

SCOPE OF WORK

CRRNJ Terminal Building HVAC System Improvements

Liberty State Park
Jersey City, Hudson County, NJ

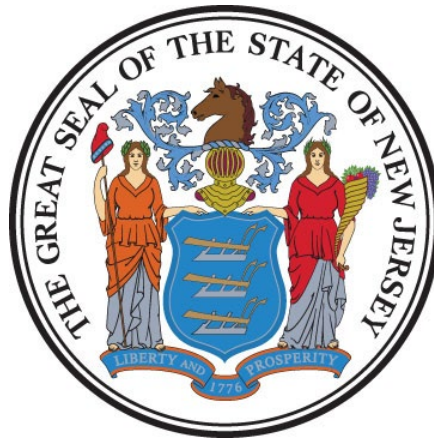
Project No. P1388-00

STATE OF NEW JERSEY

Honorable Mikie Sherrill, Governor

DEPARTMENT OF THE TREASURY

Aaron Binder, State Treasurer



DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION

Thomas A. Edenbaum, Director

Date: July 29, 2026

TABLE OF CONTENTS

SECTION	PAGE
I. OBJECTIVE	4
II. CONSULTANT QUALIFICATIONS	4
A. CONSULTANT & SUB-CONSULTANT PRE-QUALIFICATIONS.....	4
III. PROJECT BUDGET	4
A. CONSTRUCTION COST ESTIMATE (CCE)	4
B. CURRENT WORKING ESTIMATE (CWE)	5
C. CONSULTANT'S FEES	5
IV. PROJECT SCHEDULE	5
A. SCOPE OF WORK DESIGN & CONSTRUCTION SCHEDULE	5
B. CONSULTANT'S PROPOSED DESIGN & CONSTRUCTION SCHEDULE	6
V. PROJECT SITE LOCATION & TEAM MEMBERS.....	6
A. PROJECT SITE ADDRESS.....	6
B. PROJECT TEAM MEMBER DIRECTORY	7
1. DPMC Representative	7
2. Client Agency Representative.....	7
VI. PROJECT DEFINITION	7
A. BACKGROUND	7
B. FUNCTIONAL DESCRIPTION OF THE BUILDING.....	8
VII. CONSULTANT DESIGN RESPONSIBILITIES.....	9
A. DESIGN REQUIREMENTS.....	9
1. General.....	9
2. HVAC System Evaluation (Demand, Humidity, and Efficiency)	10
3. Pipe Insulation Replacement.....	10
4. Load Calculations	10
5. Testing and Balancing.....	11
6. State Historic Preservation Office Approval	11
7. Construction Documents.....	11
B. HAZARDOUS BUILDING MATERIALS.....	12
C. DESIGN MEETINGS & PRESENTATIONS.....	13
D. EXISTING DOCUMENTATION	13
VIII. PERMITS & APPROVALS.....	14

A. NJ UNIFORM CONSTRUCTION CODE PERMIT 14
B. OTHER REGULATORY AGENCY PERMITS, CERTIFICATES AND APPROVALS..... 16

IX. BIDDING AND CONTRACT AWARD RESPONSIBILITIES.... 17

X. CONSTRUCTION ADMINISTRATION RESPONSIBILITIES . 17

XI. PROJECT CLOSE-OUT PHASE 17

XII. ENERGY REBATE AND INCENTIVE PROGRAMS 18

XIII. ALLOWANCES 18

A. PERMIT FEE ALLOWANCE 18

1. Permits 18

2. Permit Costs 18

3. Applications 19

4. Consultant Fee 19

B. HAZARDOUS MATERIALS TESTING AND REPORT ALLOWANCE 19

C. HAZARDOUS MATERIALS ABATEMENT DESIGN ALLOWANCE 19

D. HAZARDOUS MATERIALS CONSTRUCTION ADMINISTRATION ALLOWANCE 20

E. HISTORIC PRESERVATION ALLOWANCE 20

XIV. SOW SIGNATURE APPROVAL SHEET 21

XV. CONTRACT DELIVERABLES 22

XVI. EXHIBITS..... 22

A. SAMPLE PROJECT SCHEDULE FORMAT

B. PROJECT SITE LOCATION MAP

C. CRRNJ TERMINAL BUILDING HVAC ANALYSIS STUDY 11-24-25

D. EXISTING PHOTOS

E. APPLICATION FOR PROJECT AUTHORIZATION UNDER THE NEW JERSEY REGISTER OF HISTORIC PLACES ACT

I. OBJECTIVE

The objective of this project is to upgrade the HVAC system to address air quality and humidity issues at the CRRNJ Terminal Building. The assessment should include current and future conditions and address humidity issues within the building. See **Exhibit 'B'** for the project site location map.

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):

- **P003 HVAC Engineering**

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

- **P002 Electrical Engineering**
- **P004 Plumbing Engineering**
- **P025 Estimating/ Cost Analysis**
- **P034 Historical Preservation/ Restoration**
- **P037 Asbestos Design**
- **P038 Asbestos Safety Control Monitoring**
- **P055 Energy Management Control Systems**
- **P065 Lead Paint Evaluation**

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 \$1,457,000.

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

B. CURRENT WORKING ESTIMATE (CWE)

The Current Working Estimate (CWE) for this project is \$1,923,050.

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 after notification from the consultant during the design process and in a revised CWE deliverable.

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. The Consultant's proposed design and construction schedule shall be in Gantt chart format and calendar day durations with start and finish dates for each task.

PROJECT PHASE	ESTIMATED DURATION (Calendar Days)
1. Site Access Approvals & Schedule Design Kick-off Meeting	14
2. Investigate Design Phase	42
• <i>Project Team & DPMC Plan/Code Unit Review & Comment</i>	14
3. Design Development Phase	42
• <i>Project Team & DPMC Plan/Code Unit Review & Comment</i>	14
4. Final Design Phase	42
• <i>Project Team & DPMC Plan/Code Unit Review & Approval</i>	14
5. Final Design Re-Submission to Address Comments	7 (See Note)
• <i>Project Team & DPMC Plan/Code Unit Review & Approval</i>	14

6. DCA Submission Plan Review	30
7. Permit Application Phase	7
• <i>Issue Plan Release</i>	
8. Bid Phase	42
9. Award Phase	28
10. Construction Phase	120
11. Project Close Out Phase	30

Note: The Final Design Phase is considered complete upon the release of Construction Documents by the DPMC Code Group and/or the Department of Community Affairs (DCA).

B. CONSULTANT’S PROPOSED DESIGN & CONSTRUCTION SCHEDULE

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

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.

V. PROJECT SITE LOCATION & TEAM MEMBERS

A. PROJECT SITE ADDRESS

The location of the project site is:

CRRNJ Terminal Building
Liberty State Park
1 Audrey Zapp Dr.
Jersey City, NJ 07305

PROJECT NAME: CRRNJ Terminal Building HVAC System Improvements
PROJECT LOCATION: Liberty State Park
PROJECT NO: P1388-00
DATE: July 29, 2026

Latitude	40.707279
Longitude	-74.03495

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: Joelle Hansbury, Project Manager
Address: Division of Property Management & Construction
33 West State Street, 9th Floor
Trenton, NJ 08625
Phone No: (609) 292-4725
E-Mail: joelle.hansbury@treas.nj.gov

2. Client Agency Representative

Name: Sergio Abreu
Address: Department of Environmental Protection
275 Freehold-Englishtown Rd.
Englishtown, New Jersey 07726
Phone No: (609)284-3124
E-Mail: sergio.abreu@dep.nj.gov

VI. PROJECT DEFINITION

A. BACKGROUND

Liberty State Park (LSP) is in Jersey City along the Hudson River and is one of the highest visited State Parks in New Jersey. In addition to the outdoor passive recreational opportunities at Liberty is also the home of the Liberty Science Center and the Historic CRRNJ Terminal. The Terminal and Ferry Slips are utilized by the National Park Service to provide ferry service to Ellis Island and the Statue of Liberty.

In 1860, the Central Railroad of New Jersey, also known as CRRNJ, chartered a waterfront location (now part of LSP) in Jersey City for its new terminal. The terminal was completed in 1864 and constructed mainly on landfill from New York City and ballast from ocean going vessels.

By 1889, an increase in demand required a new terminal to be built. It was designed and constructed by the Boston architectural firm of Peabody and Stearns. When the Immigration Station on Ellis Island opened in 1892, traffic increased dramatically. A large majority of the immigrants processed there and started their new lives via the CRRNJ Terminal, settling in New Jersey or traveling on to other states.

By the turn of the century, the CRRNJ Terminal accommodated between 30,000-50,000 people per day on 128 ferry runs and 300 trains. In 1914, the train and ferry sheds were enlarged to accommodate the growing numbers of commuters. The train shed, still standing today, housing 20 tracks, was the largest one ever built. The terminal halted operation in 1967.

Today, the CRRNJ Terminal Building is a historic landmark that is part of Liberty State Park. Liberty State Park is New Jersey's most popular state park, attracting five million visitors a year. It has been open to the public since 1976 and now serves as a gateway for visitors to the Statue of Liberty and Ellis Island.

The New Jersey Department of Environmental Protection commissioned an Air Quality and a HVAC System Analysis report in 2025 of the Central Railroad of NJ (CRRNJ) Terminal Building. The Air Quality report, shown in **Exhibit 'C'**, described existing onsite air quality issues, including high humidity and microbial growth both in the lined ductwork and on interior building surfaces. The HVAC System Analysis detailed the existing HVAC system and recommended a Scope of Work to correct existing issues.

B. FUNCTIONAL DESCRIPTION OF THE BUILDING

The CRRNJ terminal was constructed in the 19th century and is presently used by the Division of Parks and Forestry and the National Park Service for interpretive programs and to provide ferry service to Ellis Island and the Statue of Liberty. The terminal building is a 3-story brick façade structure connected to the train concourse and train shed.

The CRRNJ Terminal is on both the National and State Register of Historic Places. There are various problems and issues associated with the Terminal HVAC system which will be addressed with this project.

While configurations differ between floors and rooms, the HVAC system overall does not have appropriate humidity controls and lacks appropriate insulation. The 2025 HVAC System Analysis by Schiller and Hersh Associates, Inc. details the system and is shown in **Exhibit 'C'**.

VII. CONSULTANT DESIGN RESPONSIBILITIES

A. DESIGN REQUIREMENTS

1. General

The Consultant shall review the study by chiller and Hersh Associates, Inc, CRRNJ Terminal Building HVAC Analysis 11-24-25 shown in **Exhibit 'C'** and investigate the existing system. The Consultant shall provide the design, specifications, bid/award, permitting and construction administration services to implement the recommendations from the study to address the following items at the CRRNJ Terminal Building.

- Compile all the MEP renovation project drawings since 2000 in order to fully be able to analyze the HVAC systems.
- HVAC computerized load analysis of the building. Since the windows have been recently replaced and occupancy may be different than the original design, the loads should be recalculated to verify equipment sizing. The code-required outside air ventilation should be re-calculated for each space based on the IMC 2021 section 403.
- Confirm HVAC unit sizing based on load and ventilation calculations. Provide updated HVAC drawings with CFM and gpm for all FCU, AHU, RTU and EF ductwork, diffusers and piping systems. This will be required for the correct TAB work at the conclusion of construction.
- Field verify all insulation in ceilings / accessible locations. Replace and/or reinstall and/or add new insulation per code.
- Replace all chilled water piping insulation inside the building and on the roof serving the RTUs. Replace hot water insulation & jacket on the roof serving the RTUs. Add in stairs/platforms to allow for access to the RTUs without climbing over the hydronic lines. Add in condensate pipe insulation where missing.
- Eliminate the chilled water bypass & control valve in the mechanical room. Add in additional bypass lines at the 2/3 points of the chilled water piping systems to allow for proper VFD control for the chilled water pumps. Alternatively, provide sufficient 3-way valves for minimum and proper chilled water system flow and pressure.
- Upgrade the existing JACE web-based HVAC control system, including supervisory and unit controllers (FCU, AHU and RTU), as required to accommodate the new equipment and sequences of operation. Update all graphics screens.
- Existing FCUs:
 - (1) Add in outside air and return air dampers with actuators.
 - (2) Verify if the supply fans are inverter duty rated. If not, replace the supply fans.
 - (3) Add new VFDs to control the supply fans.
 - (4) Replace the hot and chilled water control valves with 2 or 3 way valves, as
 - (5) required based on the minimum flow rate of the hot and chilled water systems.
 - (6) Install new temperature/humidity/CO2 sensors for each unit.

- Existing AHUs:
 - (1) Add in outside air and return air dampers with actuators.
 - (2) Verify if the supply fans are inverter duty rated. If not, replace the supply fans.
 - (3) Add new VFDs to control the supply fans.
 - (4) Replace the hot and chilled water control valves with 3-way valves.
 - (5) Install new temperature/humidity/CO2 sensors for each unit.
- Existing RTUs:
 - (1) Replace the hot and chilled water control valves with 3-way valves.
 - (2) Install new temperature/humidity/CO2 sensors for each unit.
- Existing Exhaust Fans:

Add control of all exhaust fans to the HVAC control system. Incorporate a new sequence of operations for these exhaust fans.
- Balancing:

Provide air and water side re-balancing of all the HVAC systems.
- Existing AHU, RTU- verify that duct smoke detection is present and functioning.
- Verify the existing duct smoke detection is listed and labeled for the designed air movement.

A comprehensive set of documents shall be compiled for the building's renovation projects over the past 25 years, including the recent window repair/replacement project. These documents are needed to fully assess the project for future engineering design.

