	CA
CV3053	Review & Approve Final Design Submittal	PR
CV3054	Review Final Design Submitl for Constructability	OCS



NOTE:
Refer to section "IV Project Schedule" of the Scope of Work for contract phase durations.

DBCA - TEST

Sheet 1 of 3

Bureau of Design & Construction Services
Routine Project

Exhibit "A"

Activity ID	Description	Rspn	Weeks
CV3055	Review & Approve Final Design Submittal	CM	
CV3056	Consolidate & Return Final Design Comments	CM	
CV3060	Prepare & Submit Permit Application Documents	AE	
CV3068	Prepare & Submit Bidding Cost Analysis (DPMC-38)	CM	
Plan Review-Permit Acquisition			
CV4001	Review Constr. Documents & Secure UCC Permit	PR	
CV4010	Provide Funding for Construction Contracts	CA	
CV4020	Secure Bid Clearance	CM	
Advertise-Bid-Award			
CV5001	Advertise Project & Bid Construction Contracts	CP	
CV5010	Open Construction Bids	CP	
CV5011	Evaluate Bids & Prep. Recommendation for Award	CM	
CV5012	Evaluate Bids & Prep. Recommendation for Award	AE	
CV5014	Complete Recommendation for Award	CP	
CV5020	Award Construction Contracts/Issue NTP	CP	
Construction			
CV6000	Project Construction Start/Issue NTP	CM	
CV6001	Contract Start/Contract Work (25%) Complete	CON	
CV6002	Preconstruction Meeting	CM	
CV6003	Begin Preconstruction Submittals	CON	
CV6004	Longest Lead Procurement Item Ordered	CON	
CV6005	Lead Time for Longest Lead Procurement Item	CON	
CV6006	Prepare & Submit Shop Drawings	CON	
CV6007	Complete Construction Submittals	CON	
CV6011	Roughing Work Start	CON	
CV6012	Perform Roughing Work	CON	
CV6010	Contract Work (50%+) Complete	CON	
CV6013	Longest Lead Procurement Item Delivered	CON	
CV6020	Contract Work (75%) Complete	CON	

NOTE:
Refer to section "IV Project Schedule" of the Scope of Work for contract phase durations.

DBCA - TEST

Sheet 2 of 3

Bureau of Design & Construction Services
Routine Project

Exhibit "A"

Activity ID	Description	Rspn	Weeks
CV6014	Roughing Work Complete	CON	
CV6021	Interior Finishes Start	CON	
CV6022	Install Interior Finishes	CON	
CV6030	Contract Work to Substantial Completion	CON	
CV6031	Substantial Completion Declared	CM	
CV6075	Complete Deferred Punch List/Seasonal Activities	CON	
CV6079	Project Construction Complete	CM	
CV6080	Close Out Construction Contracts	CM	
CV6089	Construction Contracts Complete	CM	
CV6090	Close Out A/E Contract	CM	
CV6092	Project Completion Declared	CM	

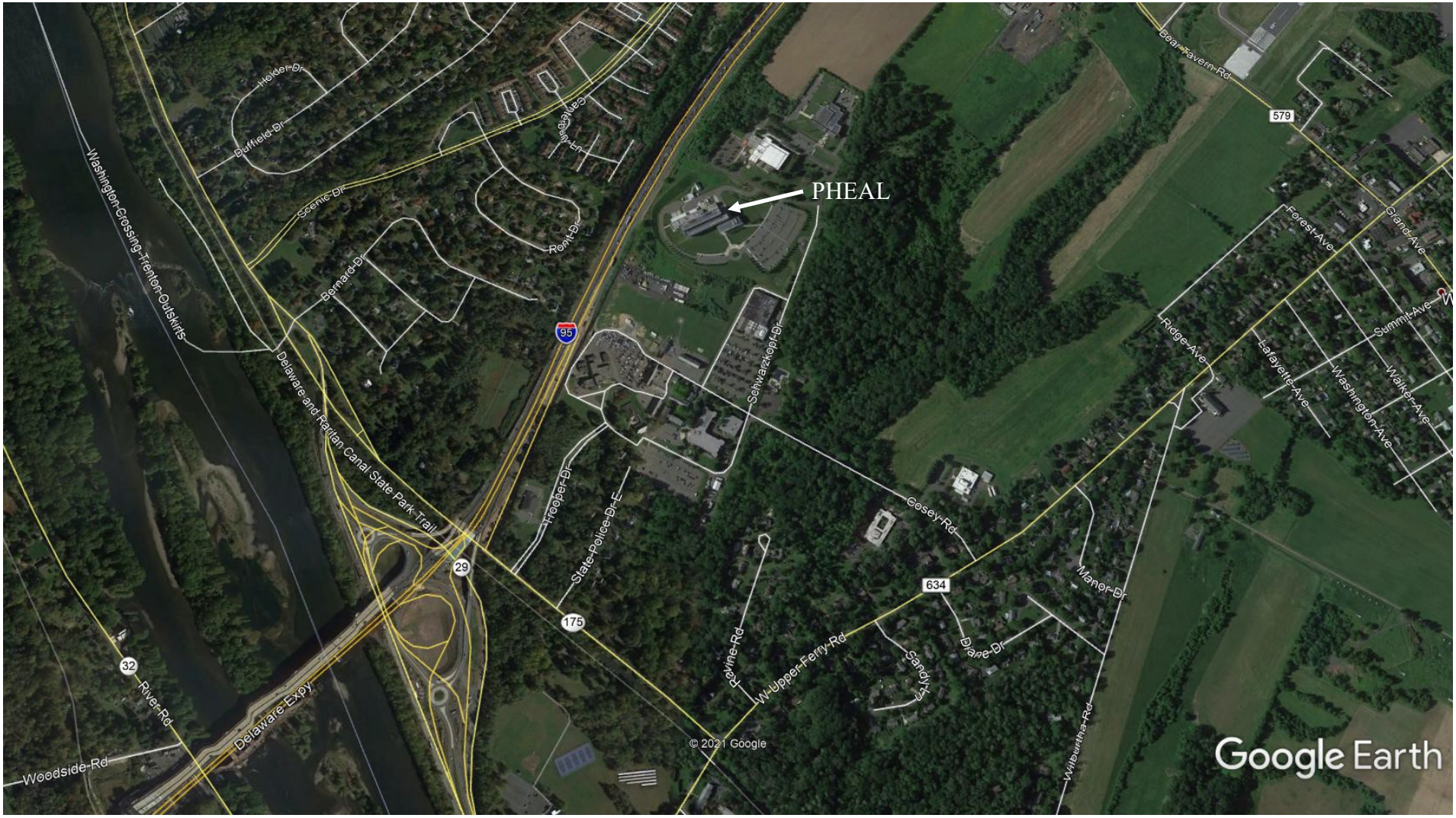
NOTE:
Refer to section "IV Project Schedule" of the Scope of Work for contract phase durations.

DBCA - TEST

Sheet 3 of 3

Bureau of Design & Construction Services
Routine Project

Exhibit "A"



Project Site Location Map - PHEAL

EXHIBIT ‘B’

Submitted to:

New Jersey Department of Treasury
Division of Property Management and Construction

NJDPMC No. A1344-00
Standby Generator
Feasibility Study

NJ Public Health Environmental and Agricultural Laboratories (PHEAL) Building

West Trenton, NJ

Submitted by:

Gannett Fleming

Excellence Delivered As Promised

EXHIBIT 'C'

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SK-2 Electrical Single line Diagram – Option 1 and Option 2
SK-3 Electrical Single Line Diagram – Option 3
SK-4 Electrical Riser Diagram – Option 3
SK-5 Electrical Single Line Diagram – Option 4
SK-6 Electrical Riser Diagram – Option 4

Appendix B – Mechanical Equipment Standby Generator Startup Schedule

Appendix C – Cost Estimate

1. Project Cost Analysis – Option 1
2. Project Cost Analysis – Option 2
3. Project Cost Analysis – Option 3
4. Project Cost Analysis – Option 4

Appendix D – Project Schedule

1. Project Schedule

EXHIBIT 'C'

I. INTRODUCTION

The PHEAL buildings do not currently have generator backup for entire building loads. The existing 2MW diesel generator runs through an automated load shedding program in the JCI BAS system. Only select critical loads are powered by the generator, which includes: 3 of the 11 AHU's; 4 of the more than 30 exhaust fans; one of four boilers, one of 3 chillers, one of 3 cooling towers; multiple walk-in incubators, refrigerators, and freezers; and a variety of dedicated circuits to power stand-alone incubators, refrigerators, and freezers.

The original building design only anticipated one lab program (bio-terrorism response lab) to be fully powered by the generator. All other lab programs were expected to stand down during a power outage situation. The Department of Health has re-evaluated its essential lab programs and has determined that they need all lab programs at the PHEAL to operate uninterrupted in the event of a power failure. Also, the facility has experienced power outages resulting in interruptions to experiments due to the loss of continuity of power. Currently, stand-alone portable UPS units have been deployed in these select areas to combat the issues. An investigation into a solution to provide uninterrupted power during the transition to generator power for the labs' critical loads is also required. The purpose of this study is to investigate the requirements and costs of implementing different options for backup power. The options are summarized below:

Option 1. Backup power for entire building lab and HVAC loads with one (1) existing and one (1) new 2000kW diesel standby generators.
Option 2. Backup power for entire building lab and HVAC loads, with one (1) existing 2000kW diesel generator and one (1) new 2000kW natural gas standby generator.
Option 3. Uninterruptable power supply for building lab loads only.
Option 4. Uninterruptable power supply for building lab loads and critical HVAC equipment.

All four options include reuse of existing 2000KW diesel standby generator and existing 250kw diesel standby generator for life safety loads to remain.

II. BACKGROUND

The Department of Health has re-evaluated its essential lab programs and has determined that they need all lab programs at the PHEAL to operate uninterrupted in the event of a power failure. Also, the facility has experienced power outages resulting in interruptions to experiments due to the loss of continuity of power. Currently, stand-alone portable UPS units have been deployed in select areas to mitigate power outages.

To provide reliable back up power new generator and UPS must be provided for the following reasons:

- Existing 2000 KW generator cannot back up all the lab equipment and HVAC loads.
- Existing standby diesel generator cannot provide additional backup power capacity required for future lab loads.
- Building power demand has increased over the period and existing power distribution system doesn't have capacity to handle increased demand.

Mechanical Systems

In order to occupy the designated spaces during a power outage, the mechanical systems for those spaces must be operational and provide sufficient ventilation for the health and comfort of the occupants as specified in the International Mechanical Code (2018) and ASHRAE 62.1 (2016), Ventilation for Acceptable Indoor Air Quality.

The mechanical systems serving the PHEAL Building consist of steam boilers and water-cooled chillers which provide heating and cooling energy to the numerous air handling and ventilation systems for all laboratory and other spaces. All laboratory and adjacent supporting administration spaces are served by fully redundant air handling systems consisting of, at a minimum, heating and cooling supply air handlers and ventilation exhaust fans. The remaining office, lobby, auditorium, etc. spaces are served by single heating and cooling supply air handling and ventilation systems without redundant equipment.

During normal heating and cooling operations, approximately one-half of all major equipment systems are required to be in operation to maintain all required airflow, temperature, and humidity requirements. During design days, or periods with extreme weather conditions, additional heating and cooling equipment may be required to operate to offset the building HVAC loads, however this has been noted to be infrequent in occurrence.

In a loss of utility power event, all major equipment (chillers, boilers, air handlers, fans, pumps, etc.) immediately power down while all their control systems are maintained on by an existing UPS system. One-half of all air handling systems serving the laboratory spaces are on the standby power system via the diesel generator. Upon start-up of the generator the mechanical equipment follows the prescribed standby generator start-up schedule for the restart order and delays.

EXHIBIT 'C'

The inconsistent spin-down of the air handling and ventilation systems creates a situation where some laboratory spaces may experience extreme positive or negative space pressurization. In the worst cases an air-reversal across the space envelope may occur. The scheduled cascading restart of systems causes further airflow issues until all systems have reached steady-state operation.

A summary of the current mechanical equipment standby generator startup schedule is included in Appendix B.

