# **SCOPE OF WORK**

# **Construction Management Services**

New Materials Testing Laboratory Building for NJDOT Ewing Township, Mercer County, N.J.

# Project No. T0705-01

# STATE OF NEW JERSEY

Honorable Philip D. Murphy, Governor Honorable Tahesha L. Way, Lt. Governor

# **DEPARTMENT OF THE TREASURY**

Elizabeth Maher Muoio, Treasurer



### DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION

Christopher Chianese, Director

Date: November 21, 2024

PROJECT LOCATION: NJDOT HQ, Ewing Township, Mercer County

PROJECT NO: T0705-01 DATE: November 21, 2024

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### I. OBJECTIVE

The objective of this project is to construct a state-of-the-art Materials Testing Laboratory Building for the New Jersey Department of Transportation (NJDOT). The State is seeking to contract with a Construction Management Firm (CMF) to act as the Owner's Authorized Representative and manage the services of the Design Consultant (Architect/Engineer or A/E), the construction contractors, and the building commissioning under the supervision of the Department of Property Management and Construction (DPMC).

## 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):

- P029 Construction Management
- P058 Project Management

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

- P003 HVAC Engineering
- P019 Building Commissioning
- P030 CPM Scheduling
- P055 Energy Management Control Systems

As well as, <u>any and all</u> other Architectural, Engineering and Specialty Disciplines necessary to complete the project as described in this Scope of Work (SOW).

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### III. PROJECT BUDGET

### A. CONSTRUCTION COST ESTIMATE (CCE)

The proposed Construction Cost Estimate (CCE) for this project is \$42,474,549.

Construction Cost Estimate" or "CCE" means the estimated cost of construction at time of bid for the Project, this amount does not include the costs of permits and related permitting services, acquisition of land, furnishings, contingencies, Design Consultant fees/deliverables, CMF fees/deliverables, other Design Consultant fees/deliverables, and administrative fees, financing costs, and any other similar types of costs. The CCE of record will be prepared by the Design Consultant in accordance with the Scope of Work and/or Agreement, and shall be continually updated by the Design Consultant as set forth in the Scope of Work and/or Agreement.

### B. CURRENT WORKING ESTIMATE (CWE)

The Current Working Estimate (CWE) for this project is \$54,453,654.

"Current Working Estimate" or "CWE" includes the construction cost estimate or CCE plus the costs of permits and related permitting services, acquisition of land, furnishings, contingencies, Design Consultant fees/deliverables, CMF fees/deliverables, other Design Consultant fees/deliverables, and administrative fees, financing costs, and any other similar types of costs. The CCE shall be prepared by the Design Consultant in accordance with the Scope of Work and/or Agreement, and shall be continually updated by the Design Consultant as set forth in the Scope of Work and/or Agreement. The CWE is the Using 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.

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### IV. PROJECT SCHEDULE

#### A. DESIGN AND 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 90 2. Investigation/Program Phase 14 • Project Team & DPMC Plan/Code Unit Review & Comment 3. Schematic Design Phase 90 14 • Project Team & DPMC Plan/Code Unit Review & Comment 90 4. Design Development Phase 14 • Project Team & DPMC Plan/Code Unit Review & Comment 5. Final Design Phase 90 14 • Project Team & DPMC Plan/Code Unit Review & Approval 6. Final Design Re-Submission to Address Comments 7 • Project Team & DPMC Plan/Code Unit Review & Approval 14 7. DCA Submission Plan Review **30** 7 8. Permit Application Phase • Issue Plan Release 9. Bid Phase 42 10. Award Phase 28 11. Construction Phase 546 12. Project Close Out Phase **30**

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The Design Consultant (not the PM) 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, activity durations.

### V. PROJECT SITE LOCATION & TEAM MEMBERS

#### A. PROJECT SITE ADDRESSES

The location of the project site is:

NJDOT HQ Complex 1035 Parkway Avenue Ewing Township, NJ 08628

GPS Coordinates: 40.23596° N, -74.8138017° W

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

#### B. PROJECT TEAM MEMBER DIRECTORY

### 1. **DPMC Representative:**

Name: Cristina Zozzaro, Project Manager

Address: <u>Division of Property Management & Construction</u>

20 West State Street, 3<sup>rd</sup> Floor

Trenton, NJ 08608-1206

Phone No: (609) 777-4273

E-Mail: <u>Cristina.Zozzaro@treas.nj.gov</u>

### 2. Department of Transportation:

Name: <u>Jitendra Patel, Project Manager</u>

Address: P.O. Box 600

1035 Parkway Avenue

Ewing, NJ 08625

Phone No: (609) 963-2190

E-Mail: Jitendra.Patel@dot.nj.gov

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### VI. PROJECT DEFINITION

#### A. BACKGROUND

The New Jersey Department of Transportation (NJDOT) is constructing a new state-of-the-art Materials Testing Laboratory Building at the DOT Headquarters Complex located in Ewing Township. The new Materials Testing Laboratory Building currently operates from a complex of buildings, known as the Thiokol Complex, used by the NJDOT Bureau of Materials (BOM). The BOM provides the testing for materials utilized in state highways and roadways. The BOM will relocate from its current location at the Thiokol Complex to the new Materials Testing Laboratory building that will be procured and built under a separate project T07050-00 (see **Exhibit 'B'** Project Site).