2. HVAC System Evaluation (Demand, Humidity, and Efficiency)

Provide a complete evaluation of the Terminal Building HVAC system. Determine if the system meets demand, humidity control, energy efficiency standards and any other appropriate standards. Provide solutions for any issues determined.

3. Pipe Insulation Replacement

Access existing pipe insulation throughout the Terminal Building HVAC System. Note insufficient, improper or microbially impacted pipe insulation for replacement.

4. Load Calculations

The Consultant shall perform a load calculation to determine that the replacement of the new HVAC equipment and accessories meet the code and building requirement of the required occupancy count.

5. Testing and Balancing

The Consultant shall, during the investigation phase of its work, use its discretion and experience to determine whether HVAC System Testing and Balancing is needed in order to properly assess the function of the existing HVAC System. Such HVAC System Testing and Balancing shall be performed by a qualified firm. It is not required that such firm be pre-qualified with DPMC, however a NJ Business Registration Certificate will be required.

As part of the design documents, the Consultant shall ensure that, following construction, the Contractor is required to hire a qualified HVAC Testing and Balancing firm, and such firm shall perform system tests to ensure that the HVAC system as installed performs as specified and designed. The design documents shall further require that the HVAC System Testing and Balancing firm shall produce a report setting forth its findings, adjustments, recommendations, and further that it shall certify that the HVAC system meets the design intent and will perform as specified and designed and that all equipment, i.e., fans, controls, dampers, and devices requiring adjustments or regulation are properly installed, thoroughly cleaned, adjusted, or regulated for proper operation and free from objectionable noise and vibration.

As part of Consultant's Construction Site Administration services, it will oversee the Contractor's work and their hiring of a HVAC System Testing and Balancing firm. The Consultant shall further ensure that any testing and balancing is performed in accordance with the current Association Air Balancing Council Standards or other State approved associations. Any system tests shall be observed and approved by the DPMC Project Manager and Code Group and a copy of the certified report and certification referred to above is to be provided to the DPMC Project Manager. The system shall be maintained by the maintenance personnel in accordance with the report data and operating manuals provided by the Contractor.

6. State Historic Preservation Office Approval

Consultant shall complete an "Application for Project Authorization Under the New Jersey Register of Historic Places Act" and submit it to the State Historic Preservation Office for review and approval prior to securing the required UCC permits.

The "Application for Project Authorization Under the New Jersey Register of Historic Places Act" can be found at: <https://dep.nj.gov/wp-content/uploads/hpo/docs/regulatory/application-project-authorization-nj-register.pdf>

Historic Preservation Regulations can be found at the following link:
<https://dep.nj.gov/hpo/tools/laws/>

7. Construction Documents

Consultant shall prepare construction documents to include, but not limited to, all repairs and/or replacements noted in the HVAC System Analysis, and the Consultant's own evaluation. The

Project must be in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

B. HAZARDOUS BUILDING MATERIALS

Consultant shall survey the building and related components and, if deemed necessary, collect samples of materials that will be impacted by the construction/demolition activities and analyze them for the presence of hazardous materials including:

1. Asbestos in accordance with N.J.A.C. 5:23-8, Asbestos Hazard Abatement Sub-code.
2. Lead in accordance with N.J.A.C. 5:17, Lead Hazard Evaluation and Abatement Code.
3. PCB's in accordance with 40 CFR 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions. Consultant shall engage a firm certified in the testing and analysis of materials containing PCB's.
4. Mold.

Consultant shall document the procedure, process and findings and prepare a "Hazardous Materials Survey Report" identifying building components impacted by construction activities requiring hazardous materials abatement. Consultant shall provide three copies of the "Hazardous Materials Survey Report" to the Project Manager.

Consultant shall estimate the cost of hazardous materials sample collection, testing, analysis and preparation of the Hazardous Materials Survey Report and include that amount in the fee proposal line item entitled "**Hazardous Materials Testing and Report Allowance**," refer to paragraph XIII.B.

Based on the Hazardous Materials Survey Report, Consultant shall provide construction documents for abatement of the hazardous materials impacted by the work in accordance with the applicable code, sub-code and Federal regulations.

Consultant shall estimate the cost to prepare construction documents for hazardous materials abatement and include that amount in the fee proposal line item entitled "**Hazardous Materials Abatement Design Allowance**," refer to paragraph XIII.C.

Consultant shall estimate the cost to provide "Construction Monitoring and Administration Services" for hazardous materials abatement activities and include that amount in the fee proposal line item entitled "**Hazardous Materials Construction Administration Allowance**," refer to paragraph XIII.D.

There shall be no "mark-up" of sub-consultant or subcontractor fees if sub-consultants or subcontractors are engaged to perform any of the work defined in paragraph VII.B "**Hazardous**

Building Materials.” All costs associated with managing, coordinating, observing and administrating sub-consultants and subcontractors performing hazardous materials sampling, testing, analysis, report preparation, hazardous materials construction administration services shall be included in the consultant’s lump sum fee proposal.

C. 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 three (3) 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:

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

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

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

D. 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.

- P0689-00 HVAC Sys Improvements
- P0978-00 Terminal Bldg Int Renovations

- Microbial Inspection & Testing Report, November 26, 2025, USA Environmental Management, Inc.
- P1089-00 Central Railroad of New Jersey Terminal Sandy Repair Study.
- P1107-00 Interior and MEP Restoration
- P1263-25 - CRRNJ Interior Wall Repair
- P1273-00 - CRRNJ Terminal Bldg. Window Rep

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.

VIII. 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:

<https://www.nj.gov/dca/codes/codreg/ucc.shtml>

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 following information should be provided for the permit application and technical sections to be submitted:

Ownership in Fee:

Department of Environmental Protection
501 East State Street
Trenton, 08625

Proposed work site:

Liberty State Park CRRNJ Terminal Building

Work site location:

CRRNJ Terminal Building
1 Audrey Zapp Dr., Jersey City, NJ 07305
Hudson County

Block 15904 Lot 15

The county MUST be listed in the address.

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

<https://www.nj.gov/dca/codes/resources/constructionpermitforms.shtml>

All other required project permits shall be obtained and paid for by the Consultant in accordance with the procedures described in Paragraph VIII.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; and Notification to Adjoining Property Owners with N.J.A.C. 5:23-2.17(c). 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 NJUCC 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:

https://www.nj.gov/dca/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 NJUCC.

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 DPMC "Procedures for Architects and Engineers Manual," Paragraph **"9. REGULATORY AGENCY APPROVALS"** 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.

IX. BIDDING AND CONTRACT AWARD RESPONSIBILITIES

The Bidding and Contract Award Phase commences with receipt of the required permits, UCC plan release and verification that funding is in place for construction. The Consultant shall refer to the DPMC “Procedures for Architects and Engineers Manual”, Paragraph “17. BIDDING AND CONTRACT AWARD” for all requirements for this phase available at <https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf>.

X. CONSTRUCTION ADMINISTRATION RESPONSIBILITIES

The A/E and their sub-consultants shall, unless otherwise specified in the project specific Scope of Work, provide site administration during the construction of the project. The services required of such site administration shall include, but shall not be limited to, attend and chair the pre-construction meeting, conduct weekly field observations, attend and chair regularly scheduled bi-weekly job meetings, review/approve shop drawings, submittals, and respond to RFI’s.

The Consultant shall refer to the DPMC “Procedures for Architects and Engineers Manual”, Paragraph “18. CONSTRUCTION PHASE” for all construction administration requirements available at <https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf>.

XI. PROJECT CLOSE-OUT PHASE

The DPMC Project Manager has the full responsibility for the planning, scheduling, and execution of project close-out activities. The A/E is responsible to cooperate with the DPMC Project Manager in the planning, scheduling, and execution of project close-out activities. The Consultant shall refer to the DPMC “Procedures for Architects and Engineers Manual”, Paragraph “19. PROJECT CLOSE-OUT PHASE” for all requirements available at <https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf>.

XII. ENERGY REBATE AND INCENTIVE PROGRAMS

The Consultant shall review any and all programs on the State and Federal level to determine if any proposed upgrades to the mechanical and/or electrical equipment and systems for this project qualify for approved rebates and incentives.

The Consultant shall review the programs available on the “New Jersey’s Clean Energy Program” website at: <http://www.njcleanenergy.com> as well as federal websites and New Jersey electric and gas utility websites to determine if and how they can be applied to this project.

The Consultant shall identify all applicable rebates and incentives in their technical proposal and throughout the design phase.

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.

XIII. 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 NJUCC permit) and include that amount in its fee proposal line item entitled “**Permit Fee Allowance.**” A breakdown of each permit and application fee shall be attached to the fee proposal for reference.

NOTE: The NJUCC 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.

Any funds remaining in the permit allowance will be returned to the State at the close of the project.

B. HAZARDOUS MATERIALS TESTING AND REPORT ALLOWANCE

The Consultant shall estimate the costs to complete the hazardous materials survey, sample collection, testing and analysis and preparation of a "Hazardous Materials Survey Report" noted in paragraph VII.B and enter that amount on the fee proposal line item entitled "**Hazardous Materials Testing and Report Allowance**," Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include, but not be limited to, the following information:

- Description of tasks and estimated cost for the following:
 - Sample collection;
 - Sample testing; and,
 - Preparation of a Hazardous Materials Survey Report.

Any funds remaining in the Hazardous Materials Testing and Report Allowance will be returned to the State at the close of the project.

C. HAZARDOUS MATERIALS ABATEMENT DESIGN ALLOWANCE

The Consultant shall estimate the costs to prepare construction documents for hazardous materials abatement noted in paragraph VII.B and enter that amount on the fee proposal line item entitled "**Hazardous Materials Abatement Design Allowance**." Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include a description of the tasks to be performed and the estimated cost of each task.

Any funds remaining in the Hazardous Materials Abatement Design Allowance will be returned to the State at the close of the project.

D. HAZARDOUS MATERIALS CONSTRUCTION ADMINISTRATION ALLOWANCE

The Consultant shall estimate the cost to provide Construction Monitoring and Administration Services for hazardous materials abatement as noted in paragraph **VII.B** and enter that amount on the fee proposal line item entitled “**Hazardous Materials Construction Administration Allowance.**” Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include a description of the tasks to be performed and the estimated cost of each task.

Any funds remaining in the Hazardous Materials Construction Administration Allowance will be returned to the State at the close of the project.

E. HISTORIC PRESERVATION ALLOWANCE

The consultant shall provide an allowance for a Historic Preservation Consultant, to evaluate the results of the Investigative Phase and Design Development phase documents to determine whether the proposed design will impact the building structure and provide consultative services to the HVAC Engineering consultant to address any questions that SHPO may ask. Such allowance shall be entered on the fee proposal line entitled “**Historic Preservation Allowance.**” The Consultant shall attach a detailed cost breakdown sheet for use by DPMC during the proposal review and potential fee negotiations. The cost breakdown sheet shall include a description of the tasks to be performed, including site visits, and the estimated cost of each task.

Any funds remaining in the Historic Preservation Allowance will be returned to the State at the close of the project.

PROJECT NAME: CRRNJ Terminal Building HVAC System Improvements
PROJECT LOCATION: Liberty State Park
PROJECT NO: P1388-00
DATE: July 29, 2026

XIV. 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 (including the subsequent contract deliverables and exhibits) and verifies that the work will not conflict with the existing or future construction activities of other projects at the site.

SOW PREPARED BY: Lucy Ibrahim 07/29/2026
LUCY IBRAHIM, PROJECT MANAGER DATE
DPMC PROJECT PLANNING & INITIATION

SOW APPROVED BY: James Wright 07/29/2026
JAMES WRIGHT, MANAGER DATE
DPMC PROJECT PLANNING & INITIATION

SOW APPROVED BY: Sergio Abreu 07/29/2026
SERGIO ABREU, PROJECT MANAGER DATE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOW APPROVED BY: Joelle Hansbury 7/30/26
JOELLE HANSBURY, PROJECT MANAGER DATE
DPMC PROJECT MANAGEMENT GROUP

SOW APPROVED BY: Jeanette M. Barnard 10.16.26
JEANETTE M. BARNARD, DEPUTY DIRECTOR DATE
DIV PROPERTY MGT & CONSTRUCTION

XV. CONTRACT DELIVERABLES

The following are checklists listing the 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,” 3.0 Edition, dated September 2022 available at <https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf> for a detailed description of the deliverables required for each submission item listed. References to the applicable paragraphs of the “Procedures for Architects and Engineers” are provided.

Note that the Deliverables Checklist may include submission items that are “S.O.W. Specific Requirements.” These requirements will be defined in the project specific scope of work and included on the deliverables checklist.