Electrical Systems

Normal electrical power is provided to the building by two 4000A, 480V switchboards in a main-tie-tie-main configuration located in the building. The building is served with two electric services from PSE&G via 15kV 600Amp switchgear located outside of building. The 480V switchboards distribute power to the building and can be summarized below:

- Switchboard MBS-A & MBS-B – provide power to MCC-1SA, MCC-1SB, MCC-5SA, MCC-5SB, distribution panelboards, D4N1, D4N3A, D4N1A, D4S1A, D4S1 and D4S3A. 480V Switchboards also provide power to three (3) chillers located on level 2 sub-roof.
- Distribution panelboards (D4N1, D4N3A, D4N1A, D4S1A, D4S1 and D4S3A) – Distribution panelboards are located on 1st and 3rd floor electrical rooms and provides power to LP (lighting), and PP (power) panels located in the electrical rooms located on 1st floor thru 4th floor.
- MCC-1SA, MCC-1SB, MCC-5SA, MCC-5SB – provides power to mechanical equipment including the cooling tower on the roof. MCC-1SA and MCC-1SB are located on 1st floor electrical room where as MCC-5SA & MCC-5SB are located on penthouse mechanical room.
- LP (lighting), and PP (power) panels: Various 208Y/120V lighting and power panelboards are located on electrical rooms from 1st floor thru 4tf floor.
- 80 kW UPS- provides power to the data center.
- 2000 kW Diesel Generator- located outside and provides emergency power to the building
- 250 kW Diesel Generator- located outside and provides standby power to the building life safety loads such as emergency lighting and fire pump.

There are discrepancies in the Mechanical schedule drawings M-003 thru M-006 and electrical single line diagram drawings, E-401, E-402, MCC Schedules E-601 & E-602 and panel schedule A-0984-04 Appendix-Panel Schedules. It is recommended to as-built the drawings in the design phase or as a separate project in the future.

III. NEW GENERATOR FUEL SOURCE (Option 1 and Option 2)

The new generator will not include building life safety loads such as emergency lighting and fire pumps. However, the proposed standby generator provides power to critical lab equipment and HVAC equipment that serves BSL-3 and BSL-2 labs. It is also noted that existing 2000kW diesel standby generator accepts building loads within 10 seconds. Diesel is the recommended engine type based on following considerations:

1. Existing 2000KW standby diesel generator accepts loads within 10 sends of power loss.
2. Backup power system to provide power for various critical lab loads and HVAC equipment for BSL-3 and BSL-2 labs along with other labs in the building.
3. One (1) 10,000-gallon diesel fuel tank is available on site and can supply fuel to two (2) 2000 KW diesel generators to remain operational during extended power outages.
4. New 2000Kw generator can be provided with sub-base tank with fuel storage up to 24 hours.

With Option 1, the additional bulk storage fuel tank may not be required for labs and HVAC equipment to remain operational during extended power outages. The existing fuel tank is 10,000 gallons in size and may have enough fuel supply based on the following criteria:

Option 1

At seventy five percent of rated nameplate load the new 2000KW diesel standby generator will consume approximately 116.8 gallons per hour (GPH). In three full days of operation (72 hours) a single generator will consume 8410 gallons of diesel fuel. If you assume, both generators are running at 75 percent capacity, one- and one-half days of operation would be achieved. There are two (2) 10,000-gallon existing fuel tanks are available on site. Currently they are not tied together since one tank serves the boilers and one tank serves the generators. Tying the tanks together could be a possible option in the future as well. It shall be noted that new 2000kW generator can be provided with sub-base tank with fuel storge for 24 hours of additional runtime for the generator.

Additional fuel storage tank should be considered if more run time is desired. The required run time shall be finalized during design.

When considering storage of large amounts of diesel fuel, it is important to remember that this is not a maintenance free activity. The diesel tanks are vented, and the fuel will absorb moisture through normal tank aspiration. Water vapor in the tank can condense in high humidity conditions. The presence of water can lead to microbial growth which plugs fuel filters and degrades engine performance. Fuel maintenance programs include periodic testing of fuel to

confirm that it continues to meet ASTM standards, removal of water and sediment and chemical addition to stabilize the fuel and prevent microbial growth. It is also recommended for the new generator to be equipped with a fuel polishing system.

Option 2

Natural gas is considered as a fuel source for the new 2000KW standby generator to provide extended run time if normal power is lost. However natural gas is not recommended for fuel source based on following considerations.

1. Existing 2000KW standby diesel generator accepts loads within 10 sends of power loss.
2. Backup power system to provide power for various critical lab loads and HVAC equipment for BSL-3 and BSL-2 labs along with other labs in the building.
3. 2000KW natural gas generator can take up to 2-3 minutes to accept loads based on the designated steps.

Existing natural gas service needs to be evaluated for capacity and service upgrade may be required to provide an adequate fuel source for extended generator run time.

When it comes to natural gas as a fuel source following National Electrical Code requirements shall be considered.

1. National Electrical Code Article 700 requires internal combustion engines to have an on-site fuel supply sufficient for not less than 2 hours operation. Prime movers shall not be solely dependent on a public utility gas system for their fuel supply.
2. National Electrical Code Article 700 requires the emergency power system to accept load within 10 seconds of a loss of normal power. Natural gas engines of this size have difficulty in meeting this requirement.

The abovementioned requirements only apply to emergency loads, which is not the case for our standby generator loads. However, many of the loads are considered critical and a faster switchover to the generator is warranted and recommended.

IV. LIFE SAFETY CONSIDERATIONS

Building life safety loads are served by the existing 250KW diesel standby generator. The existing 250KW generator provide backup power to emergency lights, exit lights and fire pump and will remain. The proposed standby generator is not expected to serve any building life safety loads.

V. DESIGN OPTIONS

Option 1 - Backup power for entire building lab and HVAC loads with one (1) existing and one (1) new 2000kW diesel standby generators.

A new UPS will be provided with generator backup. UPS options are considered in Option 3 and Option 4.

Modifications to the existing electrical distribution system are required to implement this option. Modification in the distribution system are also required for UPS option considered in Option 3 and option 4.

This option will require one (1) new 2000KW diesel generator along with existing 2000KW diesel generator. The existing and new generator will have a dedicated feed to 6000 Amp paralleling switchgear located outdoors in a NEMA 3R enclosure.

See SK-1 and SK-2 for a drawing representing all of the modifications and new equipment needed to implement this option.

Option 2 - Backup power for entire building lab and HVAC loads, with one (1) existing 2000kW diesel generator and one (1) new 2000kW natural gas standby generator.

A new UPS will be provided with generator backup. UPS options are considered in Option 3 and Option 4.

Modifications to the existing electrical distribution system are required to implement this option. Modification in the distribution system are also required for UPS option considered in Option 3 and option4.

This option will require one (1) new 2000KW diesel generator along with existing 2000KW diesel generator. The existing and new generator will have a dedicated feed to 6000 Amp paralleling switchgear located outdoors.

See SK-1 and SK-2 in Appendix A for a drawing representing all the modifications and new equipment needed to implement this option.

Option 3 - Uninterruptable power supply for building lab loads only.

A new UPS will be provided with generator backup as discussed in Option 1 and Option 2.

This option will require a 200KW 208Y/120V UPS, the new UPS will have 480V/3W input and 208Y/120V output. The UPS will be fed from 400AMP, 480V ATS located outdoor. New ATS will be fed from existing switchboard MBS-A and new 6000 Amp generator paralleling switchgear. A new 800 Amp 208Y/120V switchboard will be provided outdoors for UPS power distribution. Provide minimum two (2) new 100 Amp 208Y/120V panelboards on each of the floor for lab equipment branch circuits that were previously powered from individual UPSs. Considerable amount of rewiring is required for existing lab loads to power them form new UPS branch circuit panelboards.

New 200KW UPS, 400 AMP ATS, 800 AMP Switchboard and new Paralleling 6000 Amp switchgear to be located outdoor along with new standby generator. New UPS branch circuit panelboards to be installed on each floor in hallway near existing lab branch circuit panelboards.

See SK-1 in Appendix A for UPS and distribution equipment locations outdoor. See SK-3 and SK-4 in Appendix A for a drawing representing all of the modifications and new equipment needed to implement this option.

<u>Option 4 - Uninterruptable power supply for building lab loads and critical HVAC equipment.</u>

A new UPS will be provided with generator backup as discussed in Option 1 and Option 2.

This option will require a 2000KW 480V UPS. The UPS will be fed from 4000AMP, 480V ATS located outdoors. New ATS will be fed from existing switchboard MBS-A and new 6000 Amp generator paralleling switchgear. A new 4000 Amp 480V switchgear will be provided outdoors for UPS power distribution. Provide minimum two (2) 600 AMP MCC for HVAC equipment loads. Provide one (1) 250 KVA 480V-208Y/120V transformer for 208Y/120V lab branch circuits. A new 800 Amp 208Y/120V panelboard will be provided for UPS power distribution. Provide minimum two (2) new 100 Amp 208Y/120V panelboards on each of the floor for lab equipment branch circuits that were previously powered from individual UPSs. Considerable amount of rewiring is required for existing lab loads to power them form new UPS branch circuit panelboards.

New 2000KW UPS, 4000 AMP ATS, 4000 AMP Switchboard, 250 KVA transformer and new Paralleling 6000 Amp switchgear to be located outdoors along with new standby generator.

Two (2) New 600 Amp, 480V MCC's and 800 Amp, 208Y/120V UPS switchboard to be installed on mezzanine roof. New 100 AMP, 208Y/120V UPS branch circuit panelboards to be installed on

each floor in hallway near existing lab branch circuit panelboards. Minimum two (2) 100 Amp panelboards to be installed on each floor for lab UPS branch circuits.

See SK-1 in Appendix A for the UPS and distribution equipment locations outdoor. See SK-5 and SK-6 in Appendix A for a drawing representing all of the modifications and new equipment needed to implement this option.

VI. Mechanical

The standby generator design options include additional generator capacity sized to support all HVAC equipment required to maintain the entire building occupancy. This will enable the entire PHEAL building's comfort and ventilation systems, including all laboratory spaces, to maintain occupation and operations during a power loss event. As all mechanical equipment will be available, the Standby Generator Startup Schedule shall be modified to include all HVAC equipment. The HVAC equipment shall continue to operate per the existing sequences of operation.

While the standby generator system will provide power to all the HVAC equipment, power will continue to be lost for the short period of time between utility power loss and the initiation of that equipment's startup sequence per the standby generator startup schedule. The priority concern is the down time of the air handling and ventilation systems. To improve upon the noted airflow issues in the laboratory spaces upon a loss of utility power, this specific HVAC equipment shall be supported by a UPS system. Refer to the design options and Electrical system descriptions for additional information on the UPS sizing and extents of supported equipment. The UPS system will provide constant power to the HVAC equipment, spanning the time between the utility power loss and changeover to the standby generator; thus eliminating downtime.
As it has been noted to GF that the primary concern is maintaining proper pressurization of all laboratory spaces. To address this, the air handler and ventilation systems have been moved to a higher priority in the startup schedule. Air pressurization within the laboratory spaces can change very rapidly upon the spin-down of all air moving equipment. Conversely, the temporary loss of the thermal comfort systems (i.e. chillers, boilers, pumps, etc.) can be managed more readily via selective load shedding and priority scheduling. The thermal mass of the building will carry through the temporary loss of power until the standby generator restores power to all HVAC equipment.

The standby generator startup schedule shall be modified according to the following priority table where sets/pairs of equipment shall be grouped based on their usage and associated equipment. The below table presents our assumptions for the critical HVAC equipment

identified to be supported by the UPS systems. As directed by the client, this list shall be verified with the client during final design and adjusted accordingly. Critical equipment was identified by the perceived importance to maintaining laboratory air pressurization over the process or thermal loads served by the chilled water and steam systems.