### B. FUNCTIONAL DESCRIPTION OF THE BUILDING/SITE

### 1. Building Concept:

The new Materials Testing Laboratory building will be designed for the in-house testing of construction materials including asphalt, cement, concrete, steel, aggregates, soil, and various liquids. The new building will also be used for training and specialized certifications.

Based on the building type and function, common guidelines and standards are required for space programming and environmental room conditions. The Construction Management Firm (CMF) shall review and utilize the "Preliminary Feasibility Study" dated December 16, 2023 (see Exhibit 'D' Preliminary Feasibility Study) included in project T0705-00 Materials Testing Laboratory. The Study is provided for informational purposes only to ensure the necessary design, construction administration, permitting, and bid/award services are established to construct a new state-of-art New Jersey Department of Transportation Materials Testing Laboratory Building. The CMF will manage the Consultant Design Responsibilities from the Investigation/Program Phase through Project Close-Out Phase. (See Exhibit 'C' Project Management Responsibility Matrix)

The new Materials Testing Laboratory Building will accommodate approximately 125 building occupants including laboratory testing staff, DOT administration, and supervisory personnel. The Independent Assurance Group (IAG) that monitors testing and compliance will have on-site office space at the new building.

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#### 2. Construction:

The location adjacent to the site of the new Materials Testing Laboratory Building has new utilities, new storm drainage, and the sanitary sewer systems were either improved and/or replaced. Any civil/site drawings from the construction at the adjacent property will be provided and made available for the CMF to review. The CMF will manage and ensure the Design Consultant has provided the design and specifications of any necessary site improvements to meet the site requirements of the new Materials Testing Laboratory Building. Necessary site improvements is including but not limited to additional site work and new site utilities.

### 3. HVAC, Equipment, and Systems:

The Material Testing Laboratory Building includes specialized laboratory testing equipment in each of the building spaces. The HVAC and building systems are designed and constructed to properly meet the specifications and requirements for the operating of the testing equipment.

The HVAC and Building systems are required throughout the new building with the required number of zones to address air quality, air flow/laminar flow and proper pressurization contingent on the room/area. Each laboratory shall be evaluated for meeting equipment air ventilation/circulation specifications across laboratory workspace and office areas. The design, specifications, quantity of fume hoods, duct work, and exhaust fans each laboratory space is properly equipped to meet all accreditation requirements by any state and/or federal agency.

The design for utilities supplied to the new building shall be guided by the State's Energy Master Plan.

### 4. Commissioning:

The commissioning process will include a systematic plan ensuring that the New Materials Testing Laboratory building performs in accordance with the design, intent, and contract documents allowing for the successful operation of the entire building, equipment and its functions.

### 5. Special Considerations:

Additional considerations is to include but not limited to the review of an employee relocation transfer and moving plan, existing material testing laboratory equipment relocation schedule, operations phasing transfer schedule.

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Additional considerations are to include employees' relocation plan, existing laboratory equipment relocation schedule, and an operations relocation schedule to the new material building.

### VII. CONSTRUCTION MANAGEMENT RESPONSIBILITIES

#### A. GENERAL INFORMATION

The CMF shall report directly to the DPMC project manager. The relationship and responsibilities of the CMF, the Design Consultant, and the DPMC during each phase of the project is identified in **Exhibit 'C'** entitled "Project Management Responsibility Matrix".

Note that the "Project Management Responsibility Matrix" is not an all-inclusive listing of tasks and responsibilities of either the CMF, Design Consultant or DPMC. The matrix is intended as an aid to show the relationship of the parties on key tasks and responsibilities.

The CMF will act as the Owner's authorized representative during the performance of the CMF services contract as described in the Agreement between the State of New Jersey and Consultant for Construction Management (CMF Agreement) and this Scope of Work (SOW). The CMF will act as the Owner's authorized representative during the performance of the CMF services contract and as described in the Agreement between the State of New Jersey and the Construction Management Firm (CMF).

The CMF shall direct the work of construction contractor(s) only after the CMF obtains the concurrence of the DPMC project manager.

#### B. STAFF

The CMF staff consist of those services performed by the CMF, the CMF's employees, the CMF's Sub-Consultants. The CMF shall utilize the key staff members identified in their Technical Proposal. The CMF shall notify the DPMC in advance of any proposed change in its key staff members identified in its proposal. The CMF shall submit to the DPMC for approval the name and qualifications of a proposed replacement with equal or superior qualifications at no additional cost to the DPMC. No change shall take effect unless the DPMC approves the change in writing.

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### C. OBLIGATIONS

The CMF shall be responsible for satisfying all of the listed obligations regardless of when they occur during the project. The CMF will assume primary responsibility for day-to-day Construction Management and oversight construction management including, but not limited to, cost estimating and reconciliation of value analyses, scheduling, contractor contract compliance, purchase of equipment, commissioning, facility testing and staff training. In addition, the CMF will provide technical support for DPMC decisions regarding Contractor selection, change order request control and Contractor(s) claims, progress payments and final acceptance, and Contractor(s) claims management.