This project includes the following phases with the deliverables noted as “Required by S.O.W” on the Deliverables Checklist:

INVESTIGATE DESIGN PHASE;

DESIGN DEVELOPMENT PHASE;

FINAL DESIGN PHASE;

PERMIT APPLICATION PHASE;

BIDDING AND CONTRACT AWARD;

CONSTRUCTION PHASE; and

PROJECT CLOSE-OUT PHASE

XVI. EXHIBITS

- A. SAMPLE PROJECT SCHEDULE FORMAT**
- B. PROJECT SITE LOCATION MAP**
- C. CRRNJ TERMINAL BUILDING HVAC ANALYSIS STUDY 11-24-25**
- D. EXISTING PHOTOS**
- E. APPLICATION FOR PROJECT AUTHORIZATION UNDER THE NEW JERSEY REGISTER OF HISTORIC PLACES ACT**

END OF SCOPE OF WORK

Deliverables Checklist Investigate Design Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
13.4.1.	A/E Statement of Site Visit						
13.4.2.	Narrative Description of Project						
13.4.3.	Building Code Information Questionnaire						
13.4.4.	Space Analysis						
13.4.5.	Special Features						
13.4.6.	Catalog Cuts						
13.4.7.	Site Evaluation						
13.4.8.	Subsurface Investigation						
13.4.9.	Surveys						
13.4.10.	Arts Inclusion						
13.4.11.	Design Rendering						
13.4.12.	Regulatory Approvals						
13.4.13.	Utility Availability						
13.4.14.	Drawings (6 Sets)						
13.4.15.	Specifications (6 Sets)						
13.4.16.	Current Working Estimate/Cost Analysis in CSI Format						
13.4.17.	Project Schedule						
13.4.18.	Formal Presentation						
13.4.19.	Scope of Work Compliance Statement						
13.4.20.	Schematic Design Phase Deliverables Checklist						
S.O.W. Reference	S.O.W. Specific Requirements						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC the status of all the deliverables required by the project specific Scope of Work.

Consultant Signature

Date

Deliverables Checklist Design Development Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
14.4.1.	A/E Statement of Site Visit						
14.4.2.	Narrative Description of Project						
14.4.3.	Building Code Information Questionnaire						
14.4.4.	Space Analysis						
14.4.5.	Special Features						
14.4.6.	Catalog Cuts						
14.4.7.	Site Evaluation						
14.4.8.	Subsurface Investigation						
14.4.9.	Surveys						
14.4.10.	Arts Inclusion						
14.4.11.	Design Rendering						
14.4.12.	Regulatory Approvals						
14.4.13.	Utility Availability						
14.4.14.	Drawings (6 Sets)						
14.4.15.	Specifications (6 Sets)						
14.4.16.	Current Working Estimate/Cost Analysis in CSI Format						
14.4.17.	Project Schedule						
14.4.18.	Formal Presentation						
14.4.19.	Plan Review/Scope of Work Compliance Statement						
14.4.20.	Design development Phase Deliverables Checklist						
S.O.W. Reference	S.O.W. Specific Requirements						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC the status of all the deliverables required by the project specific Scope of Work.

Consultant Signature

Date

Deliverables Checklist Final Design Phase

A/E Name: _____

A/E Manual Reference	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
		Yes	No	Yes	No	Yes	No
15.4.1.	A/E Statement of Site Visit						
15.4.2.	Narrative Description of Project						
15.4.3.	Building Code Information Questionnaire						
15.4.4.	Space Analysis						
15.4.5.	Special Features						
15.4.6.	Catalog Cuts						
15.4.7.	Site Evaluation						
15.4.8.	Subsurface Investigation						
15.4.9.	Surveys						
15.4.10.	Arts Inclusion						
15.4.11.	Design Rendering						
15.4.12.	Regulatory Approvals						
15.4.13.	Utility Availability						
15.4.14.	Drawings (6 Sets)						
15.4.15.	Specifications (6 Sets)						
15.4.16.	Current Working Estimate/Cost Analysis in CSI Format						
15.4.17.	Project Schedule						
15.4.18.	Formal Presentation						
15.4.19.	Plan Review/Scope of Work Compliance Statement						
15.4.20.	Final Design Phase Deliverables Checklist						
S.O.W. Reference	S.O.W. Specific Requirements						

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC the status of all the deliverables required by the project specific Scope of Work.

Consultant Signature

Date

A/E Name: _____

[illegible]

This checklist shall be completed by the Design Consultant and included as the cover sheet of this submission to document to the DPMC Project Manager the status of all the deliverables required by the project specific Scope of Work.

Consultant Signature

Date _____

[illegible]

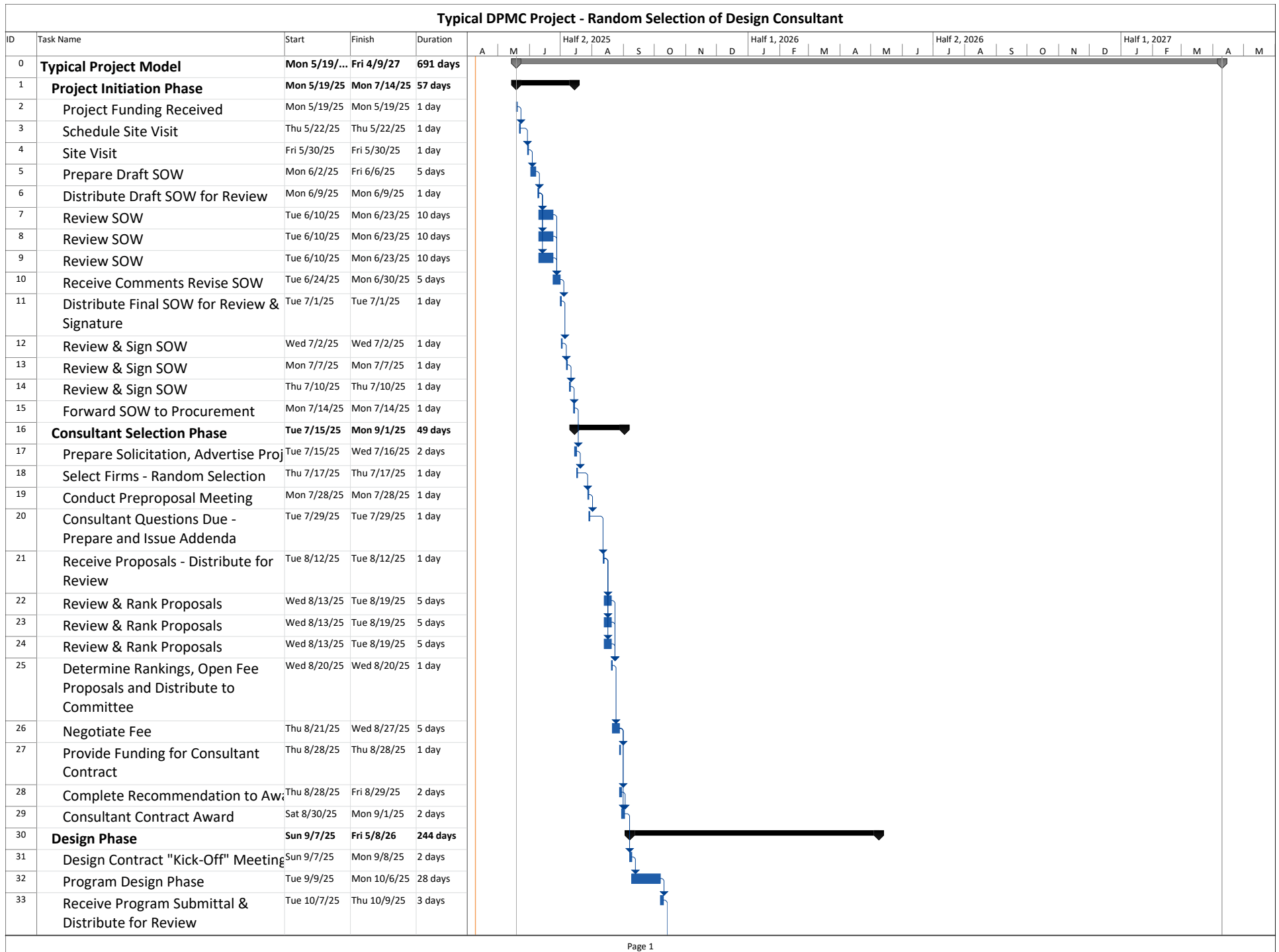
Date

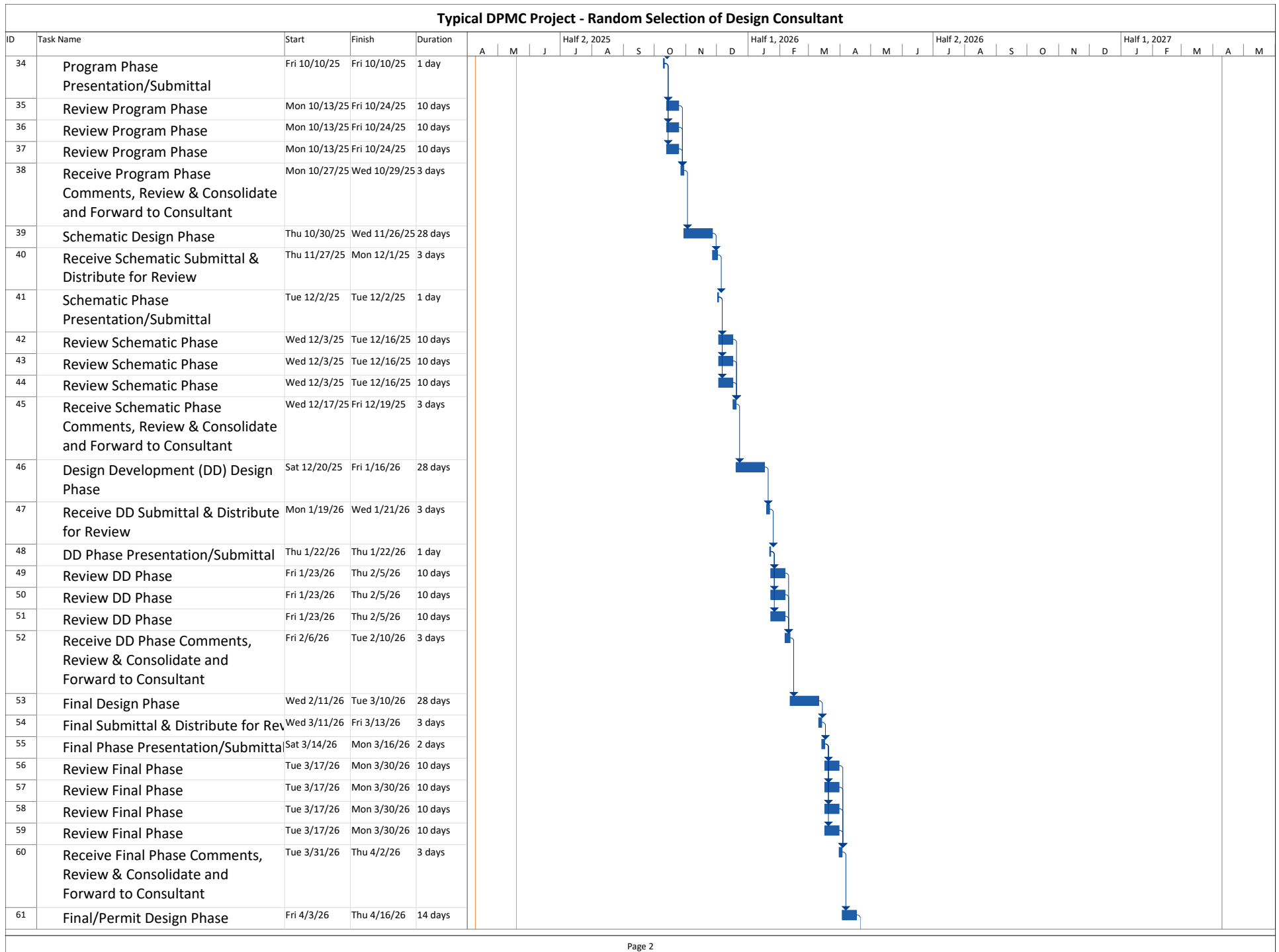
[illegible]