Priority	Primary Equipment	Area Served	UPS	Description
1	Air Compressors and JCI BMS and HVAC Control Devices	ATC System	All enabled	Provides compressed air for actuation of all HVAC control valves. All systems require compressed air for proper control function.
2	AHU-1 and EF-1 or AHU-2 and EF-2	BSL-3 labs	All enabled	Synchronized startup of equipment enables improved maintenance of space pressurization
3	EF-8 and 9	BSL-2 labs	All enabled	Perchloric exhaust fans
4	Two of: AHU-3, 4, 5, 6, 7 and Two of: EF-3, 4, 5, 6	BSL-2 labs and offices	All AHUs enabled and one EF	Provides conditioned supply air and exhaust air to BSL-2 lab spaces
5	AHU-8, 11 and EF-20, 21, 22, 26 and SF-4 and RF-1 or 2	Warehouse, L445, BSL-2 labs	All AHUs and EFs enabled and SF-4	Provides conditioned supply air and exhaust air to the Ware
6	All Canopy Hoods	Lab spaces	None	Canopy hoods for steam or condensation collection.
7	Two of B-1, 2, 3, 4 and DA-1 and SUT-1 and DFOP-1, WS-1, SF-3	Building wide services	None	Thermal mass of building and system's residual thermal energy will allow for a period without active steam production for thermal comfort. Process steam points of use shall be evaluated for a specialized load shedding program.

EXHIBIT 'C'

Priority	Primary Equipment	Area Served	UPS	Description
8	Two of CH-1, 2, 3 and Two of CT-1, 2, 3 and Two of CHWP-1, 2, 3, 4 and Two of CWP-1, 2, 3, 4 and DC-1 and EF-17, 18, 19 and SF-1, SFS-1, Chem and Water Treatment	Building wide services	EF-19	Thermal mass of building and system's residual thermal energy will allow for a period without active chilled water production for thermal comfort. Process chilled water points of use shall be evaluated for a specialized load shedding program. EF-19 serves as the purge fan for the chiller refrigerant leak detection system.
9	PHGP-1 or 2 and PWP-1 or 2 and PG-1 or 2 and HX-1 or 2	Building wide services	All enabled	Supporting thermal comfort and process systems. On UPS system to support process loads only using residual system energy.
10	HWP-1 or 2 and RHWP-1 or 2 and HX-3 or 4	Building wide services	None	Supporting thermal comfort (heating) systems. Areas served are expected to withstand short period without heat/reheat water supply.
11	AHU-10, SF-3, EF-23	Electrical Rm	SF-3	Equipment serving the electrical room which will is expected to withstand a short period of thermal excursion.
12	AHU-9, RF-3 and EF-14, 15, 16	Pavilion office areas	None	Pavilion building will be maintained at a lower priority as this poses a minimal risk for excursion in laboratory conditions.
13	EF-12, 13, 24	Elevator Machine Rms	EF-13	Elevator machine rooms expected to withstand short period of thermal excursion.

EXHIBIT 'C'

Priority	Primary Equipment	Area Served	UPS	Description
				EF-13 provides Elevator MR ventilation.
14	EF-7, 10, 11, 27	Non laboratory service	None	Kitchen, toilet and storage rooms expected to withstand short period of ventilation excursions.
15	All Unit Heaters, Cabinet Unit Heaters, Fan Coil Units	Thermal comfort systems	None	Thermal mass of building and system's residual thermal energy will allow for a period without active heat production
16	BP-1 and HWCP-1, 2, 3, 4, 5 and LWLS-1, SP-1, VP-1	Domestic water services	None	Domestic HW pumps and waste lift stations expected to withstand a short period without active service.
17	All Prescreening Building Equipment	Prescreening Building	None	Prescreening Building stated to be rarely used, therefore the lowest priority for return to service.

VII. SITE

The new generator and generator paralleling switchgear must be located outside of the building. The only viable location is the outdoor area to the east of building near proposed future building extension. For option 1, an area of (50' x 30') is required for the new generator and paralleling switchgear. For option 2, an area of (60' x 30') is required for the new generator and paralleling switchgear. Due to the size of the required area, it is necessary to locate the generator and switchgear towards the east of the building in available lawn space. Excavation will be required for the length of the lawn for installation of the duct bank. The location near a paved roadway allows for easy access to fill the diesel tank if that option is chosen.

For option 3, a smaller area of (35'x25') will be required. The only viable location for UPS, ATS and UPS switchboard is outdoor area to the north of the building near existing prescreening building. Excavation will be required to prepare area for equipment installation and for the installation of the duct bank.

For option 4, a smaller area of (50'x40') will be required. The only viable location for UPS, ATS, transformer and UPS switchgear is outdoor area to the north of the building near existing prescreening building. Excavation will be required to prepare area for equipment installation and for the installation of the duct bank.

For all options, the site location was chosen to minimize the grading impacts and avoid the need for retaining walls. This reduces the overall cost of the site work. Also, for safety of the equipment, it is recommended to install bollards around the equipment spaced at 6' apart.

VIII. COST ESTIMATE

A construction cost estimate of $4,500,000 was provided in the scope of work for this project. Based on all of the new equipment and modifications required for each of the abovementioned options, a summary of construction costs is provided in the table below.

Table 1. – Summary of Construction Costs

Option	Description	Construction Cost Estimate (CCE)
Option 1	Diesel Generator	$2,587,187
Option 2	Natural Gas Generator	$4,728,428
Option 3 (UPS)	200KVA UPS	$1,555,143
Option 3 (Flywheel)	200KVA UPS with Flywheel	$1,749,756
Option 4 (UPS)	200KVA UPS	$6,576,417
Option 4 (Flywheel)	200KVA UPS with Flywheel	$7,387327
Options 1 & 3	Diesel Generator & 200KVA UPS	$4,189,830
Options 1 & 3 (Flywheel)	Diesel Generator & 200KVA UPS (Flywheel)	$4,384,443
Options 1 & 4	Diesel Generator & 2000KVA UPS	$9,211,104
Options 1 & 4 (Flywheel)	Diesel Generator & 2000KVA UPS (Flywheel)	$10,024,013
Options 2 & 3	Natural Gas Generator & 200KVA UPS	$6,333,071
Options 2 & 3 (Flywheel)	Natural Gas Generator & 200KVA UPS (Flywheel)	$6,527,684
Options 2 & 4	Natural Gas Generator & 2000KVA UPS	$11,354,345
Options 2 & 4 (Flywheel)	Natural Gas Generator & 2000KVA UPS (Flywheel)	$12,165,254

Options 3 and 4 are not priced as standalone projects. They are priced to be added to one of the generator options. As you can see, Options 1, 1&3, and 1&3 with a flywheel are currently within

the available funds of $4,500,000 for this project. The remaining options would not fit within the current budget. See Appendix C for DPMC-38 forms for each of the abovementioned options.

IX. PROJECT SCHEDULE

There are four versions of the project schedule provided in Appendix D. They are broken down as follows:

1. Schedule (Max Lead Time)
    a. This is based off of the most conservative lead time from the generator manufacturers with a typical DPMC project schedule.
2. Schedule (Min Lead Time)
    a. This is based off of the shortest lead time from the generator manufacturers with a typical DPMC project schedule.
3. Schedule (Max Lead Time-Streamlined Design)
    a. This is based off of the most conservative lead time from the generator manufacturers with a streamlined DPMC project schedule that removes the program phase and goes straight to Design Development.
4. Schedule (Min Lead Time-Streamlined Design)
    a. This is based off of the shortest lead time from the generator manufacturers with a streamlined DPMC project schedule that removes the program phase and goes straight to Design Development.

X. CONCLUSIONS

The primary objective of the project is to provide backup power for all the labs and all the associated HVAC equipment and to provide UPS power for critical lab loads till standby generator starts accepting loads. To meet this objective infrastructure improvements including an additional standby generator and new uninterruptible power supply are required.

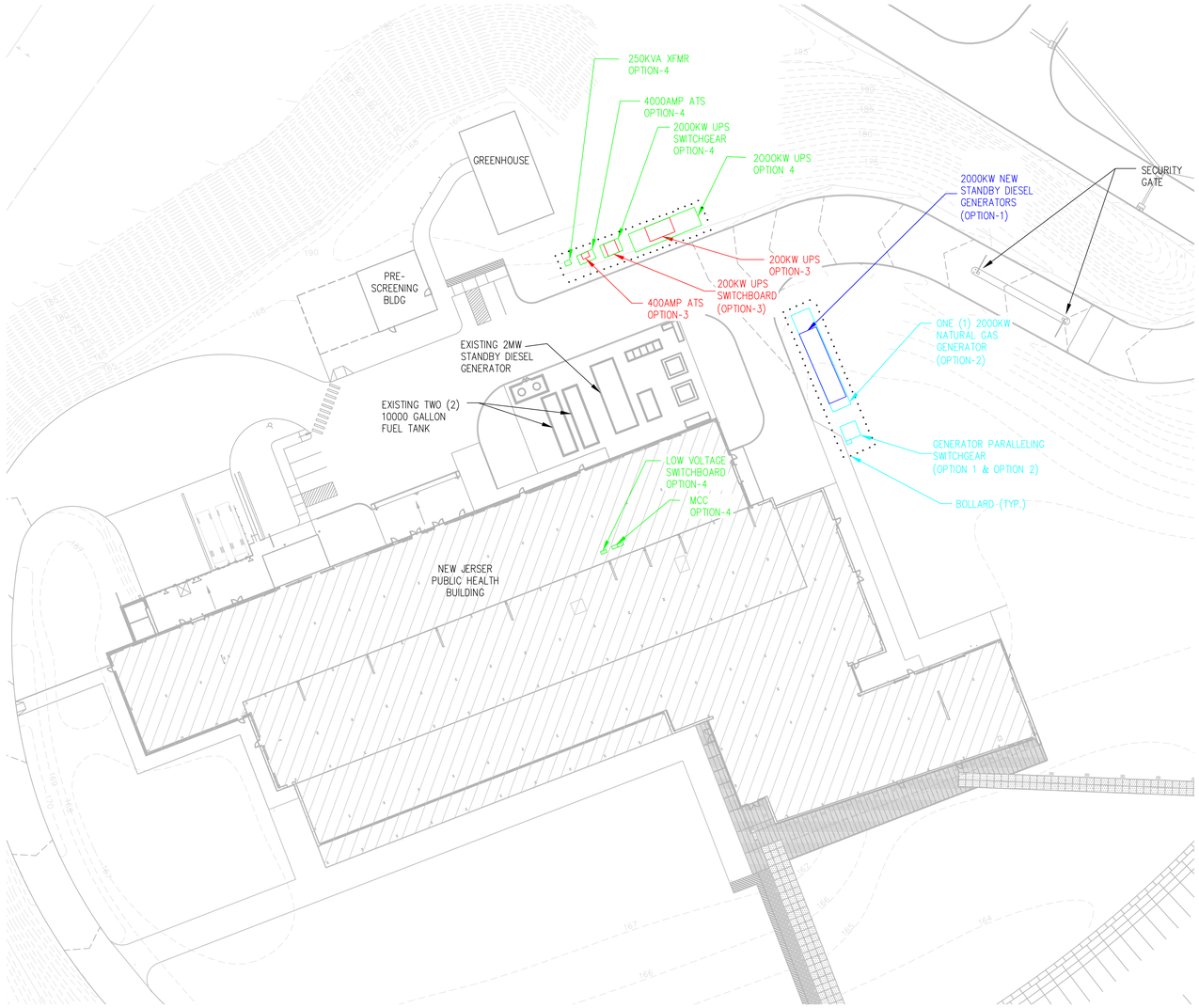
Options 1 and 2 meets the reliable back up power requirement for all the lab loads and HVAC loads. Option 3 and 4 meets the requirement to provide uninterruptible power source before standby generator start accepting lab and HVAC equipment loads.

The capital costs associated with Options 2 & 4 exceed the project CCE by a considerable amount. The Client Agency needs to evaluate the relative value of the enhancements offered by these options.

Option 1 and Option 3 combined meets the project's primary objective and is within the allocated budget.