The CMF shall be responsible for satisfying all of the obligations described in the CMF Agreement and this SOW, even if such obligations are not addressed in the CMF's technical proposal. This document establishes the obligations of the CMF which obligations may be supplemented by the CMF in its technical proposal. If the services promised in the CMF's technical proposal exceed those described in the CMF Agreement and this SOW, then the CMF shall be responsible for satisfying the additional obligations described in its technical proposal.

#### D. CMF MANAGEMENT PROGRAM

### 1. Management:

The CMF shall provide its services under the supervision of the DPMC and will be required to manage both the services of the Design Consultant and each Contractor under separate DPMC construction contracts respectively. The CMF shall establish and implement a comprehensive management program with procedures for coordination among DPMC, the Design Consultant, the Contractor(s) and the Client Agency.

### 2. Design Phase Oversight:

The CMF shall manage the Design Consultant's design phase services and provide complete design phase oversight on behalf of the State.

- a. The CMF shall coordinate and manage the investigation/program phase, schematic design phase, design development phase, construction document phase, and the closeout phase.
- b. The CMF shall review the Design Consultant's deliverables and provide a written report following each phase; these reports shall address constructability reviews, safe construction practices, industry markers for cost & deliveries, perform schedule reviews, review budget and project cost estimates.

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c. The CMF shall update and report on the project schedule monthly. The CMF shall notify DPMC of all issues brought to the attention of the Design Consultant by the CMF, and of the Design Consultant's response to each. The CMF shall notify the Design Consultant and Project Team members if the Design Consultant's submissions appear inadequate or incomplete and identify any issues that have the potential to significantly impact or jeopardize the project goals and objectives.

- d. While the CMF makes recommendations to the Design Consultant to correct constructability issues or problems, and advises regarding potential errors and omissions discovered, the CMF shall not take any action that infringes on the Design Consultant's professional and contractual responsibility for the project design.
- e. The CMF's tasks during all design phases are as follows: schedule and coordinate progress meetings and record minutes, monitor Design Consultant's progress, prepare/maintain/monitor the preliminary and master project schedules, prepare an initial budget, prepare independent cost estimates during each design phase, reconcile independent cost estimates between the Design Consultant and the CMF, provide cost verification and budget monitoring, review Design Consultant's invoices for approval, review Design Consultant's contract modifications for approval, recommend alternate solutions when design details affect project cost and schedule, perform document and constructability reviews and develop a Commissioning services program during the construction document phase.
- f. Predesign Conference The CMF shall schedule a predesign conference with the project Design Consultant soon after the design contract is awarded to review the scope of the design services required by the contract. The conference shall be convened before the design effort starts. The meeting can be held at either at the project site or the Design Consultant's office, to facilitate maximum participation by the Design Consultant's staff.

### 3. Budget/Cost Control:

The CMF shall assist the State in reviewing all Design Consultant cost estimates and submissions to verify that project costs remain within the project budget. The CMF must report any disparities discovered in the project costs to the Project Team for resolution before proceeding on to the next phase of the design.

The CMF shall establish a uniform procedure for reviewing, analyzing, and assessing each estimate submitted by the Design Consultant and subsequent reconciliation at completion of each design phase cycle.

The CMF cost review should verify that: • Unit costs are accurate • Quantity takeoffs are accurate • All design elements are included • Level of detail is appropriate to design stage

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• Formats are correct • Cost escalation factors are properly applied • Balance of costs among building and other systems are acceptable • Areas and other measurements are correct • Upto-date scope modifications are reflected.

The Design Consultant shall prepare and submit an independent construction cost estimate on the appropriate DPMC-38 form with accompanying detail back-up for each phase. The cost estimate prepared by the Design Consultant and, jointly with the CMF, shall prepare a subsequent cost estimate reconciliation report at completion of each design phase cycle. The CMF shall make recommendations for corrective action or project revisions if it appears that the construction cost estimate (CCE) may exceed the project budget.

### 4. Feasibility/Concept and Design Submissions & Reviews:

The Design Submissions shall be reviewed by the CMF to determine if the project requirements are being met by the project Design Consultant. Formal design reviews are required at the completion of each design phase milestone of the project. The CMF shall review all documents for clarity, consistency and completeness. The CMF shall provide advice and recommendations for improvements. Refer to the Work Order for detailed requirements for each design phase, typically organized as follows:

• •	
	sibility Study/Concept Phase and Programming Phase □ Schematic Design Phase □ Development Phase. □ Construction Documents/Final Design Phase □ Permit Phase
5.	The CMF's design review shall ensure at a minimum:
and no conflict Existing and construction accurate    ☐ Peripermite   ☐ Perip	project deliverables are submitted $\square$ Materials and equipment are appropriate, available, on-proprietary $\square$ Drawings are coordinated among disciplines and bid packages $\square$ Areas of at are eliminated $\square$ Site will accommodate access, logistics and storage requirements $\square$ and conditions are shown correctly and adequately $\square$ Selected building materials, systems onstruction details are compatible and constructible, and long lead items are identified $\square$ ruction duration, phasing, bid packages, bid options, unit prices, and labor availability are ate, reasonable and appropriate $\square$ Cost estimates are reviewed and within budget mit, regulatory and code compliance requirements are met $\square$ Documents are ready for a review by the DCA or applicable regulatory agency $\square$ Safety and security responsibilities are and appropriate in the contract documents.