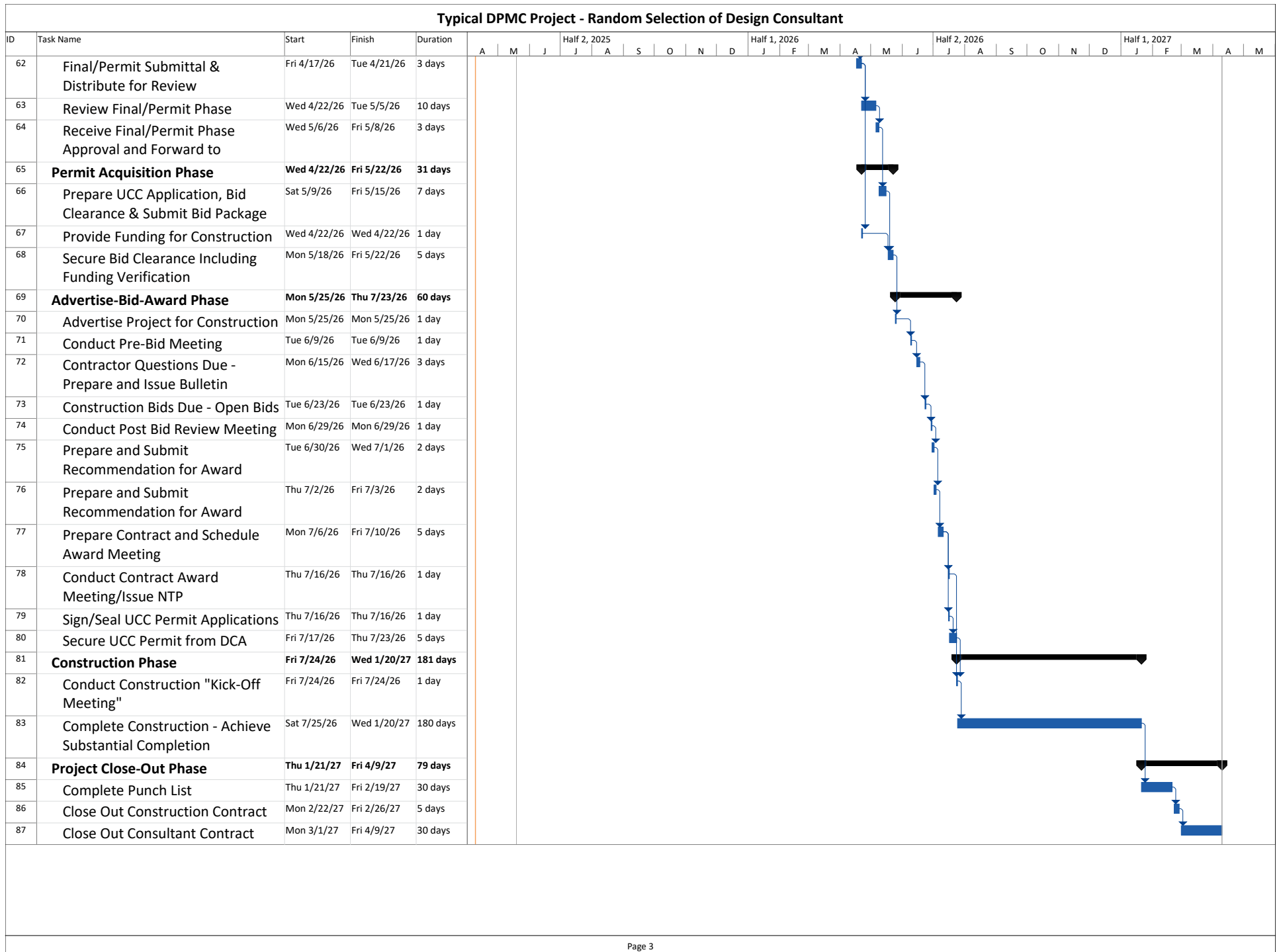
Date _____

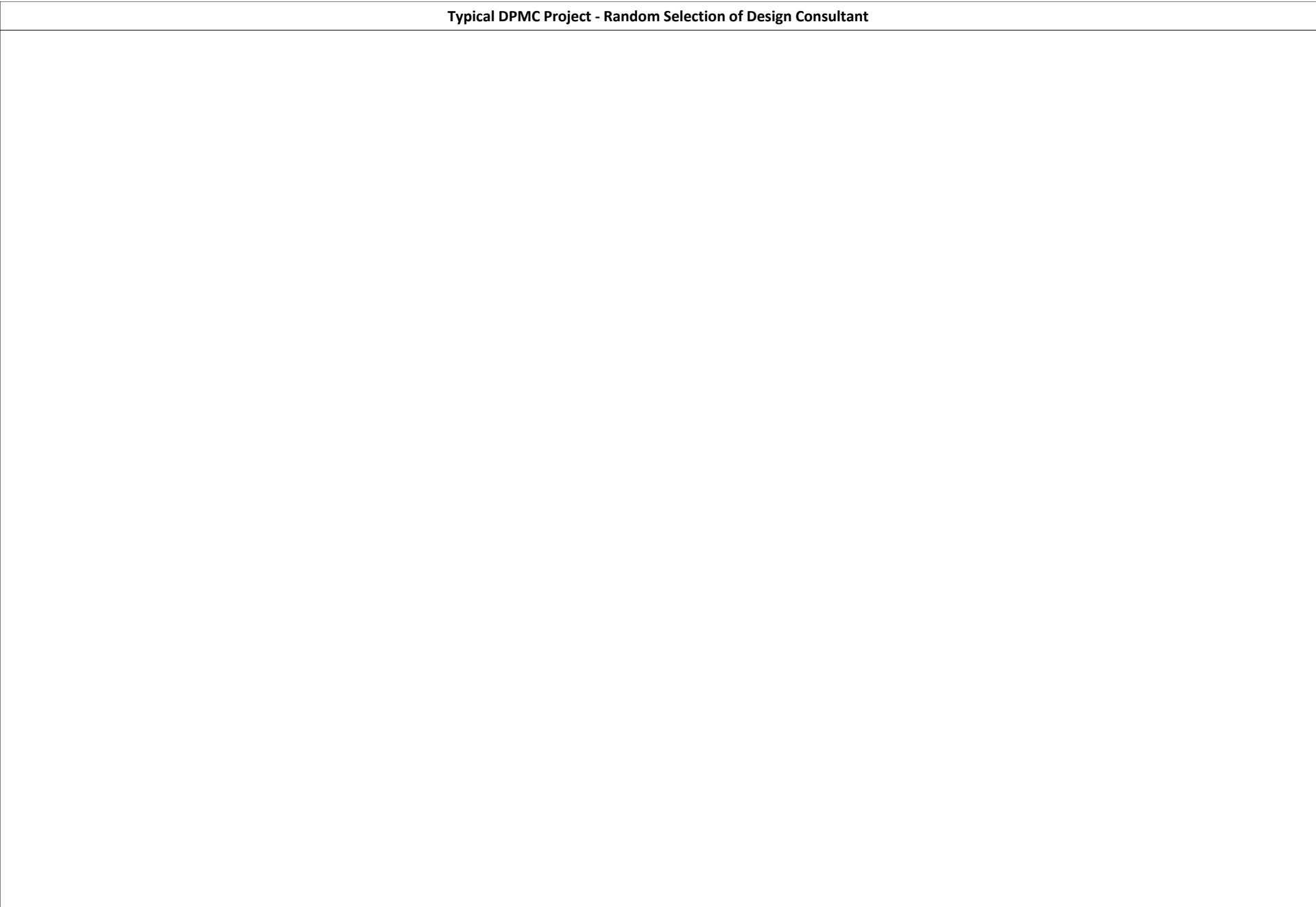
[illegible]

Date









Project: Typical Project Model Date: Wed 4/9/25	Task		Summary		External Milestone		Inactive Summary		Manual Summary Rollup		Finish-only	
	Split		Project Summary		Inactive Task		Manual Task		Manual Summary		Deadline	
	Milestone		External Tasks		Inactive Milestone		Duration-only		Start-only		Progress	

EXHIBIT 'A'

Liberty State Park

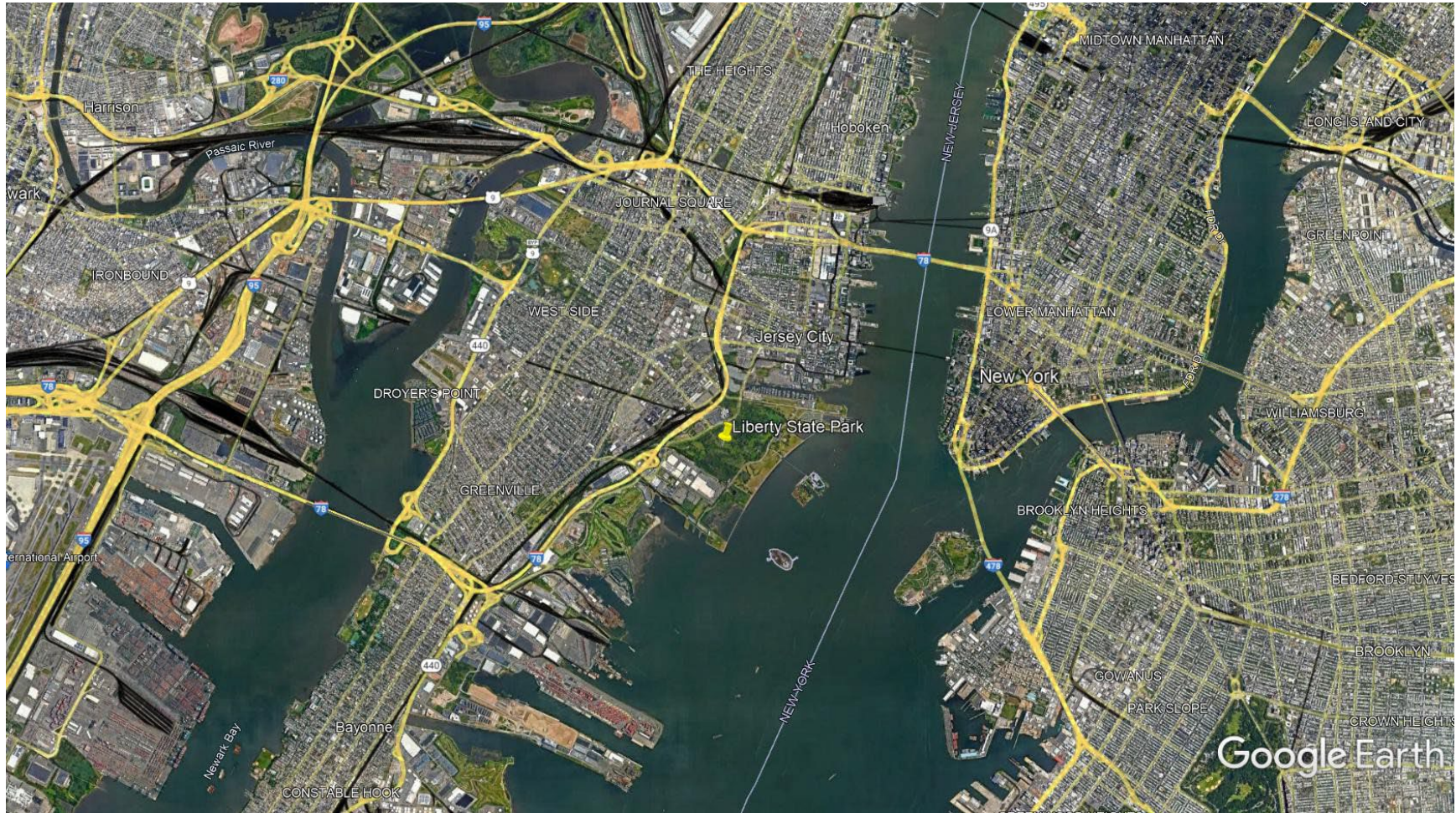


EXHIBIT 'B'

Liberty State Park

CRRNJ Terminal Building

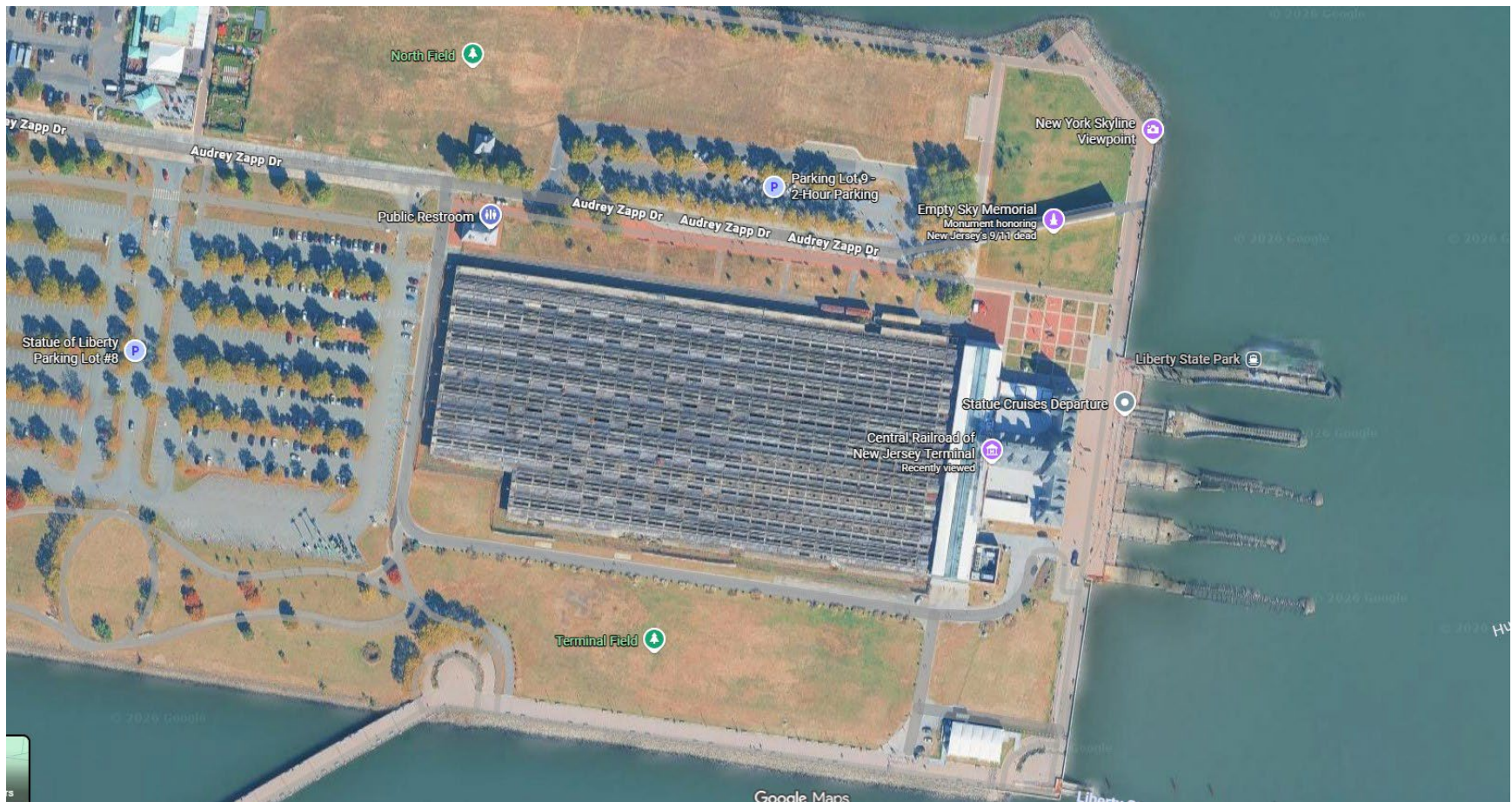


EXHIBIT 'B'

Liberty State Park CRRNJ Terminal Building



EXHIBIT 'B'



Central Railroad of New Jersey Terminal (CRRNJ)
Liberty State Park
NJ Department of Environmental Protection (NJDEP)
HVAC System Analysis
S&H Project 2560A
Date: November 25, 2025

Background Information:

S&H was contracted by USA Environmental Management, Inc. to perform an HVAC system analysis due to existing onsite air quality issues, including high humidity and microbial growth both in the lined ductwork and also on interior building surfaces.