Appendix A
Drawings

EXHIBIT 'C'



SITE PLAN

SCALE: 1/32" = 1'-0"

No.	DESCRIPTION	DATE	BY
REVISIONS			

DESIGNED	CADD	SCALE
NK	OM	AS SHOWN
CHECKED	APPROVED	APPROVED
JTB	JTB	

Gannett Fleming

MARLTON, NEW JERSEY

NJ State Police Division Headquarters Complex River Road,
West Trenton, NJ Ewing Township, Mercer County

NEW JERSEY PUBLIC HEALTH, ENVIRONMENTAL AND AGRICULTURAL LABORATORY

ELECTRICAL

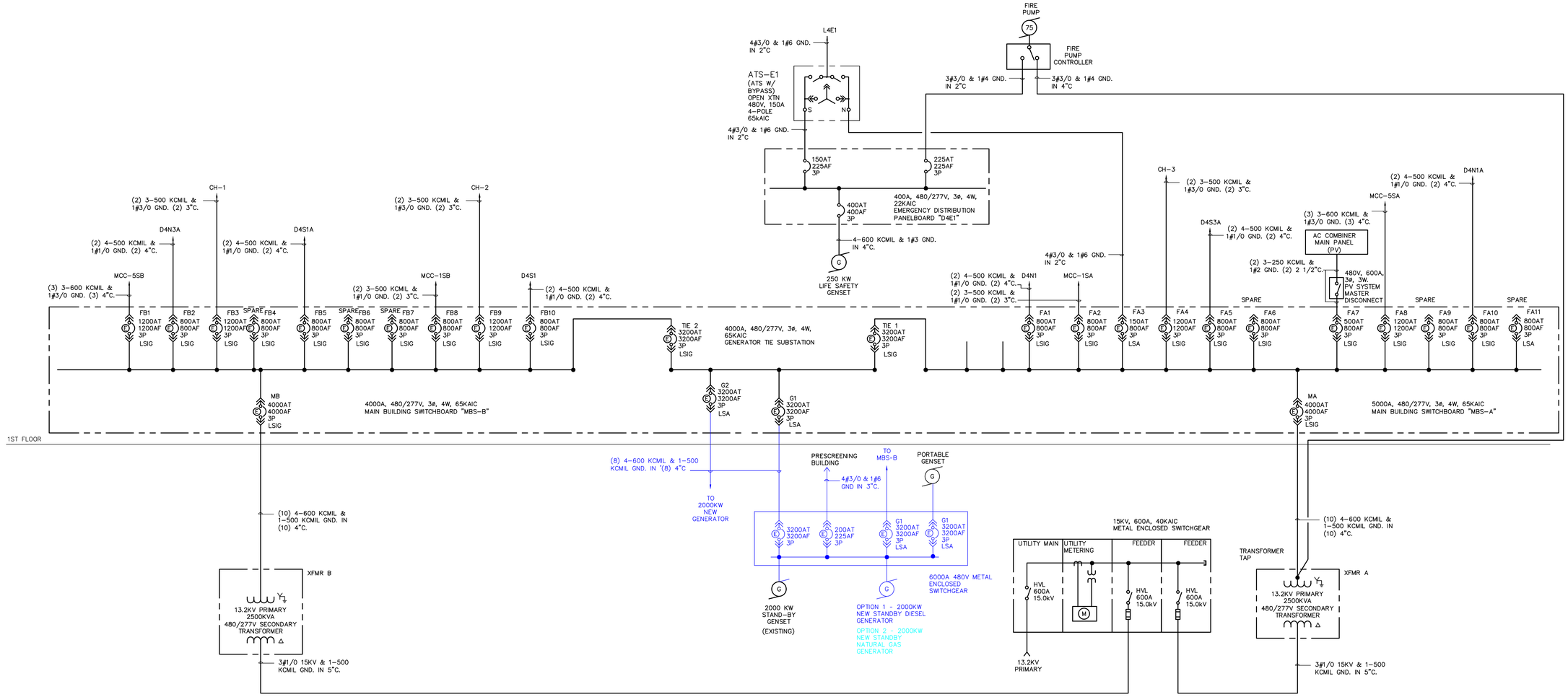
SITE PLAN

JOB No.

DATE
MAY 2021

SHEET No.
SK-1

EXHIBIT 'C'



ELECTRICAL SINGLE LINE DIAGRAM

SCALE: NOT TO SCALE

NOTE:
1. ALL POWER CIRCUIT BREAKERS SHALL BE 100% RATED.

No.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
NK	OM	AS SHOWN
CHECKED	APPROVED	APPROVED
JTB	JTB	

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MARLTON, NEW JERSEY

NJ State Police Division Headquarters Complex River Road, West Trenton, NJ Ewing Township, Mercer County

NEW JERSEY PUBLIC HEALTH, ENVIRONMENTAL AND AGRICULTURAL LABORATORY

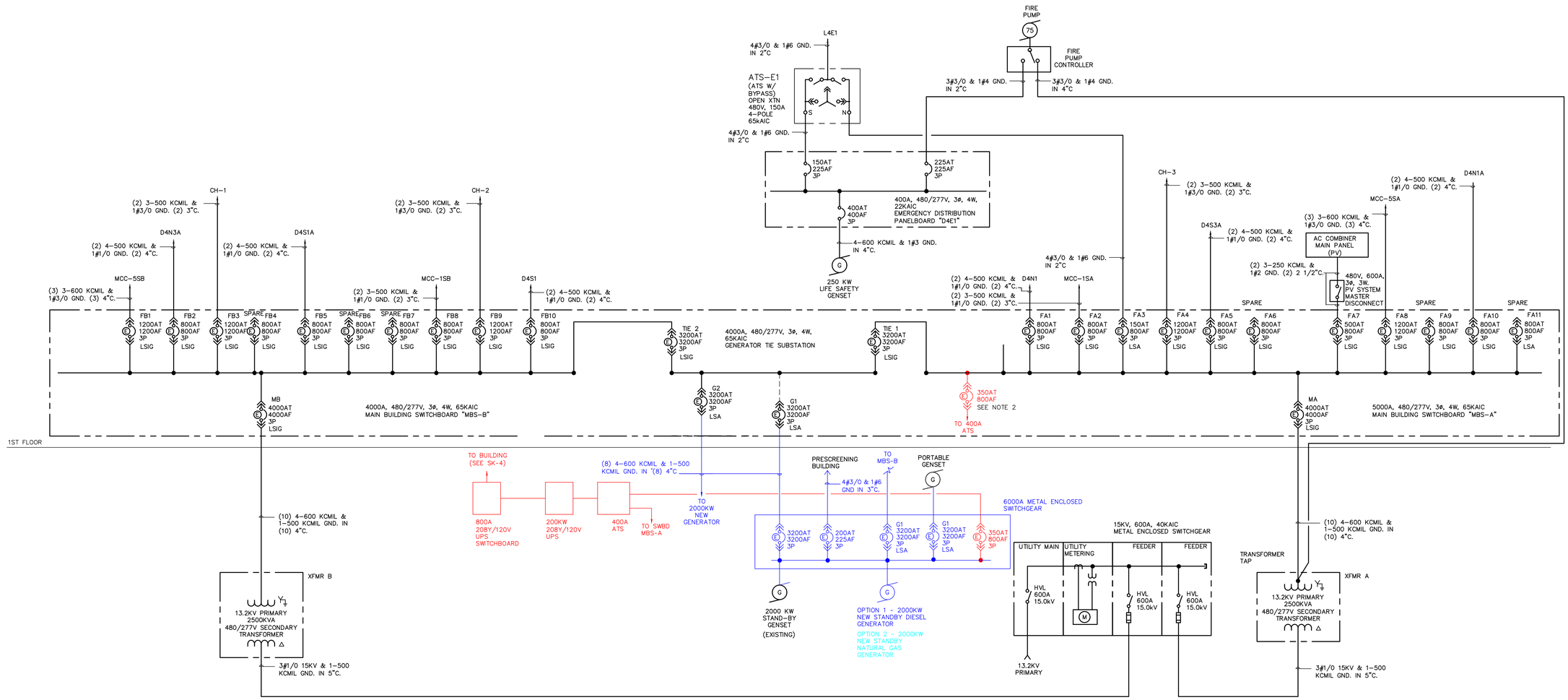
ELECTRICAL
SINGLE LINE DIAGRAM
OPTION 1 & 2

JOB No.

DATE
MAY 2021

SHEET No.
SK-2

EXHIBIT 'C'



ELECTRICAL SINGLE LINE DIAGRAM

SCALE: NOT TO SCALE

NOTES:
1. ALL POWER CIRCUIT BREAKERS SHALL BE 100% RATED.
2. SPARE BREAKERS OR SPACES IN THE EXISTING SWITCHBOARD MBS-A OR MBS-B SHALL BE USED TO PROVIDE 400AMP ATS CIRCUIT BREAKER.

No.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
NK	OM	AS SHOWN
CHECKED	APPROVED	APPROVED
JTB	JTB	

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NJ State Police Division Headquarters Complex River Road, West Trenton, NJ Ewing Township, Mercer County

NEW JERSEY PUBLIC HEALTH, ENVIRONMENTAL AND AGRICULTURAL LABORATORY

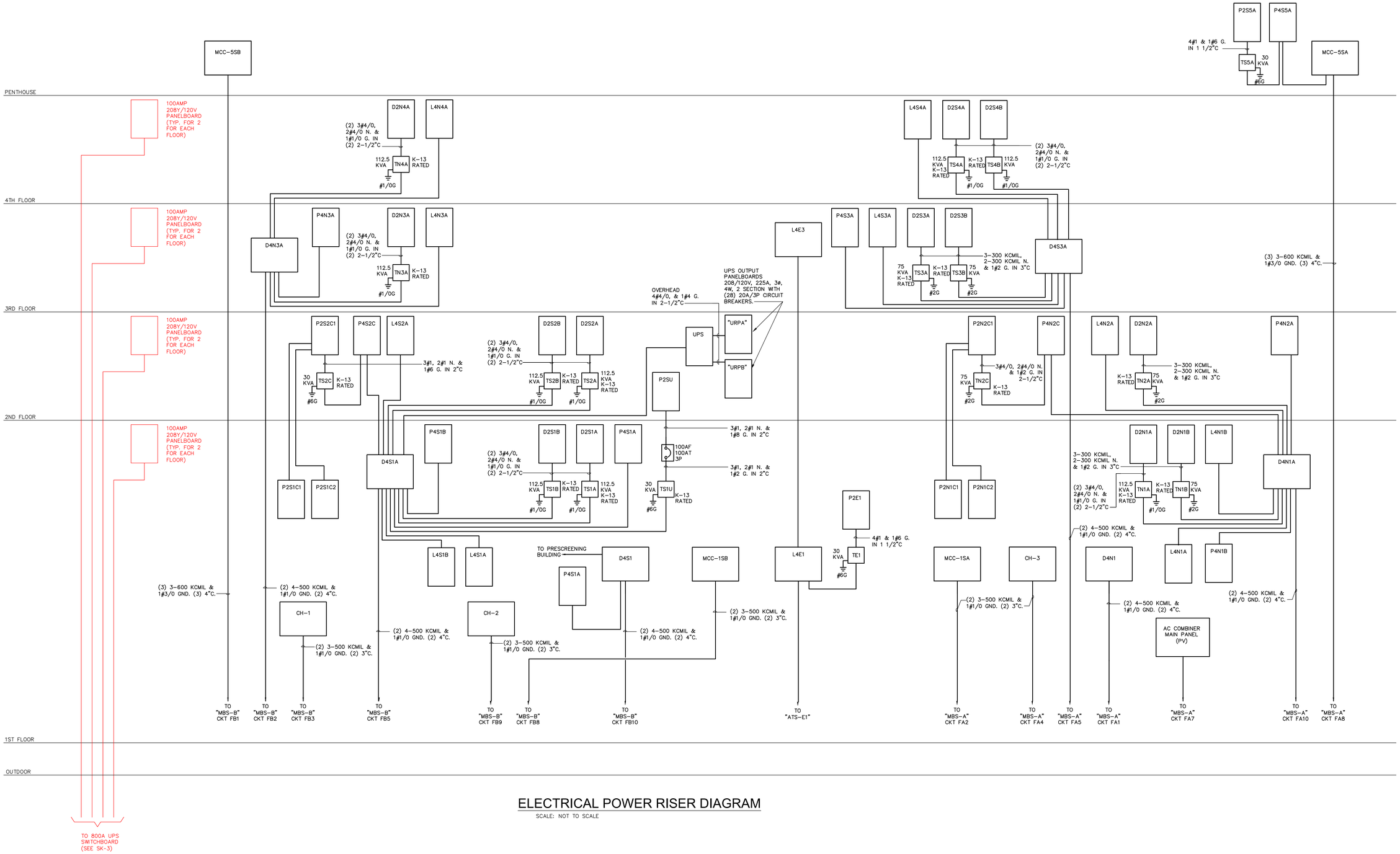
ELECTRICAL
SINGLE LINE DIAGRAM
OPTION 3

JOB No.