Design Review Meetings. The CMF shall schedule meetings with the Design Consultant to review each design submission. The meetings may be held at the Design Consultant's office to facilitate the visual review of the work-in-progress at the areas of production and minimize disruption to the Design Consultant. At times it may be expedient to conduct a design review

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meeting at a consultant's office, if the scope of a particular review centers on the progress of a single consultant.

Constructability Review: The CMF is primarily responsible for constructability reviews. The CMF shall develop a consistent procedure for conducting design reviews, including the Design Consultant's conformance to the scope of services in the design contract, constructability, marketability, coordination among disciplines, and material usage.

Design Review Report: After completion of each design review, the CMF shall assemble and organize the comments from the various reviewers (DCA UCC Unit, Affiliated FM Global – the State's Insurer) or other required regulatory agency and incorporate them into a consolidated design review report. The report shall contain comments on required corrections and improvements by discipline and specification section or drawing number.

The CMF shall transmit the design review report to the Design Consultant for action. The CMF and project team shall meet with the Design Consultant to present and discuss its contents. The CMF shall evaluate the Design Consultant response to all comments and develop directives resulting from the design review. The CMF shall review subsequent submissions to ensure that all directives and revisions have been incorporated into the design documents by the Design Consultant.

Permit Phase: The CMF shall consolidate and assemble the code comments from the Department of Community Affairs Uniform Construction Code Unit as necessary, and forward the comments to the Design Consultant.

The CMF will be responsible to review responses from the Design Consultant to ensure all code comments have been adequately revised and corrections incorporated into the plans and specifications.

#### E. TRANSFER OF OBLIGATIONS

The CMF Agreement contemplates personal services by the CMF. The CMF shall not assign or transfer its obligations or rights under the CMF Agreement and this SOW without the prior written consent of the DPMC.

#### F. CMF'S PROJECT COST RECORDS

The CMF shall agree to maintain and retain, cost and accounting records with respect to this project as they customarily retain and produce them for their business generally, and in accordance with generally accepted accounting principles and practices. Upon three (3) calendar

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days written notice, all such records shall be made available to the DPMC for inspection for a period of three (3) years after final payment is received by the CMF. No CMF claims for additional compensation shall be payable unless supporting cost records are furnished upon request and claimed costs are substantiated and approved.

The CMF shall retain copies of the cost records for a period of three (3) years after final payment is received by the CMF. After this period, the CMF may dispose of these records after first offering them to the DPMC in writing at no additional cost. DPMC shall reply to the CMF within thirty (30) calendar days as to the desired disposition of the cost records.

#### G. WEB SITE - RECORDS AND DOCUMENTATION

The CMF shall establish and maintain throughout the duration of the project, an internet-based Construction Management/Construction Management Project Controls System (referred to as "web site" throughout this scope of work) utilizing commercially available Construction Management/construction management software. The CMF shall grant full access to the web site to the DPMC, Design Consultant, Contractors, and the DOT Project Manager as appropriate to complete the tasks required of them. At post-project completion, the CMF shall grant DPMC full access to the Cloud-based or internet-based website for five (5) years. All project records and documentation shall be provided to DPMC in a readable and available format, i.e. pdf.

All project records and documentation is to be managed, organized and maintained by the CMF on the web site including, but are not limited to:

- Project schedule
- Drawings
- Specifications
- Submittals
  - Transmittal letters
  - Shop drawings
  - o Materials
  - o Equipment
  - o Catalog cuts
  - Test reports
- Contracts
- Contractor/sub-contractors weekly payroll certification record/submissions to NJ DOLWD
- Contractor/sub-contractors monthly AA202 reports to NJ DOLWD

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- Contractor's monthly reports
- Requests for information (RFI's)
- Change order requests (managed/organized by the CMF, Contractor)
- Invoices (managed/organized by Design Consultant, Contractor)
- Correspondence (managed/organized by Design Consultant, Contractor)
- Inspection reports (managed/organized by DCA, Design Consultant, Contractor)
- Meeting minutes (managed/organized by CMF and Design Consultant)
- Safety reports (managed/organized by Design Consultant, Contractor)
- Permits/Permit Updates
- FM Global document reviews and on-site inspections
- Financial Status Reports (FSR's)

CMF shall identify the software they propose to utilize for the "web site" in their technical proposal.

CMF shall prepare monthly at the start of the design phase through project close-out three (3) USB Flash Drives each inclusive of the above referenced project information as applicable for the monthly period. The flash drives shall be delivered monthly to the State no later than the 15<sup>th</sup> of each month.

At the completion of the project the CMF shall provide copies of all records stored on the web site in an electronic medium acceptable to the DPMC in both the native file format and *Adobe* ".pdf" file format. During the course of these services through completion of the each project, the CMF shall also provide hard copies of all records stored on the web site.