S&H performed a visual walk-thru on Wednesday, November 5, 2025. At the conclusion of the walk-thru, we discussed the existing HVAC systems with a Core Mechanical technician who was onsite. The HVAC control system computer was not accessible on the day of our site visit due to a login issue. A select number of screen shots were sent prior to the site visit and are included in an Appendix to this report for reference.

Based on a number of drawing sets found onsite, the HVAC systems appear to have been upgraded in the building via the following projects. Pictures were taken of the partial sets of drawings, as no full drawing sets were available for our review.

- DBC Project #P0689-00, Mechanical & Program Improvements, March 2003. Project completion appears to have been around 2006.
- HVAC controls drawings dated 2/9/2016 by A&B Engineering.
- DPMC Project #P1238-00, Auditorium AHU Replacement (RTU-10N), 2016.
- HVAC controls drawings dated 9/2/21 by M.C. Controls, Inc.

A comprehensive set of documents should be compiled for the building's renovation projects over the past 25 years, including the recent window repair/replacement project that is in the close-out phase. All of these documents are needed to fully assess the project for future engineering design.

The intent of this report is to develop a recommended scope of work and rough order-of-magnitude construction cost in order to address the humidity issues within the building. This report does not address the existing HVAC internal insulation microbial growth remediation work – see USA Environmental's report for duct cleaning.

Existing Conditions:

The HVAC central plant system consists of an outdoor, air-cooled chiller with integral chilled water pumps and a condensing hot water boiler system with multiple zone pumps. The chilled

EXHIBIT 'C'

November 25, 2025

Page 2

water hydronic piping appears to be a glycol/water mix. The boiler system consists of (2) Aerco Benchmark 3000 boilers along with (2) hydronic loops with water and (1) hydronic loop with a glycol/water mix. The percentage of glycol is not known in any of the chilled and hot water systems, but should be verified.



Picture 1: Air cooled chiller on elevated platform in exterior enclosure.



Picture 2: Air cooled chiller nameplate



Picture 3: Existing boilers



Picture 4: Existing boiler pump VFDs

The smaller spaces are served by 4-pipe fan/blower coil (FCU) style units that appear to date to 2005 based on the nameplate & serial number information. The sequence of operations in the HVAC controls book onsite and the original contract drawings from P0689-00 do not mention a dehumidification sequence. Screen shots from the HVAC controls show the hot water coils in the pre-heat position compared to the chilled water coils. However, the P0689-00 drawings show the heating coil in the re-heat position compared to the chilled water coil, which matches what is installed in the field. Neither the drawings nor the controls screens show outside air or return air dampers. Based upon field review, the individual fan coil units do not appear to have outside air or return air dampers. They do appear to be manual volume dampers on the outside air ducts. The majority of the FCUs appear to have water damage at the bottom of their unit-mounted control panels. Further, a number of FCUs have condensate pipes that are lacking insulation.

EXHIBIT 'C'

November 25, 2025

Page 3



Picture 5: Typical FCU



Picture 6: Typical FCU control panel



Picture 7: Typical FCU plenum return grill



Picture 8: Condensate pipe without insulation below FCU

There is also fin tube radiation that is located below exterior windows. These radiators appear to only be controlled by local Danfoss manually controlled hot water valves. The windows in the building were recently replaced/repared/retrofitted.

EXHIBIT 'C'

November 25, 2025

Page 4



Picture 9: Typical fin tube radiator



Picture 10: Typical fin tube radiator Danfoss valve

The larger spaces are served by a combination of indoor air handling units (AHUs) and roof top units (RTUs). The indoor AHUs and outdoor RTUs appear to date to 2005 based on the nameplate & serial number information, except for RTU-10N that was replaced in the 2016 P1238-00 project. The RTU-10N control diagram in the P1238-00 drawings and the 2016 controls shop drawing show the hot water coil as a pre-heat coil compared to the chilled water coil; however, the actual field configuration has the hot water coil in the re-heat position compared to the chilled water coil. The indoor AHUs and RTUs all have the hot water coil in the re-heat position compared to the chilled water coil. The RTUs, including RTU-10N, have outside air and return air damper actuators. However, the indoor AHUs do not appear to have any outside air or return air damper actuators. In fact, the indoor AHUs appear to only have manual volume dampers on the outside air ducts.



Picture 11: RTU-10N



Picture 12: RTUs and EF on roof

EXHIBIT 'C'

November 25, 2025

Page 5



Picture 13: Typical indoor AHU



Picture 14: Typical wood slat grills for supply and return in the main hall space

There are a number of 3rd floor locations where the insulation is displaced or missing from the ceiling to the attic. Above the FCU-3-3 & FCU-3-4 areas have missing insulation – see picture 15 below. Also, the space above the Server Room is missing insulation.

The hot water and chilled water insulation was reviewed in a number of select locations. The hot water fiberglass insulation appears to be adequate. However, the chilled water insulation appears to be inadequate at 1" thickness.

The existing thermostats appear to be manual dial override type and are mounted well above accessible height of 48".



Picture 15: Missing or incorrectly installed insulation in the attic



Picture 16: Typical manual thermostat

EXHIBIT 'C'

November 25, 2025

Page 6

A general review of the HVAC systems by the onsite HVAC maintenance contractor, CORE Mechanical, noted a number of general issues:

1. Select HVAC units have plenum return above ceilings with batt insulation, which does not comply with code. After a review of the pictures of the drawings, it appears most units are ducted returns. Verification in field via a detailed field survey and review of the plans would be required.
2. The chilled water bypass control valve in the mechanical room is not able to maintain correct pressure & flow in the system.
3. All the units have 2-way valves, except for the AHUs which have bypass valves, but they only bypass the control valves, which is still a 2-way setup. Introducing 3-ways valves will help with system flow and pressure.
4. The exhaust fans are not on the HVAC control system (S&H could not verify, as the control system was not accessible the day of the site visit).

Existing HVAC System Analysis:

The current HVAC system engineering design did not incorporate any humidity control. Hence, there are high humidity levels in the building and noticeable condensation on HVAC unit controllers and also on the chilled water piping. See USA's report for information on the interior duct lining.

The current control sequence of operation does not have a dehumidification sequence. While this would increase energy use, sub-cooling the air, then re-heating it would allow for moderate dehumidification of the air, especially on moderate outside air temperature days that are high in humidity (60-70F & raining). In order to introduce such a sequence, the fan motors would need to be verified to be inverter duty rated (or replaced with inverter duty rated motors) and new VFDs added, as the energy code only allows up to 50% of the air to be re-heated for such a sequence with hot water. This sequence would also require the boiler system to run in the summer at a reduced supply temperature (~120F) for the main unit heating loops.

The outside air dampers are not controlled on the FCUs and AHUs. This results in outside air delivery to all units regardless of the mode of the HVAC system. So, in an unoccupied mode at night, when there is a call for heat or cooling, the fans will run and outside air will still be delivered.

The chilled water bypass control valve in the mechanical room is not able to maintain correct pressure in the system. After review, S&H determined the chilled water bypass is not in the correct location – there should be a bypass at the 2/3 point downstream of the chiller pumps. The bypass line in the mechanical room is too close to the chiller. Multiple bypass lines may be required based on the routing of the piping through the building. In addition, converting multiple larger AHUs and RTUs to 3-way control valves would allow for better system pressure and flow and may negate the need for a bypass line/control valve.

EXHIBIT 'C'

November 25, 2025

Page 7

The thermostats are temperature sensors only and do not comply with the maximum 48" accessible height for stats that have the ability to be adjusted. The stats should be lowered and replaced with stats that have temperature, humidity and CO2 sensing. CO2 sensing could also be added to the return by the unit in order to capture air from multiple spaces served by larger units. Demand control ventilation via CO2 sensing could be added to allow for outside air dampers to be put in a minimum open position during occupied mode, instead of in the full ventilation outside air balanced CFM position based on IMC 2021 section 403.

The exhaust fans should be added to the HVAC control system and should only be run when the system is in occupied mode and the associated supply unit is operating. If the exhaust fans are running 24x7, then this would create a negative pressure in sections of the building, which would allow for infiltration of humid air.

The chilled water piping insulation should be replaced with proper thickness insulation in order to prevent condensation. Closed cell elastomeric insulation could be considered in order to accommodate the insulation thickness expansion issues due to the limited pipe space. Exterior piping insulation should also be reviewed as a lot of the aluminum-clad insulation has been crushed due to maintenance access to the units. Replacement is recommended along with adding maintenance stairs/platforms to access units without crawling over the piping.

Properly adding & reinstalling ceiling/attic insulation with vapor barriers and code-required R-values will help in reducing the HVAC loads and will reduce air infiltration from humid spaces.

The HVAC control system should be updated in terms of the Honeywell WEB600 head-end supervisory controller to a newer JACE system. The sequence of operation will need to be updated to incorporate the dehumidification sequence, control of the added supply fan VFDs, temperature/humidity sensors, CO2 sensors, outside air damper controls, summer boiler operation for re-heat sequence, new unit valves and chiller water bypass control. Unit controllers may need to be replaced in order to incorporate the additional points required for the various new sequences. Also, all graphics should be updated to reflect the hot/chilled water coil configurations in each unit, as well as 2 & 3-way valves and added dampers. The current graphics do not reflect the existing unit configurations.

Refer to USA's report for the duct cleaning requirements.

While most of the systems are about 22 years old, with replaced supply fans & new VFDs, the FCUs, AHUs and RTUs should last at least another 10-15 years. While it would be more ideal to replace the equipment, given the progressed age, the cost would probably be prohibitive based on the limited goals of this study.

Based on the serial number, it appears the chiller dates to 2015, so it is about 10 years old. The average service life for an air-cooled chiller is 20 years. The chiller has R-410a refrigerant. Chiller replacement is therefore not recommended until about 2035. If the chiller is replaced, a short circuit analysis is required to verify the minimum SCCR of the machine; the current SCCR is 5kA, which is too low given the distance to the main electrical service.

EXHIBIT 'C'

November 25, 2025

Page 8

The boilers are Aerco Benchmark 3000 condensing style boilers and appear to be much newer than 2006 or 2016. However, no boiler replacement project drawings were found. The average service life for condensing style boilers is 25 years. Therefore, the boilers should remain existing.

Recommendation Scope of Work:

The project scope of work should incorporate the HVAC analysis above and engineering design, including, but not limited to the following:

1. Compile all the MEP renovation project drawings since 2000 in order to fully be able to analyze the HVAC systems.
2. HVAC computerized load analysis of the building. Since the windows have been recently replaced and occupancy may be different than the original design, the loads should be recalculated to verify equipment sizing. The code-required outside air ventilation should be re-calculated for each space based on the IMC 2021 section 403.
3. Confirm HVAC unit sizing based on load and ventilation calculations. Provide updated HVAC drawings with CFM and gpm for all FCU, AHU, RTU and EF ductwork, diffusers and piping systems. This will be required for the correct TAB work at the conclusion of construction.
4. Field verify all insulation in ceilings / accessible locations. Replace and/or reinstall and/or add new insulation per code.
5. Replace all chilled water piping insulation inside the building and on the roof serving the RTUs. Replace hot water insulation & jacket on the roof serving the RTUs. Add in stairs/platforms to allow for access to the RTUs without climbing over the hydronic lines. Add in condensate pipe insulation where missing.
6. Eliminate the chilled water bypass & control valve in the mechanical room. Add in additional bypass lines at the 2/3 points of the chilled water piping systems to allow for proper VFD control for the chilled water pumps. Alternatively, provide sufficient 3-way valves for minimum and proper chilled water system flow and pressure.
7. Upgrade the existing JACE web-based HVAC control system, including supervisory and unit controllers (FCU, AHU and RTU), as required to accommodate the new equipment and sequences of operation. Update all graphics screens.
8. Existing FCUs:
 - a. Add in outside air and return air dampers with actuators.
 - b. Verify if the supply fans are inverter duty rated. If not, replace the supply fans.
 - c. Add new VFDs to control the supply fans.
 - d. Replace the hot and chilled water control valves with 2 or 3 way valves, as required based on the minimum flow rate of the hot and chilled water systems.
 - e. Install new temperature/humidity/CO2 sensors for each unit.

EXHIBIT 'C'

November 25, 2025

Page 9

9. Existing AHUs:

- a. Add in outside air and return air dampers with actuators.
- b. Verify if the supply fans are inverter duty rated. If not, replace the supply fans.
- c. Add new VFDs to control the supply fans.
- d. Replace the hot and chilled water control valves with 3-way valves.
- e. Install new temperature/humidity/CO2 sensors for each unit.

10. Existing RTUs:

- a. Replace the hot and chilled water control valves with 3-way valves.
- b. Install new temperature/humidity/CO2 sensors for each unit.

11. Existing Exhaust Fans:

- a. Add control of all exhaust fans to the HVAC control system. Incorporate a new sequence of operations for these exhaust fans.

12. Balancing:

- a. Provide air and water side re-balancing of all the HVAC systems.