DATE
MAY 2021

SHEET No.
SK-3

EXHIBIT 'C'



ELECTRICAL POWER RISER DIAGRAM

SCALE: NOT TO SCALE

No.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
NK	OM	AS SHOWN
CHECKED	APPROVED	APPROVED
JTB	JTB	

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NJ State Police Division Headquarters Complex River Road, West Trenton, NJ Ewing Township, Mercer County

NEW JERSEY PUBLIC HEALTH, ENVIRONMENTAL AND AGRICULTURAL LABORATORY

ELECTRICAL

POWER RISER DIAGRAM

OPTION 3

JOB No.

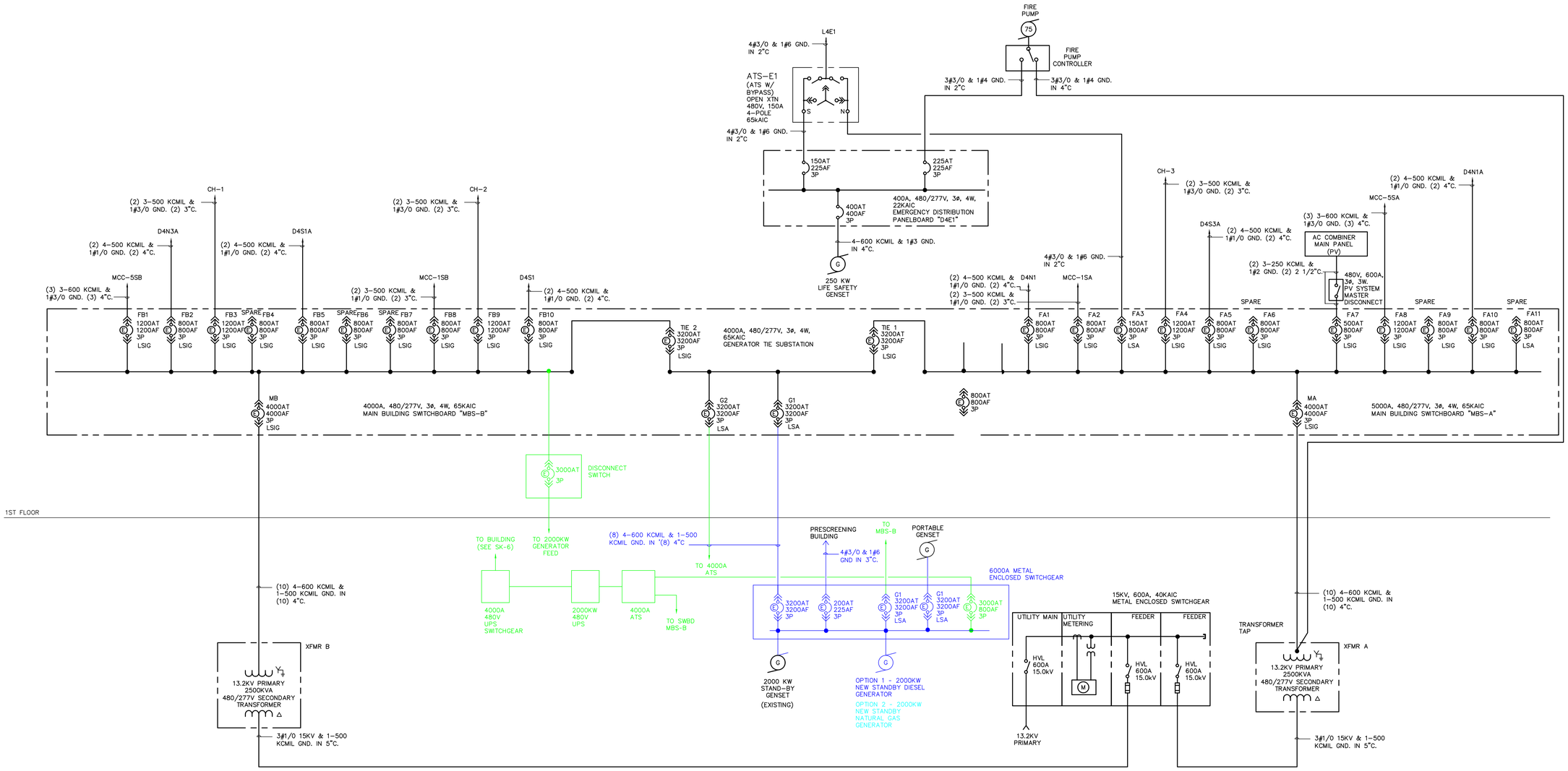
DATE

MAY 2021

SHEET No.

SK-4

EXHIBIT 'C'



ELECTRICAL SINGLE LINE DIAGRAM

SCALE: NOT TO SCALE

NOTE:
1. PROVIDE STAND ALONE 100% RATED CIRCUIT BREAKER DISCONNECT SWITCH LOCATED IMMEDIATELY ADJACENT TO EXISTING SWITCHBOARD MBS-B.
2. ALL POWER CIRCUIT BREAKERS SHALL BE 100% RATED.

No.	DESCRIPTION	DATE	BY
REVISIONS			

DESIGNED	CADD	SCALE
NK	OM	AS SHOWN
CHECKED	APPROVED	APPROVED
JTB	JTB	

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NJ State Police Division Headquarters Complex River Road, West Trenton, NJ Ewing Township, Mercer County

NEW JERSEY PUBLIC HEALTH, ENVIRONMENTAL AND AGRICULTURAL LABORATORY

ELECTRICAL

SINGLE LINE DIAGRAM

OPTION 5

JOB No.

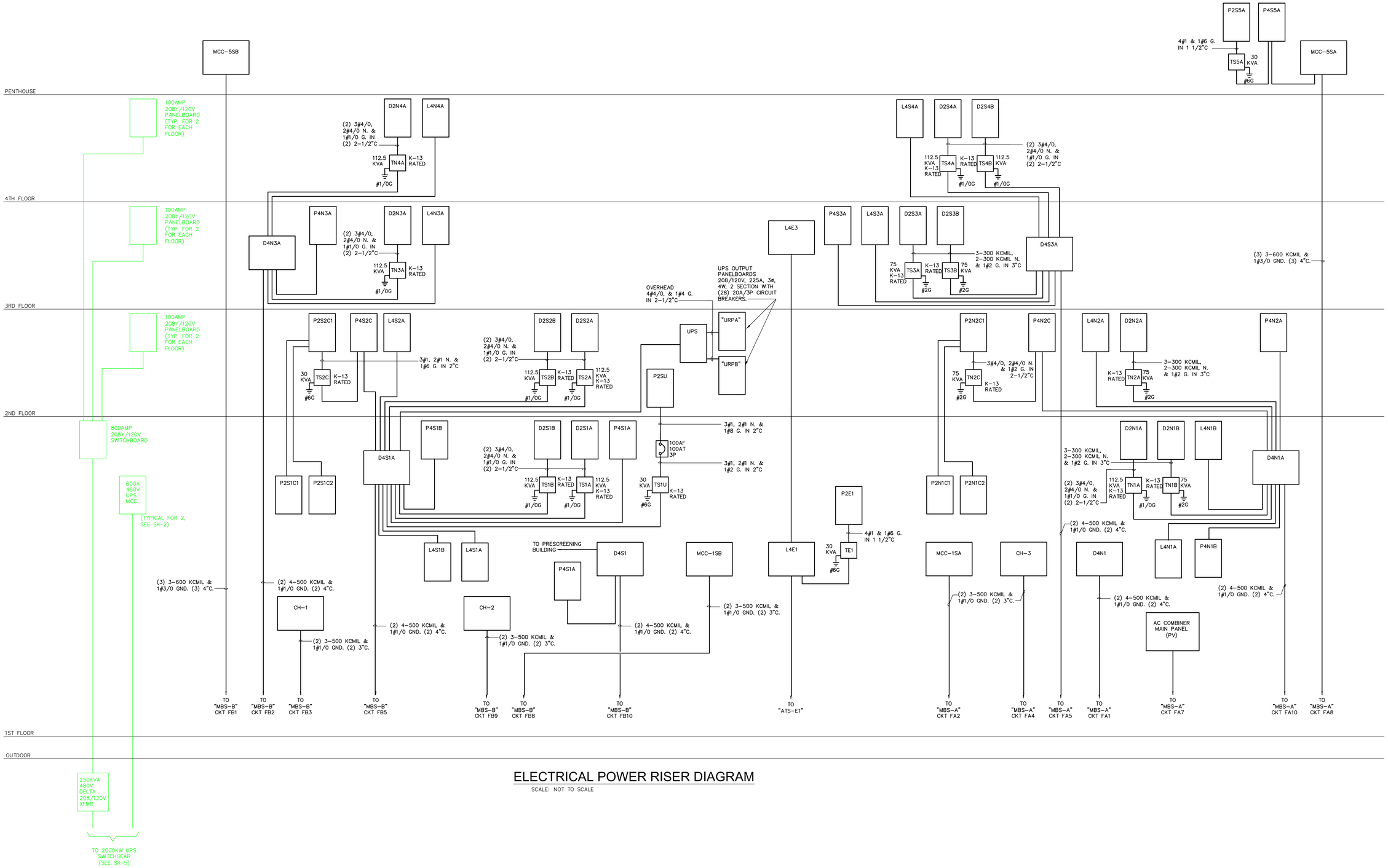
DATE

MAY 2021

SHEET No.

SK-5

EXHIBIT 'C'



ELECTRICAL POWER RISER DIAGRAM

SCALE: NOT TO SCALE

No.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
NK	OM	AS SHOWN
CHECKED	APPROVED	APPROVED
JTB	JTB	

Gannett Fleming

MARLTON, NEW JERSEY

NJ State Police Division Headquarters Complex River Road, West Trenton, NJ Ewing Township, Mercer County

NEW JERSEY PUBLIC HEALTH, ENVIRONMENTAL AND AGRICULTURAL LABORATORY

ELECTRICAL

POWER RISER DIAGRAM

OPTION 4

JOB No.

DATE

MAY 2021

SHEET No.

SK-6

EXHIBIT 'C'

Appendix B
Mechanical Equipment Standby Generator
Startup Schedule

EXHIBIT 'C'