#### H. SCOPE CHANGES

The CMF shall promptly notify the DPMC of any changes to the scope of services, which increase or decrease the CMF's services, or both. No such change in scope shall be performed by the CMF, absent prior written approval by the DPMC. Notice of request for additional compensation shall be given to the DPMC within fourteen (14) calendar days of the event giving rise to such a request with accompanying justification for the change and a detailed breakdown of the basis for the costs.

### I. CMF SENIOR PROJECT MANAGER

The CMF shall assign at least one full-time (1) Senior Project Manager with demonstrated relevant experience of similar projects in size and scope to attend all design phase, procurement

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phase, construction phase, and close-out phase meetings as required under the CMF Agreement. The CMF shall otherwise provide sufficient executive, supervisory, technical, and management personnel in the field and home office to carry out the requirements of the CMF Agreement and this SOW in an expeditious and economical manner consistent with the interests of the DPMC.

#### J. SPECIAL SERVICES

The CMF shall be responsible for carrying out all the testing and inspections required for this project during construction. If requested, the CMF shall assist the DPMC in selecting, retaining and coordinating the professional services of surveyors, special consultants, security consultants and testing laboratories and specialty inspections.

### K. REPRODUCTION COSTS

Reproduction costs for CMF produced documents and related scope or work requirements, shall be at the CMF's expense.

#### L. PROJECT DESIGN AND CONSTRUCTION SCHEDULE

In conjunction with the Design Consultant, the CMF shall develop, manage and maintain a detailed cost loaded and resource loaded project schedule for both the design phase and construction phase activities of the project utilizing a software program that is based on the critical path method of scheduling. The schedule shall reflect the project design and construction milestone schedule in Section IV.A, Project Milestone Schedule in this SOW.

CMF shall identify the software they propose to utilize for the Project Design and Construction Schedule in their technical proposal.

#### 1. CMF Design Phase Schedule Development:

During the Design Phase, the CMF shall work in conjunction with the Design Consultant to develop the Design Phase Schedule of which shall serve as the basis for monthly progress payments to the Design Consultant. The activity/task costs shall reflect a fair and reasonable prorating of the contractual design fee and shall total the Design Consultant's contract amount.

On a biweekly basis, the CMF shall meet with the Design Consultant to review the design status and update the design schedule. If the CMF's bi-weekly schedule update shows design slippage attributable to the Design Consultant, the CMF shall meet with the Design Consultant to develop a recovery plan to regain any unauthorized and/or any inexcusable loss time. The CMF shall publish and submit a recovery plan to the DPMC.

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Biweekly schedule updates of the Design Schedule shall be utilized to calculate the Design Consultant's monthly payment requisition based upon the progress reported for the month. The level of progress/activity completion calculated from the schedule update shall be transferred to the Consultant payment request form by the Design Consultant and together with Design Consultant's invoice format under its current contract, shall constitute the Design Consultant's monthly payment requisition.

### 2. CMF Construction Phase Schedule Development:

During the Design Phase, the CMF shall work in conjunction with the Design Consultant to develop a Construction Schedule for use by the DOT Project Team and Contractor. This schedule shall be included in the construction bid solicitation package for informational purposes.

Based on the CMF's manpower, equipment, materials requirements analysis and cost estimate review with the Contractor, the schedule shall be cost and resource loaded and serve as the basis for monthly progress payments to the Contractor during construction. The activity/task costs shall reflect a fair and reasonable value of the work and shall total the construction cost estimate. Refer to DPMC's Instructions to Bidders and General Conditions entitled, Article 6, Construction Progress Schedule" and shall include the Critical Path Method (CPM). The level of detail for this schedule shall be determined by the CMF and shall include, at a minimum, each activity/task required to complete the work, advertise, bid and award activities/tasks, equipment and material submittals and approvals, equipment and material procurements, project completion milestones, inspections, testing and commissioning activities, and project close out activities. The schedule shall also include activities/tasks for the review and approval of submittals by the CMF, Design Consultant, DPMC, and the DOT Project Manager.

Each schedule activity/task shall include, but not be limited to:

- Detailed activity/task description
- Activity/task duration
- Activity/task sequencing, relationships
- Activity/task "float" (Identify if the activity/task is on the schedule critical path)
- Manpower required for each activity/task, by trade
- Equipment and material required for each activity/task
- Cost to complete each activity/task

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Upon award of the construction contract the CMF shall work in conjunction with the Design Consultant and the DOT Project Manager to meet with the Contractor to adjust/modify the schedule to reflect the contractor's approach to the work, manpower, equipment and material requirements and cost for each activity/task. The sum of all activity/task costs shall equal the value of the construction contract.

The CMF in conjunction with the Design Consultant, Contractor, and DOT Project Manager shall approve the construction schedule and submit it to DPMC for final approval. On a bi-weekly basis, the CMF in conjunction with the Design Consultant and the DOT Project Manager shall meet with the Contractor to review the project status and update the schedule. If the CMF's bi-weekly schedule update shows project slippage, the CMF shall meet with the Contractor to develop a recovery plan to regain any unauthorized lost time. The CMF shall publish a recovery plan to the DOT Project Manager and the DPMC.