Probable Construction Cost:

The following is a rough order-of-magnitude construction cost estimate (CCE) for the above scope of work, not including the air-cooled chiller replacement:

<u>Work Description</u>	<u>Estimated Cost</u>
Chilled water insulation replacement:	\$250,000
Hot water piping insulation replacement on roof:	\$50,000
FCU upgrades (21):	\$315,000
AHU upgrades (7):	\$140,000
RTU upgrades (2 – does not include RTU-10):	\$50,000
Add EFs to HVAC controls:	\$50,000
Chilled water bypass(es):	\$30,000
Replace / add ceiling insulation:	\$75,000
HVAC controls upgrade:	\$200,000
Air and water balancing:	<u>\$50,000</u>
Sub-Total:	\$1,210,000
Preliminary design contingency (20%)	<u>\$242,000</u>
Total CCE:	\$1,452,000

See attached the DPMC-38 with the current working estimate of \$1,982,640.

End of HVAC System Analysis Report.

EXHIBIT 'C'

Appendix A

DPMC 38

EXHIBIT 'C'

PROJECT COST ANALYSIS		DPMC NUMBER: <u>N/A</u>
Date: <u>11/24/2025</u>		
Project Name: <u>HVAC Humidity Remediation Project</u>		Project Phase: <u>Scope of Work</u>
Location: <u>Central Railroad of NJ Terminal Building, Liberty State Park</u>		
Cost Phase "C" - Construction		
1 General Construction	<u>75,000</u>	
2 Structural Steel	<u>0</u>	
3 Plumbing	<u>0</u>	
4 HVAC	<u>1,277,000</u>	
5 Electrical	<u>100,000</u>	
6.a Other Trades (specify): _____	<u> </u>	
6.b Other Trades (specify): _____	<u>0</u>	
7 TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)		<u>1,452,000</u>
Cost Phase "D" - Design		
8 Consultant Design Fee	<u>130,000</u>	
9 Consultant Construction Administration Fee	<u>95,000</u>	
10 Asbestos Remediation Design Fee	<u> </u>	
11 Asbestos Monitoring Fees	<u> </u>	
12 Survey Services	<u>0</u>	
13 Testing Services	<u> </u>	
14 Roofing Inspection	<u>0</u>	
15 Other (specify): _____	<u> </u>	
16 TOTAL DESIGN SERVICES (Lines 8 thru 15)		<u>225,000</u>
Cost Phase "K" - Affirmative Action		
17 Affirmative Action (1/2 % of Line 7)		<u>0</u>
Cost Phase "M" - Management Fees		
18 DPMC Management Fee (8% of Line 7)		<u>116,160</u>
Cost Phase "N" - Construction Management		
19 Construction Management Services (CM/CPM)		<u>0</u>
Cost Phase "O" - Contingency		
20 Construction (10% of Line 7)	<u>145,200</u>	
21 Design (10% of Line 16)	<u>22,500</u>	
22 TOTAL PROJECT CONTINGENCY (Lines 20 & 21)		<u>167,700</u>
Cost Phase "P" - Permits		
23 U.C.C. (DCA or DPMC) Plan Review Fee	<u>10,890</u>	
24 U.C.C. Permit/Field Inspection/C.O. Fee	<u>10,890</u>	
25 Soil Conservation	<u>0</u>	
26 Other (specify): _____	<u>0</u>	
27 TOTAL PERMIT FEES (Lines 23 thru 26)		<u>21,780</u>
Cost Phase "R" - Arts Inclusion		
28 Arts Inclusion Allowance		<u>0</u>
Cost Phase "B" - Other Costs		
29 Other (specify): _____	<u>0</u>	
30 Other (specify): _____	<u>0</u>	
31 TOTAL OTHER COSTS (Lines 29 & 30)		<u>0</u>
32 CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)		<u>\$1,982,640</u>

Appendix B

HVAC Controls Screen Shots

EXHIBIT 'C'

Central Railroad of New Jersey

10/14/25 14:04 EDT

Home

Second Floor

Third Floor

14 Unacknowledged Alarms

First Floor

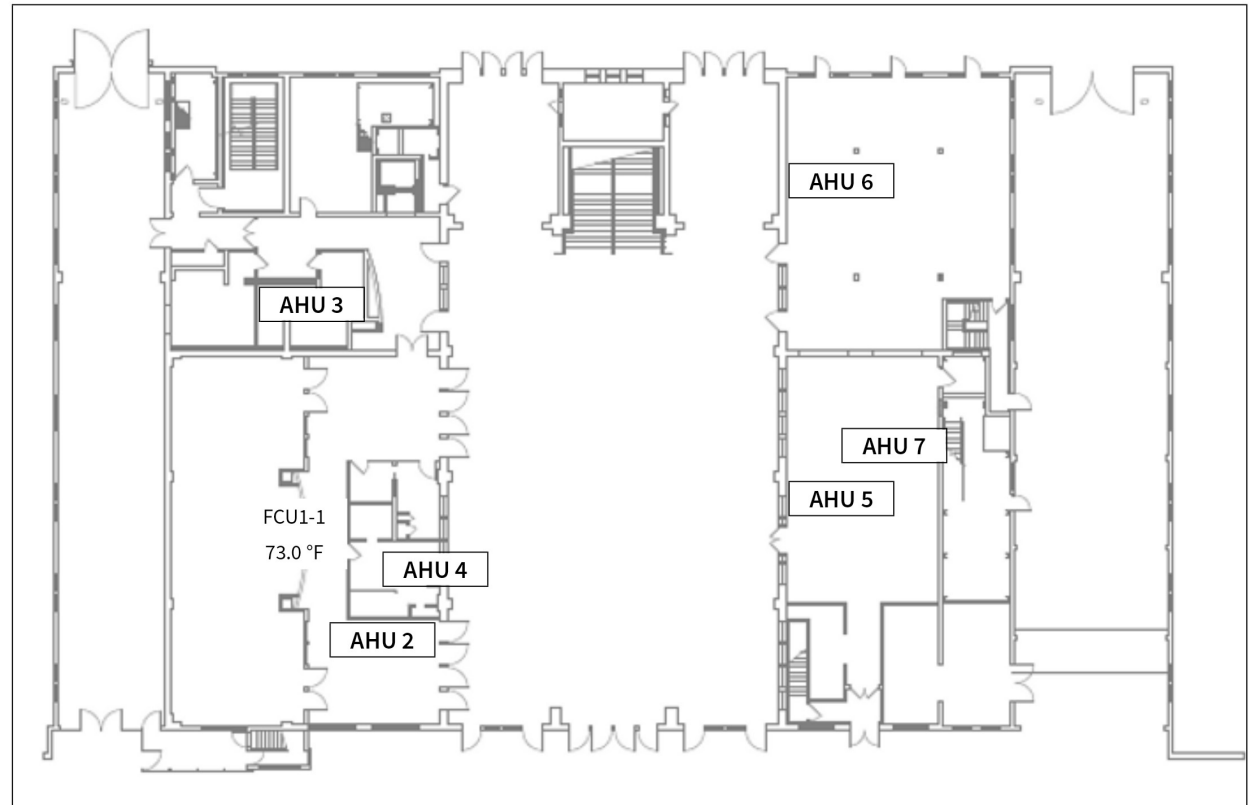


EXHIBIT 'C'

Central Railroad of New Jersey

10/14/25 14:05 EDT

Home

First Floor

Third Floor

14 Unacknowledged Alarms

Second Floor

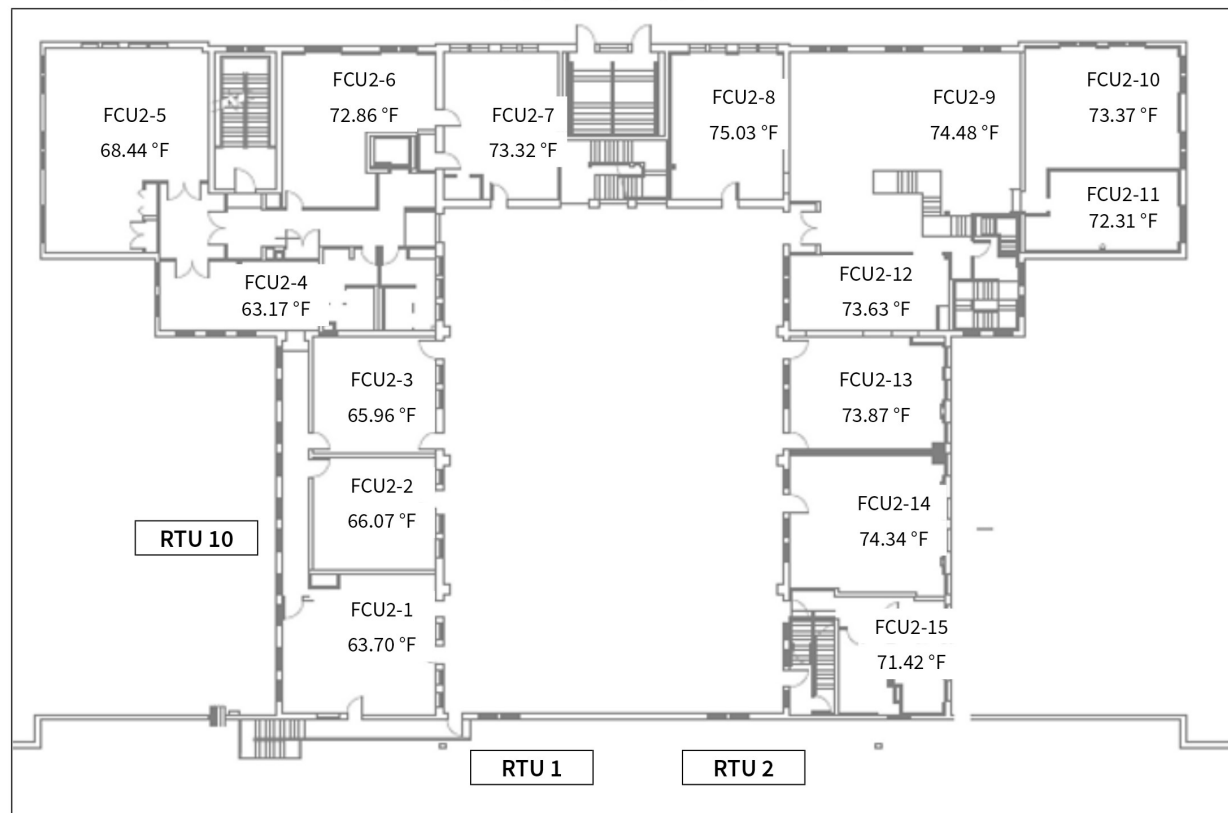


EXHIBIT 'C'

Central Railroad of New Jersey

10/14/25 14:06 EDT

 Home

First Floor

Second Floor

14 Unacknowledged Alarms

Third Floor

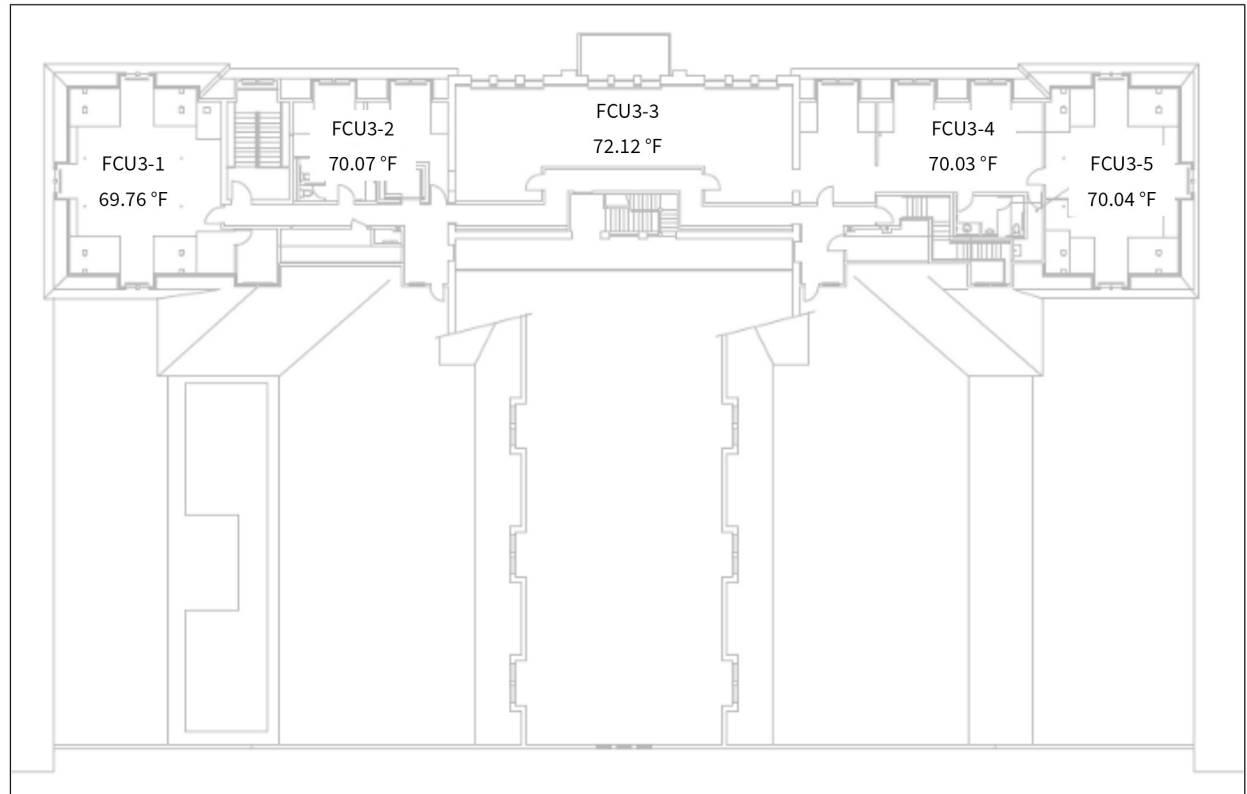


EXHIBIT 'C'