STANDBY/EMERGENCY GENERATOR START-UP SCHEDULE						
			Associated Equipment			
Priority	Primary Equipment	Area/Equipment Served	a	b	c	d
1	Air Compressors	ATC system	pneumatic dprs & valves			
2	B-1 thru 4 - Boilers	Entire building	DA - 1 & SUT - 1	DFOP-1	WS - 1	
3	EF - 1 & 2	BSL - 3 labs	AHU - 1 & 2	EF - 8 & 9		
4	HX - 1 & 2 Glycol Pre Heat	Entire bldg+prescreen+environ chamb	PHGP - 1 & 2	PWP - 1 & 2		
5	HX - 3 & 4 Hot Water Reheat	Entire building	HWP - 1 & 2	RHWP -1 & 2		
6	EF - 1P & 2P	Prescreening building	AHU - 1P	ERC - 1 thru 5	SG - 1	
7	CH-1 thru 3 - Chillers	Entire building	CT-1 thru 3	CHWP - 1 thru 4	CWP - 1 thru 4	SFS-1 + chem treat
8	AHU - 3 thru 7	BSL - 2 labs + offices	EF - 3 thru 6	AHU - 11 (L445)	EF - 20,21,22,26	RF - 1 & 2
9	AHU- - 10	Normal electric room	SF - 1, 2 & 3	EF-17,18,19&23		
10	DC - 1; Dry Cooler	Environmental Chambers	PGP - 1 & 2			
11	AHU - 9	Pavilion building	RF - 3	EF-14,15&16		
12	EF - 12 & 13	Elevator machinery rooms				
13	EF - 10 & 11	Toilet rooms				
NOTES:						
1) The above schedule dictates the order in which equipment/systems shall be restarted in the event of a building wide power failure						
2) Number 1 is the highest priority and the last number is the lowest						
3) All equipment/systems shall be automatically restarted through the automation system						
4) All equipment on a line shall be restarted before any equipment on the next line shall be restarted						
5) Where equipped with VFC, equipment shall restart at it's lowest setting and slowly ramp up to the speed necessary to maintain proper control						
6) While all listed equipment is wired to the generator, only a portion of it shall operate during an emergency power loss condition. Those that shall operate are listed as follows:						
a) 2 of the 4 boilers along with DA - 1, SUT - 1, DFOP - 1 & WS - 1						
b) 1 of the 3 chillers along with 1 of the 3 cooling towers and 1 CHWP, 1CWP, SFS - 1 and the chemical treatment						
c) AHU - 1 or 2 along with EF - 1 or 2 and both EF - 8 & 9						
d) HX - 1 or 2 along with PHGP - 1 or 2 and PWP - 1 or 2						
e) HX - 3 or 4 along with HWP - 1 or 2 and RHWP - 1 or 2						
f) EF - 1P or 2P along with AHU - 1P, ERC 1 - 5 and SG - 1						
g) 2 of AHU - 3 through 7 along with 2 of EF - 3 through 6, AHU - 11, EF - 20, 21, 22 & 26 and RF - 1 or 2						
h) AHU - 10 along with SF - 3 and EF - 19 & EF - 23						
i) DC - 1 along with PGP - 1 or 2						
j) AHU - 9 along with RF - 3 and EF - 16						
k) 1 of the 2 air compressors						
l) EF - 10, 11, 12 & 13						
EQUIPMENT NOMENCLATURE:						
a) EF - 8 & 9 - perchloric acid; EF - 10, 11 12 & 13 - public toilet rooms and elevator machinery rooms						
b) EF- 17 & 18 - chiller room; EF - 19 - refrigerant purge; EF - 23 - normal power electric room						
c) EF - 20 & 21 - 1st floor Rad lab; EF - 22 - 1st floor Markets lab; EF - 26 - 3rd floor Media prep						
d) DA - Deaerator; SUT - Surge tank; DFOP - Fuel oil pump set; WS - water softener; SG - Steam generator (humidifier)						
e) EF - 14, 15 & 16 - Pavilion toilets, pantry & training lab respectively						
f) SF - 1 ,2 & 3 - chiller, boiler and main electrical rooms respectively						

Existing Standby Generator Startup Schedule, Record Drawing M601 dated 1/28/11

EXHIBIT 'C'

Appendix C
Cost Estimate

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Phase: **Program**

Project Name: **PHEAL Generator Feasibility Study-Option 1 (Diesel Generator)**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction			
1 General Construction		75,000	
2 Structural Steel		0	
3 Plumbing		0	
4 HVAC		20,076	
5 Electrical		1,583,514	
6 Other Trades (specify):	Civil	216,060	
7 TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)			**1,894,650**
Cost Phase "D" - Design			
8 Consultant Design Fee		210,000	
9 Consultant Construction Administration Fee		105,000	
10 Asbestos Remediation Design Fee			
11 Asbestos Monitoring Fees			
12 Survey Services		0	
13 Testing Services		0	
14 Roofing Inspection		0	
15 Other (specify):		0	
16 TOTAL DESIGN SERVICES (Lines 8 thru 15)			**315,000**
Cost Phase "K" - Affirmative Action			
17 Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees			
18 DPMC Management Fee	(8% of Line 7)		**151,572**
Cost Phase "N" - Construction Management			
19 Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency			
20 Construction	(10% of Line 7)	189,465	
21 Design	(10% of Line 16)	31,500	
22 TOTAL PROJECT CONTINGENCY (Lines 20 & 21)			**220,965**
Cost Phase "P" - Permits			
23 U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24 U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25 Soil Conservation		0	
26 Other (specify):	Air Permit	2,000	
27 TOTAL PERMIT FEES (Lines 23 thru 26)			**5,000**
Cost Phase "R" - Arts Inclusion			
28 Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs			
29 Other (specify):		0	
30 Other (specify):		0	
31 TOTAL OTHER COSTS (Lines 29 & 30)			**0**
32 CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)			**$2,587,187**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Generator Feasibility Study - Option 2 (Natural Gas Generato**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		75,000	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		35,133	
5	Electrical		3,321,746	
6	Other Trades (specify):	Civil	277,382	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**3,709,261**
Cost Phase "D" - Design				
8	Consultant Design Fee		210,000	
9	Consultant Construction Administration Fee		105,000	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**315,000**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**296,741**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	370,926	
21	Design	(10% of Line 16)	31,500	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**402,426**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25	Soil Conservation		0	
26	Other (specify):	Air Permit	2,000	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**5,000**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$4,728,428**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Phase: **Program**

Project Name: **PHEAL Generator Feasibility Study-Option 3-200 KVA UPS**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		0	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		0	
5	Electrical		1,273,173	
6	Other Trades (specify): Civil		44,745	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**1,317,918**
Cost Phase "D" - Design				
8	Consultant Design Fee		0	
9	Consultant Construction Administration Fee		0	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**0**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**105,433**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	131,792	
21	Design	(10% of Line 16)	0	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**131,792**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		0	
24	U.C.C. Permit/Field Inspection/C.O. Fee		0	
25	Soil Conservation		0	
26	Other (specify):		0	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**0**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$1,555,143**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Generator Feasibility Study-Option 3-200 KVA UPS flywheel**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		0	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		0	
5	Electrical		1,438,099	
6	Other Trades (specify): Civil		44,745	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**1,482,844**
Cost Phase "D" - Design				
8	Consultant Design Fee		0	
9	Consultant Construction Administration Fee		0	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**0**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**118,628**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	148,284	
21	Design	(10% of Line 16)	0	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**148,284**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		0	
24	U.C.C. Permit/Field Inspection/C.O. Fee		0	
25	Soil Conservation		0	
26	Other (specify):		0	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**0**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$1,749,756**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Phase: **Program**

Project Name: **PHEAL Generator Feasibility Study-Option 4-2000 KVA UPS**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction			
1 General Construction		0	
2 Structural Steel		0	
3 Plumbing		0	
4 HVAC		0	
5 Electrical		5,371,857	
6 Other Trades (specify): Civil		201,378	
7 TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)			**5,573,235**
Cost Phase "D" - Design			
8 Consultant Design Fee		0	
9 Consultant Construction Administration Fee		0	
10 Asbestos Remediation Design Fee			
11 Asbestos Monitoring Fees			
12 Survey Services		0	
13 Testing Services		0	
14 Roofing Inspection		0	
15 Other (specify):		0	
16 TOTAL DESIGN SERVICES (Lines 8 thru 15)			**0**
Cost Phase "K" - Affirmative Action			
17 Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees			
18 DPMC Management Fee	(8% of Line 7)		**445,859**
Cost Phase "N" - Construction Management			
19 Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency			
20 Construction	(10% of Line 7)	557,324	
21 Design	(10% of Line 16)	0	
22 TOTAL PROJECT CONTINGENCY (Lines 20 & 21)			**557,324**
Cost Phase "P" - Permits			
23 U.C.C. (DCA or DPMC) Plan Review Fee		0	
24 U.C.C. Permit/Field Inspection/C.O. Fee		0	
25 Soil Conservation		0	
26 Other (specify):		0	
27 TOTAL PERMIT FEES (Lines 23 thru 26)			**0**
Cost Phase "R" - Arts Inclusion			
28 Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs			
29 Other (specify):		0	
30 Other (specify):		0	
31 TOTAL OTHER COSTS (Lines 29 & 30)			**0**
32 CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)			**$6,576,417**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Generator Feasibility Study-Option 4-2000 KVA UPS flywheel**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		0	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		0	
5	Electrical		6,059,069	
6	Other Trades (specify): Civil		201,378	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**6,260,447**
Cost Phase "D" - Design				
8	Consultant Design Fee		0	
9	Consultant Construction Administration Fee		0	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**0**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**500,836**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	626,045	
21	Design	(10% of Line 16)	0	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**626,045**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		0	
24	U.C.C. Permit/Field Inspection/C.O. Fee		0	
25	Soil Conservation		0	
26	Other (specify):		0	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**0**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$7,387,327**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Gen. Feasibility Study-Options 1&3(Diesel Gen & 200KVA UP**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		75,000	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		20,076	
5	Electrical		2,856,687	
6	Other Trades (specify): Civil		260,805	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**3,212,568**
Cost Phase "D" - Design				
8	Consultant Design Fee		250,000	
9	Consultant Construction Administration Fee		110,000	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**360,000**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**257,005**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	321,257	
21	Design	(10% of Line 16)	36,000	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**357,257**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25	Soil Conservation		0	
26	Other (specify):		0	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**3,000**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$4,189,830**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Gen. Feas. Study-Options 1&3(Diesel Gen & 200KVA UPS Fly**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		75,000	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		20,076	
5	Electrical		3,021,613	
6	Other Trades (specify): Civil		260,805	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**3,377,494**
Cost Phase "D" - Design				
8	Consultant Design Fee		250,000	
9	Consultant Construction Administration Fee		110,000	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**360,000**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**270,200**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	337,749	
21	Design	(10% of Line 16)	36,000	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**373,749**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25	Soil Conservation		0	
26	Other (specify):		0	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**3,000**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$4,384,443**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Gen. Feasibility Study-Options 1&4(Diesel Gen & 2000KVA U**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction			
1	General Construction	75,000	
2	Structural Steel	0	
3	Plumbing	0	
4	HVAC	20,076	
5	Electrical	6,955,371	
6	Other Trades (specify): Civil	417,438	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**		**7,467,885**
Cost Phase "D" - Design			
8	Consultant Design Fee	250,000	
9	Consultant Construction Administration Fee	110,000	
10	Asbestos Remediation Design Fee		
11	Asbestos Monitoring Fees		
12	Survey Services	0	
13	Testing Services	0	
14	Roofing Inspection	0	
15	Other (specify):	0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**		**360,000**
Cost Phase "K" - Affirmative Action			
17	Affirmative Action (1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees			
18	DPMC Management Fee (8% of Line 7)		**597,431**
Cost Phase "N" - Construction Management			
19	Construction Management Services (CM/CPM)		**0**
Cost Phase "O" - Contingency			
20	Construction (10% of Line 7)	746,789	
21	Design (10% of Line 16)	36,000	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**		**782,789**
Cost Phase "P" - Permits			
23	U.C.C. (DCA or DPMC) Plan Review Fee	1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee	1,500	
25	Soil Conservation	0	
26	Other (specify):	0	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**		**3,000**
Cost Phase "R" - Arts Inclusion			
28	Arts Inclusion Allowance		**0**
Cost Phase "B" - Other Costs			
29	Other (specify):	0	
30	Other (specify):	0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**		**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**		**$9,211,104**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Gen. Feas. Study-Options 1&4(Dies. Gen & 2000KVA UPS Fly**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		75,000	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		20,076	
5	Electrical		7,642,582	
6	Other Trades (specify):	Civil	417,438	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**8,155,096**
Cost Phase "D" - Design				
8	Consultant Design Fee		250,000	
9	Consultant Construction Administration Fee		110,000	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**360,000**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**652,408**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	815,510	
21	Design	(10% of Line 16)	36,000	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**851,510**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25	Soil Conservation		0	
26	Other (specify):		2,000	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**5,000**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$10,024,013**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Generator Feasibility Study-Options 2&3(Gas Gen 200KVA U**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		75,000	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		35,133	
5	Electrical		4,594,919	
6	Other Trades (specify):	Civil	322,127	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**5,027,179**
Cost Phase "D" - Design				
8	Consultant Design Fee		250,000	
9	Consultant Construction Administration Fee		110,000	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**360,000**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**402,174**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	502,718	
21	Design	(10% of Line 16)	36,000	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**538,718**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25	Soil Conservation		0	
26	Other (specify):		2,000	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**5,000**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$6,333,071**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Gen. Feas. Study-Options 2&3(Gas Gen 200KVA UPS Flywh)**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		75,000	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		35,133	
5	Electrical		4,759,845	
6	Other Trades (specify):	Civil	322,127	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**5,192,105**
Cost Phase "D" - Design				
8	Consultant Design Fee		250,000	
9	Consultant Construction Administration Fee		110,000	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**360,000**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**415,368**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	519,211	
21	Design	(10% of Line 16)	36,000	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**555,211**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25	Soil Conservation		0	
26	Other (specify):		2,000	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**5,000**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$6,527,684**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Gen. Feasibility Study-Options 2&4(Gas Gen & 2000KVA UPS**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		75,000	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		35,133	
5	Electrical		8,693,603	
6	Other Trades (specify):	Civil	478,760	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**9,282,496**
Cost Phase "D" - Design				
8	Consultant Design Fee		250,000	
9	Consultant Construction Administration Fee		110,000	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**360,000**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**742,600**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	928,250	
21	Design	(10% of Line 16)	36,000	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**964,250**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25	Soil Conservation		0	
26	Other (specify):		2,000	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**5,000**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$11,354,345**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