The CMF's bi-weekly schedule update in conjunction with the Design Consultant of the Construction Schedule, shall be utilized to calculate the Contractor's monthly payment requisition based upon the progress reported for the month, and the approved activity costs. The costs calculated from the schedule update shall be transferred to the Contractors payment request form by the Contractor and shall constitute the Contractors monthly payment requisition.

#### M. PROJECT CORRESPONDENCE

The CMF shall maintain on the "web site" images of all correspondence between the CMF, Design Consultant, DPMC, DOT Project Manager, and Contractor(s) in a structured data base format that facilitates easy retrieval and includes, but is not limited to, subject matter, date, recipient and, sender in a manner approved by the DPMC. Access to this information shall be five (5) years after project close-out.

### N. CORRESPONDENCE PREPARATION

At the request of the DPMC's Representative, the CMF shall prepare detailed and accurate written correspondence to the Contractor(s), the DOT Project Manager, and/or others.

### O. INVOICES

On a monthly basis, the CMF in conjunction with the Design Consultant and the DOT Project Manager shall track, review, recommend for approval or amendment, and forward to the DPMC, the invoices of the consultants and contractors engaged by the DPMC. The CMF shall assist the DPMC in any disputes or negotiations with the DPMC's consultants and contractors.

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#### P. PRO-ACTIVE MONITORING

Provide pro-active participation in monitoring and verification that all schedule activities and approved construction schedule are occurring in accordance with the approved design phase schedule; and other actions required to assure all schedule activities are occurring in accordance with the approved schedule.

### Q. CMF FIELD OFFICE

During construction phase, the DOT/contractor will provide the on-site field office or nearby by off-site office and the CMF shall be responsible for the supply, installation, and maintenance of all the computers, peripherals, and stationary required for their site office usage and meetings. All design phase, permit phase, bid package phase, and construction phase meetings shall be held in the DOT/Contractor provided on-site or nearby off-site office unless otherwise instructed. Site logistics to be reviewed to discern both trailer and parking provisions for the CMF, DC/AE, and Contractor.

# R. DPMC CENTRAL FILE DOCUMENTATION PREPARATION & COORDINATION

In addition to preparing hard copies of all contract deliverables including monthly reports, daily reports, meeting minutes, testing & inspections, FSR's, non-conformance reports, etc., the CMF shall prepare and organize its contract deliverables electronically including active hyperlinks for uploading to DPMC's Central File Cloud Account.

#### S. 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 T0705-00 Materials Testing Laboratory Building, September 17, 2024, Division of Property Management and Construction
- ANX-4429-S3 (Soil) Testing of Sample: May 8, 2024, ANS Consultants, Inc.
- ANX-4429-S4 (Concrete) Testing of Sample: May 8, 2024, ANS Consultants, Inc.
- DPMC T0640-00 HVAC System Design Development Booklet: May 13, 2022, Gillan & Hartmann, Inc.

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

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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. CMF DESIGN PHASE RESPONSIBILITIES

#### A. CONSTRUCTION DOCUMENT REVIEW

Review all documents for clarity, consistency, constructability, and completeness during the Design Phase of the project. Review items shall include, but not be limited to the following:

#### 1. Document Content:

Provide advice regarding site use and improvements, selection of materials, building systems and equipment, and methods of project delivery. Provide recommendations to the Project Team members on relative feasibility of construction methods, availability of materials and labor, time requirements for procurement, installation and construction, and factors related to cost including, but not limited to, cost of alternative installation methods, procedures or materials, preliminary budget and possible economics.

### 2. Building Information Model (BIM):

The Design Consultant will develop a DOT and project team approved building information model (BIM), utilizing Autodesk's Revit Architecture software, or equal, will be used throughout the Project, including all phases of design. The BIM associated Level of Development (LOD) shall be made available where feasible and/or specified by the project team.

The Design Consultant will make the BIM available to the CMF for review, and provide periodic updates throughout the design phases of the Project. Upon completion of the construction documentation, the BIM will be turned over to the CMF to be utilized throughout the construction phase of the work. The DOT project team shall be included on all correspondence and BIM reviews and/or changes.

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During construction, the BIM will be used by the CMF, and developed by the General Contractor, all subcontractors and specialized trades for the preparation of coordination documents, shop drawings, submittals, and other construction phase documentation, including preparation of "as-built" documentation.

The CMF will review the General Contractors and all subcontractors' trades' ongoing preparation of as-built documentation to determine and enforce the preparation of all "as-built" documentation effort utilizing the BIM model and include the associated LOD, where available.

#### 3. Division of Work:

Make recommendations regarding the division of work in the drawings and specifications to facilitate the bidding and awarding of construction contracts allowing for phased construction and taking into consideration such factors as the legal requirements of construction contracting methods, time of performance, and availability of labor and work areas, overlapping jurisdictions and provisions for temporary facilities.

#### 4. Alternate Solutions:

Review the contract documents as they are being prepared and recommend alternate solutions whenever design details affect project cost, constructability and bid-ability without, however, assuming any of the Design Consultant's responsibilities to provide sound design and properly prepared contract documents.