AHU 3

 Home

First Floor

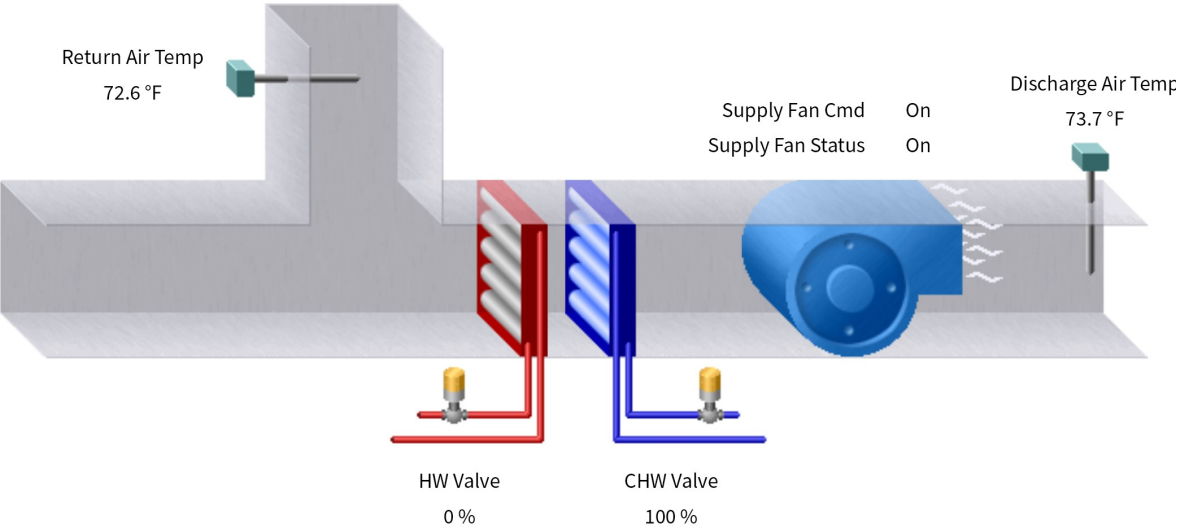
Second Floor

Third Floor

Save

Return Temp 72.6 °F
Return Setpoint 71.0 °F

Filter Normal
Freezestat Normal



FCU1-1

- Home
- First Floor
- Second Floor
- Third Floor

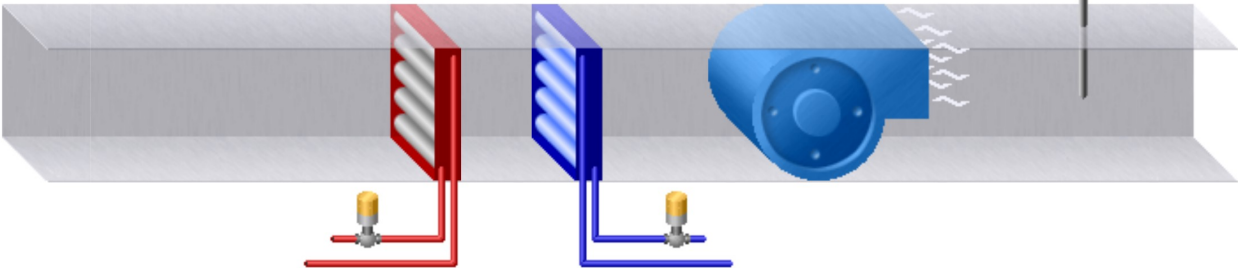
Occupancy Occupied

Save

Space Temp 73.1 °F
Effective Setpoint 70.38 °F
W/C adjust -1.62 °F
Space Setpoint 72.00 °F

Outdoor Air Damper
100 %

Fan Command On
Fan Status On
Supply Temp 73.6 °F



Freezestat Normal

HW Valve
0 %

CHW Valve
100 %

RTU 10

 Home

First Floor

Second Floor

Third Floor

Occupancy Occupied

RA Space Setpoint 68.00 °F
Return Air Temp 66.07 °F
Return Air CO2 396.24 ppm

Occ Clg Setpoint 70.00 °F
Occ Htg Setpoint 65.00 °F
Unocc Clg Setpoint 84.99 °F
Unocc Htg Setpoint 59.99 °F
OA Clg Lockout 35.00 °F
OA Htg Lockout 70.00 °F

Outdoor Air Temp 66.20 °F
Outdoor Air CO2 405.20 ppm

Return Damper
80.00 %

Mixed Air Temp
63.50 °F

Fan Command On
Fan Status On

Discharge Air Temp
65.41 °F

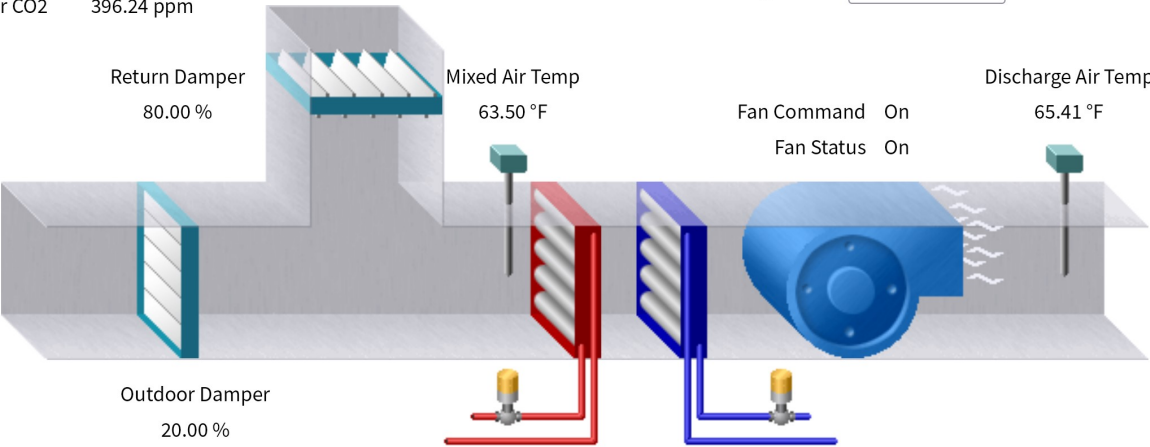
Outdoor Damper
20.00 %

Freezestat Normal
Filter Status Clean
Oa Min Damper Set 20.00
MA Lo Limit Setpoint 45.00 °F
Co2 Setpoint 600.00 ppm
OA Econ Lockout Setp 50.00 °F

HW Valve
0.00 %

CHW Valve
0.00 %

SF Setpoint 70.00 %



Chilled Water System

 Home

Save

CHW Supply Temp 63.8 °F
CHW Return Temp 64.1 °F

CHW Bypass Valve

CHW Diff Pressure 2.04 psi
CHW Diff Pressure Setpoint psi
CHW Bypass Valve 0 %

Exhaust Fan

Space Temp 80.8 °F
Space Temp Setpoint °F
EF Status Off
EF Low Speed Enable Off
EF High Speed Enable On
EF Damper Open
Gooseneck Damper Open



Chiller Controller Points

Chiller Enable/Disable	Outdoor Air	Outdoor Air Temp	66.3 °F
ON.OFF_Command	Chiller ON	Outdoor Air Stpt	45.0 °F
ON.OFF_STAT	Chiller ON		
SYS_ECHW	60.6 °F	M1-1_RUN_STAT	Off
SYS_LCHW	58.2 °F	M1-2_RUN_STAT	Off
UPSETPT_SV	54.0 °F	M1_COMM_ERR	Normal
LOWSETPT_SV	44.0 °F	M1_FAN_STATUS	Off
M1_LCHW	57.3 °F	M2-1_RUN_STAT	Off
M1_SUCT	59.7 °F	M2-2_RUN_STAT	Off
M1_VFD	0 %	M2_COMM_ERR	Normal
M2_LCHW	57.3 °F	M2_FAN_STATUS	Off
M2_SUCT	60.4 °F	M3-1_RUN_STAT	Off
M2_VFD	0 %	M3-2_RUN_STAT	Off
M3_LCHW	57.5 °F	M3_COMM_ERR	Normal
M3_SUCT	64.0 °F	M3_FAN_STATUS	Off
M3_VFD	0 %	M4-1_RUN_STAT	Off
M4_LCHW	57.5 °F	M4-2_RUN_STAT	Off
M4_SUCT	64.0 °F	M4_COMM_ERR	Normal
M4_VFD	0 %	M4_FAN_STATUS	Off
HILCHW_SET	70.0 °F	LOW_GLYCOL	Normal
HE_SETPT	45.0 °F	HILCHW_TEMP	Normal
CHW_FLOW	Fault	HE_COMM_ERR	Normal

Hot Water System

[Home](#)Outdoor Air Temp
66.3 °FBoiler OAT Setpoint
 °FPumps 5/6 & 7/8 OAT Setpoint
 °F[Save](#)

Pump 5 & Pump 6 Hot Water



Pump 5 Cmd	Off	Pump 6 Cmd	Off
Pump 5 Status	Off	Pump 6 Status	Off
Pump 5 Speed	100 %	Pump 6 Speed	100 %
Pump 5 Trouble	Normal	Pump 6 Trouble	Normal

HW Diff Pressure 2.40 psi

P5 P6 Diff Pressure Setpoint psi

Bypass Valve P5 & P6

HW Diff Setpoint psi

Bypass Valve P5 P6 0 %

Pump 7 & Pump 8 Glycol Hot Water



Pump 7 Cmd	Off	Pump 8 Cmd	Off
Pump 7 Status	Off	Pump 8 Status	Off
Pump 7 Speed	100 %	Pump 8 Speed	100 %
Pump 7 Trouble	Normal	Pump 8 Trouble	Normal

Glycol HW Supply Temp 128.1 °F

Glycol HW Return Temp 101.3 °F

Glycol Diff Pressure 1.79 psi

P7 P8 Glycol HW Supply Setpoint psi

Bypass Valve P7 & P8

Glycol HW Diff Setpoint psi

Bypass Valve P7 P8 0 %

Heat Exchanger 2 Valve

Glycol HW Supply Setpoint °F

HX-2 Valve 0 %

Pump 9 & Pump 10 Hot Water



Pump 9 Cmd	Off	Pump 10 Cmd	Off
Pump 9 Status	Off	Pump 10 Status	Off
Pump 9 Speed	0 %	Pump 10 Speed	0 %
Pump 9 Trouble	Normal	Pump 10 Trouble	Normal

Boiler 1 HW Supply Temp 148.7 °F

Boiler 2 HW Supply Temp 148.7 °F

Boiler 1 HW Return Temp 123.5 °F

Boiler 2 HW Return Temp 123.6 °F

P9 P10 HW Supply Setpoint °F

Radiator Valve

Rad Valve HW Supply Setpoint °F

Radiator Valve 100 %

P9 P10 Override ☐ Off

EXISTING PHOTOS

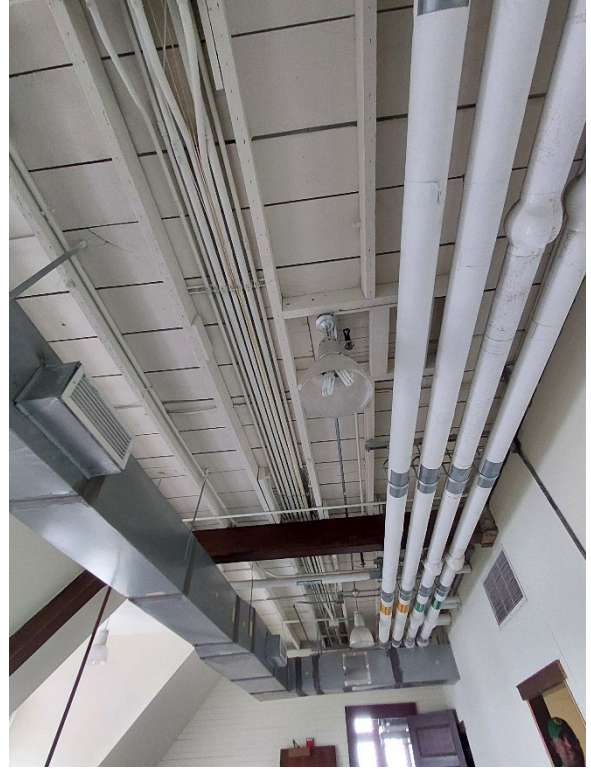


EXHIBIT 'D'