PROJECT COST ANALYSIS

DPMC NUMBER: **A1344-00**

Date: 5/13/2021

Project Name: **PHEAL Gen. Feas. Study-Options 2&4(Gas Gen & 2000KVA UPS flyw**

Project Phase: **Program**

Location: **3 Schwarzkopf Drive, West Trenton**

Cost Phase "C" - Construction				
1	General Construction		75,000	
2	Structural Steel		0	
3	Plumbing		0	
4	HVAC		35,133	
5	Electrical		9,380,814	
6	Other Trades (specify):	Civil	478,760	
7	**TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**			**9,969,707**
Cost Phase "D" - Design				
8	Consultant Design Fee		250,000	
9	Consultant Construction Administration Fee		110,000	
10	Asbestos Remediation Design Fee			
11	Asbestos Monitoring Fees			
12	Survey Services		0	
13	Testing Services		0	
14	Roofing Inspection		0	
15	Other (specify):		0	
16	**TOTAL DESIGN SERVICES (Lines 8 thru 15)**			**360,000**
Cost Phase "K" - Affirmative Action				
17	Affirmative Action	(1/2 % of Line 7)		**0**
Cost Phase "M " - Management Fees				
18	DPMC Management Fee	(8% of Line 7)		**797,577**
Cost Phase "N" - Construction Management				
19	Construction Management Services (CM/CPM)			**0**
Cost Phase "O" - Contingency				
20	Construction	(10% of Line 7)	996,971	
21	Design	(10% of Line 16)	36,000	
22	**TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**			**1,032,971**
Cost Phase "P" - Permits				
23	U.C.C. (DCA or DPMC) Plan Review Fee		1,500	
24	U.C.C. Permit/Field Inspection/C.O. Fee		1,500	
25	Soil Conservation		0	
26	Other (specify):		2,000	
27	**TOTAL PERMIT FEES (Lines 23 thru 26)**			**5,000**
Cost Phase "R" - Arts Inclusion				
28	Arts Inclusion Allowance			**0**
Cost Phase "B" - Other Costs				
29	Other (specify):		0	
30	Other (specify):		0	
31	**TOTAL OTHER COSTS (Lines 29 & 30)**			**0**
32	**CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**			**$12,165,254**

DPMC-38 Revised 9/02 (automated form)

EXHIBIT 'C'

Appendix D
Project Schedule

EXHIBIT 'C'

SCHEDULE-(Max Lead time)

PROJECT: Standby Generator @ PHEAL

DATE: 5/13/21 PROJECT MANAGER: **Cristina Zozzaro**

CURRENT STATUS CODE:			CONTRACT			RECOVERY					
			DURATION	START DATE	FINISH DATE	DURATION	START DATE	FINISH DATE	ACTUAL START	ACTUAL FINISH	COMMENTS
1 SCOPE OF WORK											
	1A	Feasibility Study	**120**								
		Notice to Proceed	1		2/1/2021						
		Create baseline schedule -- Design Manager	8	2/1/2021	2/9/2021						
		Field Invetigation	23	2/9/2021	3/4/2021						
		Design Charette Meeting	15	3/4/2021	3/19/2021						
		Receive Documentation from PHEAL (postponed to design)	40	3/19/2021	4/28/2021						
		Feasibility Study-Report	15	4/28/2021	5/13/2021						
		Feasibility Study Presentation	1	5/13/2021	5/14/2021						
		Comments by DPMC\PHEAL	7	5/14/2021	5/21/2021						
		Incorporate Comments	9	5/21/2021	5/30/2021						
		Final Feasibility Study Report	1	5/30/2021	5/31/2021						
	1B	Planning-by DPMC\PHEAL	**15**								
		Finalize Scope of work document	15	5/31/2021	6/15/2021						
2A CONSULTANT SELECTION (Approved by Procurement)			**85**								
		Procurement group receive Final SOW	1	6/15/2021	6/16/2021						
		Advertise & random selection	14	6/16/2021	6/30/2021						
		Pre-proposal meeting	14	6/30/2021	7/14/2021						
		A/E Proposals due	20	7/14/2021	8/3/2021						
		Selection committee comments due on A/E proposal	13	8/3/2021	8/16/2021						
		Open fee proposal and distribute to committee	1	8/16/2021	8/17/2021						
		Negotiate with A/E & confirm agreement in writing	7	8/17/2021	8/24/2021						
		Submit award recommendation to procurement	1	8/24/2021	8/25/2021						
		Agency to provide additional funding if necessary	7	8/25/2021	9/1/2021						
		Issue contract to A/E	7	9/1/2021	9/8/2021						
3 DESIGN											
	3A	Schematic Design	**49**								
		Kick-off meeting: agency, design, construction, A/E	7	9/8/2021	9/15/2021						
		Schematic presentation	28	9/15/2021	10/13/2021						
		DPMC Review	14	10/13/2021	10/27/2021						
	3B	Design Development	**42**								
		DD submission and presentation	28	10/27/2021	11/24/2021						
		Approve schematic design submission -- code review group	14	11/24/2021	12/8/2021						
	3C	FINAL DESIGN	**84**								
		Final design submission and presentation	35	12/8/2021	1/12/2022						
		Approve final design submission No. 1 - code review group	7	1/12/2022	1/19/2022						
		Comment Review Meeting (if required)	7	1/19/2022	1/26/2022						
		Final design submission No. 2	21	1/26/2022	2/16/2022						
		Approve final design submission No. 2 - code review group	14	2/16/2022	3/2/2022						
4 PERMITS											
	4A	Permit	**7**								
		Permit jackets due & 5 sets of signed sealed drwgs/spec	7	3/2/2022	3/9/2022						
	4B	Bid clearance	**14**								
		Provide funding -- agency	7	3/9/2022	3/16/2022						
		Bid clearance sign-off -- design, construction, agency	6	3/16/2022	3/22/2022						
		Deliver bid clearance packet to procurement	1	3/22/2022	3/23/2022						
5 BID PHASE (Approved by Procurement)											

EXHIBIT 'C'

SCHEDULE-(Max Lead time)									
PROJECT: Standby Generator @ PHEAL									
DATE: 5/13/21		PROJECT MANAGER: **Cristina Zozzaro**							
CURRENT STATUS CODE:	CONTRACT			RECOVERY					
	DURATION	START DATE	FINISH DATE	DURATION	START DATE	FINISH DATE	ACTUAL START	ACTUAL FINISH	COMMENTS
5A Bid	**42**								
Advertise	7	3/23/2022	3/30/2022						
Pre-bid meeting/site visit	14	3/30/2022	4/13/2022						
Bid due date	21	4/13/2022	5/4/2022						
5B Construction Award	**28**								
Create worksheet to compare base/alternates/unit costs - ALL contractors	3	5/4/2022	5/7/2022						
Post bid review meeting	4	5/7/2022	5/11/2022						
Award recommendation letter due -- A/E	3	5/11/2022	5/14/2022						
Award recommendation letter due -- design	3	5/14/2022	5/17/2022						
Deliver recommendation to procurement	1	5/17/2022	5/18/2022						
Intent to award (Chapter 51 etc done letter sent: 7 working days after bids due)	7	5/18/2022	5/25/2022						
Award meeting contracts signed (7 working days after Intent to award)	7	5/25/2022	6/1/2022						
NTP									
6 CONSTRUCTION									
Pre-Construction Kickoff Meeting	**1**	6/1/2022	6/2/2022						
Mobilization & Shop Drawing Preparation& Approvals	**42**	6/2/2022	7/14/2022						
Material Fabrication & Lead Time	**182**	7/14/2022	1/12/2023						
Substantial Completion	**45**	1/12/2023	2/26/2023						
Testing	15	2/26/2023	3/13/2023						
6 CLOSEOUT	**23**								
Closeout Contractor & A&E Contract	23	3/13/2023	4/5/2023						

EXHIBIT 'C'

SCHEDULE-(Min Lead time)

PROJECT: Standby Generator @ PHEAL

DATE: 5/13/21 PROJECT MANAGER: **Cristina Zozzaro**

CURRENT STATUS CODE:			CONTRACT			RECOVERY					
			DURATION	START DATE	FINISH DATE	DURATION	START DATE	FINISH DATE	ACTUAL START	ACTUAL FINISH	COMMENTS
1 SCOPE OF WORK											
	1A	Feasibility Study	**120**								
		Notice to Proceed	1		2/1/2021						
		Create baseline schedule -- Design Manager	8	2/1/2021	2/9/2021						
		Field Invetigation	23	2/9/2021	3/4/2021						
		Design Charette Meeting	15	3/4/2021	3/19/2021						
		Receive Documentation from PHEAL (postponed to design)	40	3/19/2021	4/28/2021						
		Feasibility Study-Report	15	4/28/2021	5/13/2021						
		Feasibility Study Presentation	1	5/13/2021	5/14/2021						
		Comments by DPMC\PHEAL	7	5/14/2021	5/21/2021						
		Incorporate Comments	9	5/21/2021	5/30/2021						
		Final Feasibility Study Report	1	5/30/2021	5/31/2021						
	1B	Planning-by DPMC\PHEAL	**15**								
		Finalize Scope of work document	15	5/31/2021	6/15/2021						
2A CONSULTANT SELECTION (Approved by Procurement)			**85**								
		Procurement group receive Final SOW	1	6/15/2021	6/16/2021						
		Advertise & random selection	14	6/16/2021	6/30/2021						
		Pre-proposal meeting	14	6/30/2021	7/14/2021						
		A/E Proposals due	20	7/14/2021	8/3/2021						
		Selection committee comments due on A/E proposal	13	8/3/2021	8/16/2021						
		Open fee proposal and distribute to committee	1	8/16/2021	8/17/2021						
		Negotiate with A/E & confirm agreement in writing	7	8/17/2021	8/24/2021						
		Submit award recommendation to procurement	1	8/24/2021	8/25/2021						
		Agency to provide additional funding if necessary	7	8/25/2021	9/1/2021						
		Issue contract to A/E	7	9/1/2021	9/8/2021						
3 DESIGN											
	3A	Schematic Design	**49**								
		Kick-off meeting: agency, design, construction, A/E	7	9/8/2021	9/15/2021						
		Schematic presentation	28	9/15/2021	10/13/2021						
		DPMC Review	14	10/13/2021	10/27/2021						
	3B	Design Development	**42**								
		DD submission and presentation	28	10/27/2021	11/24/2021						
		Approve schematic design submission -- code review group	14	11/24/2021	12/8/2021						
	3C	FINAL DESIGN	**84**								
		Final design submission and presentation	35	12/8/2021	1/12/2022						
		Approve final design submission No. 1 - code review group	7	1/12/2022	1/19/2022						
		Comment Review Meeting (if required)	7	1/19/2022	1/26/2022						
		Final design submission No. 2	21	1/26/2022	2/16/2022						
		Approve final design submission No. 2 - code review group	14	2/16/2022	3/2/2022						
4 PERMITS											
	4A	Permit	**7**								
		Permit jackets due & 5 sets of signed sealed drwgs/spec	7	3/2/2022	3/9/2022						
	4B	Bid clearance	**14**								
		Provide funding -- agency	7	3/2/2022	3/9/2022						
		Bid clearance sign-off -- design, construction, agency	6	3/9/2022	3/15/2022						
		Deliver bid clearance packet to procurement	1	3/15/2022	3/16/2022						
5 BID PHASE (Approved by Procurement)											

EXHIBIT 'C'