### **5.** Single Prime Construction Contracts:

Bid documents shall be prepared to advertise and bid the single project site as a "Lump Sum" contract.

#### 6. Bid Schedule Adjustment Analysis:

The CMF shall conduct, with assistance from the Design Consultant, an analysis to determine if one or more trades should be advertised as other additional separate early bid packages to compress the overall project schedule.

### 7. Project Labor Agreement:

The CMF is responsible for reviewing and becoming completely familiar with the requirements of Project Labor Agreement (PLA) Law N.J.S.A. 52:38-1 and comply with all of the responsibilities related to that Law.

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#### 8. Areas of Conflict:

Review the drawings and specifications with the Design Consultant to eliminate areas of conflict and overlapping in the work to be performed by the various Contractors.

### 9. Laboratory Equipment:

The CMF shall assist the A/E in carrying out the inventory of the existing laboratory equipment. The CMF, in coordination with the A/E shall work with the DOT in identifying the existing laboratory equipment to be transferred to the new lab and the ones which need to be replaced.

### B. CONTRACTOR SUBMITTAL PROCEDURES

The CMF, in conjunction with the Design Consultant, shall develop procedures for the review and approval of all Contractor and project required submittals utilizing the BIM/Revit model, as necessary. The procedure shall include, but not be limited to, requirements for the contractor to submit all submittals to the CMF; the CMF to review the submittal prior to forwarding to the Design Consultant for review and approval; the Design Consultant returning the submittal to the CMF and the CMF returning the submittal to the Contractor. The "Contractor Submittal Procedures" shall be included in Division 1 of the specifications. The Design Consultant shall notify the CMF for any deviations and/or potential changes from the contract documents in order to reflect any change management lists and/or procedures. Refer to paragraph XI.L. "Shop Drawing and Submittal Packages".

### C. SUBMITTAL SCHEDULE/CHECKLIST

The CMF, in conjunction with the Design Consultant, shall prepare and include in Division 1 of the Specifications a schedule/checklist of all submittals required for the contract. The schedule/checklist shall identify the general conditions and/or specification section and the type of submittal required. The schedule/checklist shall be prepared during the design phase of the project as the specifications are being developed.

#### D. SAFETY AND SECURITY

Provide recommendations and information regarding the assignment of responsibilities for safety and security precautions and programs, general hoisting and crane operations, temporary project facilities, access to the construction work and equipment, materials and services for common use of Contractors. Provide the Design Consultant with the requirements and assignments of responsibilities for safety and security precautions to be included in Division 1 of specifications.

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#### E. SITE UTILIZATION PLAN

Provide a proposed site utilization plan of the entire construction site; illustrating areas available for Contractor construction access and trailer areas, access to adjacent facilities and related materials. The plan should illustrate the varying site utilization over the major construction phases of the project. Recommend the extent, location and configuration of temporary construction support facilities and coordinate with the various Contractors. The CMF may also consider use of available office space near the project site or nearest proximity during their contract term.

#### F. VALUE ANALYSIS

The CMF shall provide Value Engineering (VE) services for the project at appropriate times in the design phases, as indicated in the Design Consultant Contract, and as part of reconciling the cost estimates provided by the Design Consultant. VE services shall be performed in accordance with the recommendation of the Society of American Value Engineers (SAVE). VE services are to include, but not be limited to, mechanical systems, roofing systems, finishes, energy management systems, lighting and power systems and site work. Such studies shall include life cycle costs, maintainability and operability, the thirty (50) year life expectancy for the project, and the long-term considerations for future maintenance and repairs of the building.

#### G. SCHEDULE & CHAIR DESIGN PHASE MEETINGS

The CMF shall schedule, coordinate and chair all design phase meetings and be the sole publisher of all meeting minutes. The CMF shall prepare a complete agenda prior to each scheduled meeting. The CMF is responsible for the preparation and distribution of all project meeting minutes within two (2) working days of all meetings. The meeting minutes shall be distributed to all attendees and those persons specified to be on the distribution list by the DPMC. The Design Consultant, along with other project team members, will review the meeting minutes and comment if any correction is required. The format to be used for the minutes shall be jointly developed by the CMF, DPMC, and DOT Project Manager. 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 meeting until it is completed and the completion date shall be noted in the minutes of the meeting following the task completion. All meeting minutes shall be maintained for reference on the "web site". The agenda for meetings typically covers (1) minutes of the last meeting, (2) outstanding issues, and (3) new business. Meetings may be held at the DPMC, or an alternate designated location acceptable to the State. Any decision to hold virtual meetings shall be approved by the State.

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#### H. CONSTRUCTION COST ESTIMATES

The Design Consultant shall prepare and submit and include with each design package submission to the CMF, a construction cost estimate in CSI format with supporting documentation.

Independently, the CMF shall review the construction cost estimates from the Design Consultant and prepare and submit a report to DPMC, in CSI format with supporting documentation, at or just prior to the completion of the design deliverable packages noted in paragraph IV.A. "Design and Construction Schedule". The CMF shall verify estimates are to in sufficient detail appropriate to the design phase of the project as recommended by the American Society of Professional Estimators. Refer to paragraph VIII. F., Value Analysis, for criteria and assessment considerations to be used in each cost estimate and accompanying value engineering recommendations.