EXISTING PHOTOS

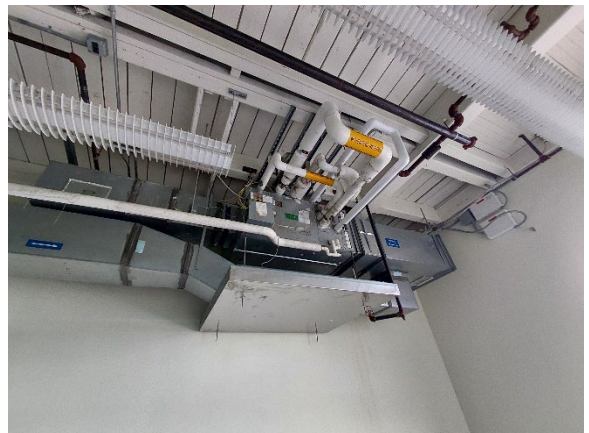
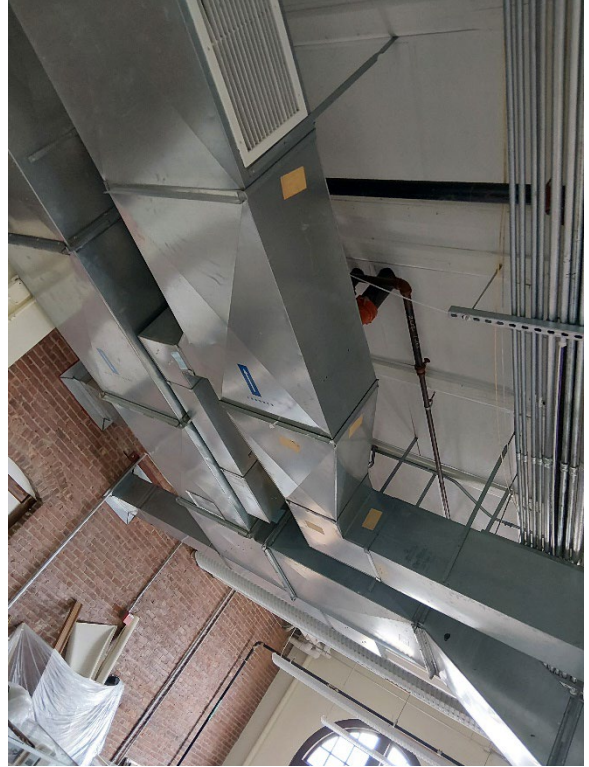


EXHIBIT 'D'

EXISTING PHOTOS

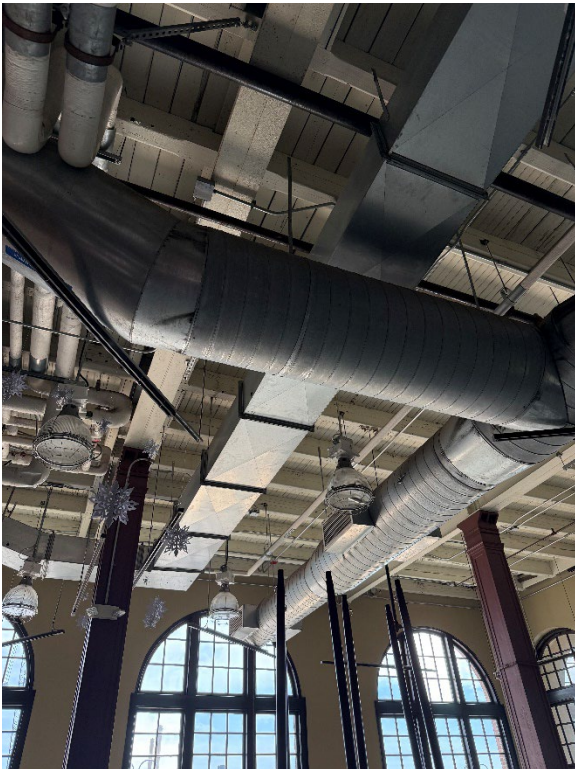
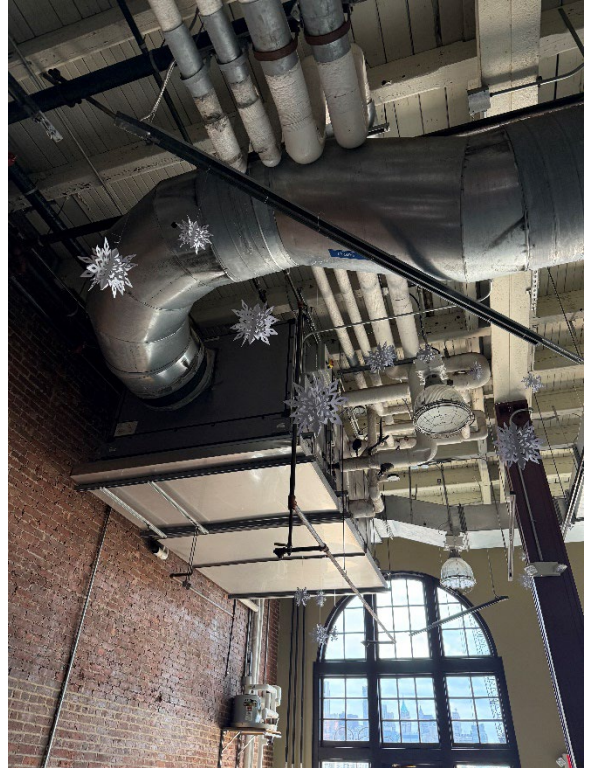


EXHIBIT 'D'

EXISTING PHOTOS

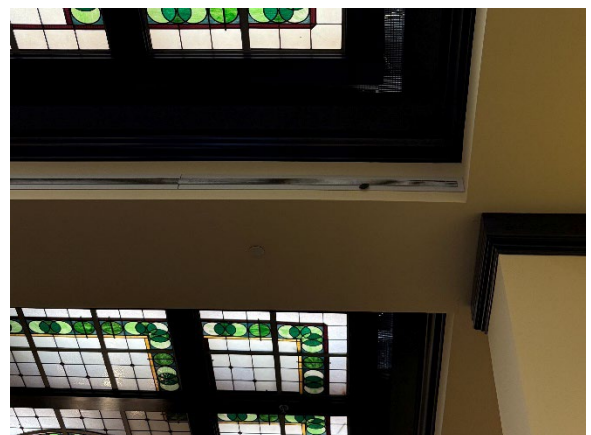
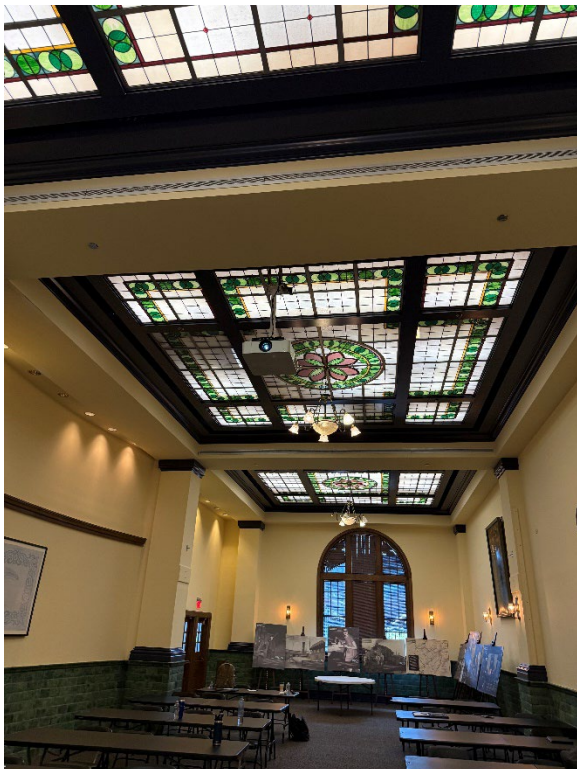


EXHIBIT 'D'



APPLICATION FOR PROJECT AUTHORIZATION

UNDER THE NEW JERSEY REGISTER OF HISTORIC PLACES ACT

FORM VERSION 3/2026

REVIEW PROCESS

Complete this form and any required attachments, then submit your full application to our office. We strongly encourage applying early in your project to meet tight schedules and deadlines. ***Do not apply by fax — it will not formally initiate project review.***

- Within 30 days, we will evaluate the application for technical and professional completeness.
- Within 45 days of receiving a technically complete application, we will determine whether the project constitutes an encroachment and notify you accordingly.

No encroachment

We will administratively approve the application.
It will not require review before the Historic Sites Council.

Encroachment

We will schedule the project for an upcoming Historic Sites Council meeting and notify you.

- Then, the Historic Sites Council will make a formal resolution to the Commissioner of the Department of Environmental Protection with their recommendation.
- The Commissioner must act within 120 days of receiving a technically complete application.

PROJECT AND APPLICANT INFORMATION

Date

Applicant

State, county or municipal agency or instrumentality thereof applying for authorization. If an authorized representative is submitting this application on behalf of a public agency, they must include written authorization from the public agency.

Project name

Contact person(s)

Mailing address

Telephone

Fax

Email

NEW JERSEY REGISTER-LISTED PROPERTY AFFECTED BY PROJECT

Name of listed property or historic district

Street address of listed property

Block #

Lot #

Municipality

County

FOR HPO USE ONLY

Technically and Professionally Complete

Date

HPO Log#

A. REQUIRED DOCUMENTATION

Enclose the documentation listed below as required by N.J.A.C. 7:4-7.1 (d). This documentation and the project description (B) together must completely describe the proposed undertaking. *Label any included attachments using the letters and numbers (e.g., A.1.e.) as listed in this application.*

1. Complete lists (including addresses)

We cannot review applications unless they include these four lists. They are not complete until we receive this information.

- a. Local historical societies.
- b. Local historic preservation commissions.
- c. All public and private property owners of registered property directly affected by the project.

N.J.A.C. 7:4-7.1(d) stipulates this list must:

- Include all private and public property owners (including right-of-way owners) named in the official municipal tax records and maps as of the date of the application's submission.
- Notarization by the appropriate municipal official.

This is the list of owners of registered properties directly physically impacted by the project. It is not the list of property owners within 200 feet of the project, although submission of that list would be acceptable.

- d. All affected local government units, any agencies or instrumentalities thereof concerned with historic preservation, and any statewide organization and local organization specifically concerned with historic preservation in the area of the undertaking's potential impact.

2. Maps

3. Photographs

Both of the overall project area and of specific project work areas. Label each photograph with its location and key all photographs to architectural or engineering plans. Slides are optional, but if a project is an encroachment they may augment the application and its presentation to the Historic Sites Council.

4. Plans (2 sets)

Complete architectural or engineering plans, including a site plan.

5. Specifications (1 set)

6. Proposed agreements

Attach easements, leases, deeds, covenants, etc. applicable to the undertaking.

7. Structural assessment and evaluation

If the application proposes demolishing all or a substantial portion of a property, include a structural assessment and an evaluation of whether the property could be reasonably repaired. These must be prepared by an architect or engineer with demonstrated experience with historic properties.

8. Relocation information and documentation

If the application proposes relocating a New Jersey Register-listed property, submit information and documentation required in N.J.A.C. 7:4-3.2(c).

B. PROJECT DESCRIPTION

Describe the proposed undertaking in full detail. Where functional or programmatic constraints call for changes to historic configurations, explain those constraints clearly. *(Use lettered attachments when necessary.)*

C. STATEMENT OF PURPOSE

State the need and/or purpose for the proposed undertaking. Address the public benefit of the proposed project.
(Use lettered attachments when necessary.)

D. ALTERNATIVES/MITIGATION

Describe alternatives (or actions taken) that would avoid, reduce or mitigate any encroachment of the project on the affected New Jersey Register-listed property. Discuss feasibility and prudence of alternatives. (Use lettered attachments when necessary.)

E. PROJECT FUNDING

List sources of funding, including federal funds.

F. PERMITS

List permits needed for the proposed project, including any necessary federal permits, licenses or approvals.

OTHER INFORMATION

If needed due to the nature of the project, include the following:

Archaeology

Include an archaeological survey or other pertinent survey if any has been undertaken for this project.

If your project will include ground disturbance and a professional archaeology survey is not included with (or proposed in) the application, you *must* enclose the rationale for not conducting survey.

- This rationale should cover all areas of potential ground disturbance. Areas of potential ground disturbance include construction staging areas, grading areas, etc. on the New Jersey Register-listed property.
- Include detailed documentation of known prior uses (both modern and historic) and prior disturbances.

Civil Engineering

(Particularly road and bridge projects)

Data that informs the basis of the project's design, such as:

- Existing road limitations.
- Traffic counts/studies.
- Road classification
- Design speeds.
- Design hourly volume.
- Predicted levels of service.

Provide specific references to the relevant MSHTO design tables.

May include an Alternatives Analysis Report.

Code

If a code requirement affects the treatment of historic features or spaces, provide:

- Specific reference to the section of code.
- Indicate if you have sought or been granted flexible application of the code for historic buildings as allowed by the New Jersey Uniform Construction Code.

Economics

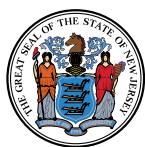
If economic factors affect an aspect or the whole design of the project, attach a detailed and documented breakdown of the costs involved.

Engineering

If the engineering concerns (e.g., structural stability or load-bearing capacity) affect the project's impact on the historic property, attach engineering reports prepared by an engineer with demonstrated experience working with similar historic resources.

LIST OF ALL DOCUMENTS

Provide a complete listing of all documents, including title.



NJ Historic Preservation Office

Community Investment & Economic Revitalization,
New Jersey Department of Environmental Protection
dep.nj.gov/hpo

Mail Code 501-04B, NJ Historic Preservation Office, P.O. Box 420, Trenton, New Jersey 08625-0420

The activity that is the subject of this project has been financed in part with funds from the National Park Service, U.S. Department of the Interior. However, the contents and opinions do not necessarily reflect the views or policies of the Department of the Interior, nor does the mention of trade names or commercial products constitute endorsement or recommendation by the Department of the Interior. This program receives Federal financial assistance for identification and protection of historic properties. Under Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and the Age Discrimination Act of 1975, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, or disability in its federally assisted programs. If you believe you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to: Office of Equal Opportunity, National Park Service, 1849 C Street N.W., Washington, D.C. 20240.