SCHEDULE-(Min Lead time)									
PROJECT: Standby Generator @ PHEAL									
DATE: 5/13/21		PROJECT MANAGER: **Cristina Zozzaro**							
CURRENT STATUS CODE:	CONTRACT			RECOVERY					
	DURATION	START DATE	FINISH DATE	DURATION	START DATE	FINISH DATE	ACTUAL START	ACTUAL FINISH	COMMENTS
5A Bid	**42**								
Advertise	7	3/16/2022	3/23/2022						
Pre-bid meeting/site visit	14	3/23/2022	4/6/2022						
Bid due date	21	4/6/2022	4/27/2022						
5B Construction Award	**28**								
Create worksheet to compare base/alternates/unit costs - ALL contractors	3	4/27/2022	4/30/2022						
Post bid review meeting	4	4/30/2022	5/4/2022						
Award recommendation letter due -- A/E	3	5/4/2022	5/7/2022						
Award recommendation letter due -- design	3	5/7/2022	5/10/2022						
Deliver recommendation to procurement	1	5/10/2022	5/11/2022						
Intent to award (Chapter 51 etc done letter sent: 7 working days after bids due)	7	5/11/2022	5/18/2022						
Award meeting contracts signed (7 working days after Intent to award)	7	5/18/2022	5/25/2022						
NTP									
6 CONSTRUCTION									
Pre-Construction Kickoff Meeting	**1**	5/25/2022	5/26/2022						
Mobilization & Shop Drawing Preparation& Approvals	**42**	5/26/2022	7/7/2022						
Material Fabrication & Lead Time	**119**	7/7/2022	11/3/2022						
Substantial Completion	**45**	11/3/2022	12/18/2022						
Testing	15	12/18/2022	1/2/2023						
6 CLOSEOUT	**23**								
Closeout Contractor & A&E Contract	23	1/2/2023	1/25/2023						

EXHIBIT 'C'

SCHEDULE-(Max Lead time-Streamlined Design)

PROJECT: Standby Generator @ PHEAL

DATE: 5/13/21 PROJECT MANAGER: **Cristina Zozzaro**

CURRENT STATUS CODE:			CONTRACT			RECOVERY					
			DURATION	START DATE	FINISH DATE	DURATION	START DATE	FINISH DATE	ACTUAL START	ACTUAL FINISH	COMMENTS
1 SCOPE OF WORK											
	1A	Feasibility Study	**120**								
		Notice to Proceed	1		2/1/2021						
		Create baseline schedule -- Design Manager	8	2/1/2021	2/9/2021						
		Field Invetigation	23	2/9/2021	3/4/2021						
		Design Charette Meeting	15	3/4/2021	3/19/2021						
		Receive Documentation from PHEAL (postponed to design)	40	3/19/2021	4/28/2021						
		Feasibility Study-Report	15	4/28/2021	5/13/2021						
		Feasibility Study Presentation	1	5/13/2021	5/14/2021						
		Comments by DPMC\PHEAL	7	5/14/2021	5/21/2021						
		Incorporate Comments	9	5/21/2021	5/30/2021						
		Final Feasibility Study Report	1	5/30/2021	5/31/2021						
	1B	Planning-by DPMC\PHEAL	**15**								
		Finalize Scope of work document	15	5/31/2021	6/15/2021						
2A CONSULTANT SELECTION (Approved by Procurement)			**85**								
		Procurement group receive Final SOW	1	6/15/2021	6/16/2021						
		Advertise & random selection	14	6/16/2021	6/30/2021						
		Pre-proposal meeting	14	6/30/2021	7/14/2021						
		A/E Proposals due	20	7/14/2021	8/3/2021						
		Selection committee comments due on A/E proposal	13	8/3/2021	8/16/2021						
		Open fee proposal and distribute to committee	1	8/16/2021	8/17/2021						
		Negotiate with A/E & confirm agreement in writing	7	8/17/2021	8/24/2021						
		Submit award recommendation to procurement	1	8/24/2021	8/25/2021						
		Agency to provide additional funding if necessary	7	8/25/2021	9/1/2021						
		Issue contract to A/E	7	9/1/2021	9/8/2021						
3 DESIGN											
	3A	Design Development	**42**								
		Kick-off meeting: agency, design, construction, A/E	7	9/8/2021	9/15/2021						
		DD submission and presentation	28	9/15/2021	10/13/2021						
		Approve schematic design submission -- code review group	14	10/13/2021	10/27/2021						
	3B	FINAL DESIGN	**84**								
		Final design submission and presentation	35	10/27/2021	12/1/2021						
		Approve final design submission No. 1 - code review group	7	12/1/2021	12/8/2021						
		Comment Review Meeting (if required)	7	12/8/2021	12/15/2021						
		Final design submission No. 2	21	12/15/2021	1/5/2022						
		Approve final design submission No. 2 - code review group	14	1/5/2022	1/19/2022						
4 PERMITS											
	4A	Permit	**7**								
		Permit jackets due & 5 sets of signed sealed drwgs/spec	7	1/19/2022	1/26/2022						
	4B	Bid clearance	**14**								
		Provide funding -- agency	7	1/19/2022	1/26/2022						
		Bid clearance sign-off -- design, construction, agency	6	1/26/2022	2/1/2022						
		Deliver bid clearance packet to procurement	1	2/1/2022	2/2/2022						
5 BID PHASE (Approved by Procurement)											
	5A	Bid	**42**								
		Advertise	7	2/2/2022	2/9/2022						

EXHIBIT 'C'

SCHEDULE-(Max Lead time-Streamlined Design)									
PROJECT: Standby Generator @ PHEAL									
DATE: 5/13/21		PROJECT MANAGER: **Cristina Zozzaro**							
CURRENT STATUS CODE:	CONTRACT			RECOVERY					
	DURATION	START DATE	FINISH DATE	DURATION	START DATE	FINISH DATE	ACTUAL START	ACTUAL FINISH	COMMENTS
Pre-bid meeting/site visit	14	2/9/2022	2/23/2022						
Bid due date	21	2/23/2022	3/16/2022						
5B Construction Award	**28**								
Create worksheet to compare base/alternates/unit costs - ALL contractors	3	3/16/2022	3/19/2022						
Post bid review meeting	4	3/19/2022	3/23/2022						
Award recommendation letter due -- A/E	3	3/23/2022	3/26/2022						
Award recommendation letter due -- design	3	3/26/2022	3/29/2022						
Deliver recommendation to procurement	1	3/29/2022	3/30/2022						
Intent to award (Chapter 51 etc done letter sent: 7 working days after bids due)	7	3/30/2022	4/6/2022						
Award meeting contracts signed (7 working days after Intent to award)	7	4/6/2022	4/13/2022						
NTP									
6 CONSTRUCTION									
Pre-Construction Kickoff Meeting	**1**	4/13/2022	4/14/2022						
Mobilization & Shop Drawing Preparation& Approvals	**42**	4/14/2022	5/26/2022						
Material Fabrication & Lead Time	**182**	5/26/2022	11/24/2022						
Substantial Completion	**45**	11/24/2022	1/8/2023						
Testing	15	1/8/2023	1/23/2023						
6 CLOSEOUT	**23**								
Closeout Contractor & A&E Contract	23	1/23/2023	2/15/2023						

EXHIBIT 'C'

SCHEDULE-(Min Lead time-Streamlined Design)

PROJECT: Standby Generator @ PHEAL

DATE: 5/13/21 PROJECT MANAGER: **Cristina Zozzaro**

CURRENT STATUS CODE:			CONTRACT			RECOVERY					
			DURATION	START DATE	FINISH DATE	DURATION	START DATE	FINISH DATE	ACTUAL START	ACTUAL FINISH	COMMENTS
1 SCOPE OF WORK											
	1A	Feasibility Study	**120**								
		Notice to Proceed	1		2/1/2021						
		Create baseline schedule -- Design Manager	8	2/1/2021	2/9/2021						
		Field Invetigation	23	2/9/2021	3/4/2021						
		Design Charette Meeting	15	3/4/2021	3/19/2021						
		Receive Documentation from PHEAL (postponed to design)	40	3/19/2021	4/28/2021						
		Feasibility Study-Report	15	4/28/2021	5/13/2021						
		Feasibility Study Presentation	1	5/13/2021	5/14/2021						
		Comments by DPMC\PHEAL	7	5/14/2021	5/21/2021						
		Incorporate Comments	9	5/21/2021	5/30/2021						
		Final Feasibility Study Report	1	5/30/2021	5/31/2021						
	1B	Planning-by DPMC\PHEAL	**15**								
		Finalize Scope of work document	15	5/31/2021	6/15/2021						
2A CONSULTANT SELECTION (Approved by Procurement)			**85**								
		Procurement group receive Final SOW	1	6/15/2021	6/16/2021						
		Advertise & random selection	14	6/16/2021	6/30/2021						
		Pre-proposal meeting	14	6/30/2021	7/14/2021						
		A/E Proposals due	20	7/14/2021	8/3/2021						
		Selection committee comments due on A/E proposal	13	8/3/2021	8/16/2021						
		Open fee proposal and distribute to committee	1	8/16/2021	8/17/2021						
		Negotiate with A/E & confirm agreement in writing	7	8/17/2021	8/24/2021						
		Submit award recommendation to procurement	1	8/24/2021	8/25/2021						
		Agency to provide additional funding if necessary	7	8/25/2021	9/1/2021						
		Issue contract to A/E	7	9/1/2021	9/8/2021						
3 DESIGN											
	3B	Design Development	**42**								
		Kick-off meeting: agency, design, construction, A/E	7	9/8/2021	9/15/2021						
		DD submission and presentation	28	9/15/2021	10/13/2021						
		Approve schematic design submission -- code review group	14	10/13/2021	10/27/2021						
	3C	FINAL DESIGN	**84**								
		Final design submission and presentation	35	10/27/2021	12/1/2021						
		Approve final design submission No. 1 - code review group	7	12/1/2021	12/8/2021						
		Comment Review Meeting (if required)	7	12/8/2021	12/15/2021						
		Final design submission No. 2	21	12/15/2021	1/5/2022						
		Approve final design submission No. 2 - code review group	14	1/5/2022	1/19/2022						
4 PERMITS											
	4A	Permit	**7**								
		Permit jackets due & 5 sets of signed sealed drwgs/spec	7	1/19/2022	1/26/2022						
	4B	Bid clearance	**14**								
		Provide funding -- agency	7	1/19/2022	1/26/2022						
		Bid clearance sign-off -- design, construction, agency	6	1/26/2022	2/1/2022						
		Deliver bid clearance packet to procurement	1	2/1/2022	2/2/2022						
5 BID PHASE (Approved by Procurement)											
	5A	Bid	**42**								
		Advertise	7	2/2/2022	2/9/2022						

EXHIBIT 'C'

SCHEDULE-(Min Lead time-Streamlined Design)									
PROJECT: Standby Generator @ PHEAL									
DATE: 5/13/21		PROJECT MANAGER: **Cristina Zozzaro**							
CURRENT STATUS CODE:	CONTRACT			RECOVERY					
	DURATION	START DATE	FINISH DATE	DURATION	START DATE	FINISH DATE	ACTUAL START	ACTUAL FINISH	COMMENTS
Pre-bid meeting/site visit	14	2/9/2022	2/23/2022						
Bid due date	21	2/23/2022	3/16/2022						
5B Construction Award	**28**								
Create worksheet to compare base/alternates/unit costs - ALL contractors	3	3/16/2022	3/19/2022						
Post bid review meeting	4	3/19/2022	3/23/2022						
Award recommendation letter due -- A/E	3	3/23/2022	3/26/2022						
Award recommendation letter due -- design	3	3/26/2022	3/29/2022						
Deliver recommendation to procurement	1	3/29/2022	3/30/2022						
Intent to award (Chapter 51 etc done letter sent: 7 working days after bids due)	7	3/30/2022	4/6/2022						
Award meeting contracts signed (7 working days after Intent to award)	7	4/6/2022	4/13/2022						
NTP									
6 CONSTRUCTION									
Pre-Construction Kickoff Meeting	1	4/13/2022	4/14/2022						
Mobilization & Shop Drawing Preparation& Approvals	42	4/14/2022	5/26/2022						
Material Fabrication & Lead Time	**119**	5/26/2022	9/22/2022						
Substantial Completion	**45**	9/22/2022	11/6/2022						
Testing	15	11/6/2022	11/21/2022						
6 CLOSEOUT	**23**								
Closeout Contractor & A&E Contract	23	11/21/2022	12/14/2022						

EXHIBIT 'C'