The CMF shall make recommendations for corrective action if it appears that the construction cost estimate (CCE) may exceed the project budget.

The CMF shall submit the construction cost estimate to the DPMC within five (5) working days after all documentation upon which the estimate is based and is provided to the CMF from the Design Consultant. Within five (5) working days following receipt of the cost estimate from the Design Consultant, the CMF shall prepare a report, and participate in a meeting with the DPMC and the Design Consultant team to finalize its estimate. The CMF shall provide a detailed analysis defining any cost estimate differentials and together with the Design Consultant, prepare recommendations for cost reduction initiatives that may be required. The recommendations accepted by the DPMC shall be used by the Design Consultant in the preparation of the next design phase documents.

All cost estimates shall be reviewed and adjusted as applicable for regional location, site factors, construction phasing, building use group, location of work within the building, temporary swing space, and inflation factors based on the year in which the work is to be performed; and the following: legislation:

Recent New Jersey legislation amended the Department of Labor and Workforce Development's (LWD) Public Works Contractor Registration (PWCR) Act (P.L. 2019, c.21) and became effective on May 1, 2019. Proof of participation in a registered and approved apprenticeship program is required by public works contractors in order to receive their LWD Public Works Registration at the time of application for registration filed after May 1, 2019 (new or renewal). This legislation does not specifically reference on-site or off-site labor forces.

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Recent New Jersey legislation amended the New Jersey Prevailing Wage Act P.L 1963, c.150 (C.34:11-56.26) and was approved and became effective immediately on March 18, 2019 (P.L. 2019, c. 44). The custom fabrication of plumbing, HVAC, duct exhaust systems and mechanical insulation were already included in the prevailing wage law. The amendment to the prevailing wage law extends coverage for custom fabrication which is either of components or structures pre-fabricated to specification for a particular public project or of other materials finished into components without further modification for use in a public project. If these custom fabrications are completed off-site and do not require further modification on-site, the appropriate prevailing wage would be required to be paid to the workers.

### I. IDENTIFY LONG LEAD CONSTRUCTION ITEMS

The CMF and Design Consultant shall identify all project long lead items and the CMF shall coordinate their procurement and installation so they will not have a negative impact the project cost or schedule.

### J. ORAL PRESENTATION TO PROJECT TEAM

The CMF and Design Consultant shall make an oral presentation to the DPMC Project Team and the DOT Project Manager at the completion of the design deliverable packages identified in the Design Consultant Contract for each design phase activity.

### IX. PERMITS & APPROVALS

The CMF shall become familiar with all of the permits and approvals required for the project. The CMF will assist in obtaining building permits and all special permits for permanent improvements. Verify that the Design Consultant has determined the amount of all applicable fees and assessments. Assist in obtaining approvals from authorities having jurisdiction over the project.

The CMF along with the assistance of the Contractor shall make and keep a tracking log for all permits. The tracking log and its respective status shall be made available and updated with current information during design and construction phases through project close-out phase.

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### X. PROCUREMENT PHASE

#### A. BID PACKAGE

The CMF shall assist the Design Consultant in the preparation of all bid package documents including, but not limited to the following: Signed and Sealed Drawings and Specifications, Bid Proposal forms, Notice of Advertising form, Current Working Estimates, Schedule, Bulletins, etc.

The CMF shall develop and maintain an RFI log during Contractor procurement. All Contractor questions shall be created and tracked with a document control number (DC#).

#### B. SCHEDULE & CHAIR PRE-BID CONFERENCE

The CMF shall schedule and chair the Contractor pre-bid meetings as may be required, at the project site or other location designated by the State. Assist the Design Consultant to respond to technical questions asked by the bidders, discuss project logistics, project phasing requirements, project scheduling and mandatory project milestones. Assist the State to prepare Bulletins for distribution.

#### C. PREPARE AND DISTRIBUTE MEETING MINUTES

The CMF shall be the sole publisher of the project's pre-bid conferences for distribution via Bulletin by DPMC. Prepare and distribute meeting minutes related to all procurement meetings. All procurement meeting minutes shall be maintained for reference on the CMF's "web site".

#### D. ATTEND BID OPENING

Attend the bid opening at the DPMC conference room and assist DPMC in evaluating the bids and proposals.

#### E. BID REVIEW AND POST BID CONFERENCE

The CMF, in conjunction with the Design Consultant and DPMC staff, shall review the bid proposal from the apparent low bidder(s) for each bid package. The CMF shall then schedule and chair the Contractor post-bid conference to review the contractors bid, proposed subcontractors, material suppliers and any substitutions the contractor may propose.

The CMF shall provide DPMC with an analysis of the construction cost estimate (CCE) versus the Contractor's actual bid, with explanations for the differences in price.

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#### F. RECOMMENDATION TO AWARD

Upon completion of the post bid conference, the CMF shall prepare a "Letter of Recommendation" to award the contract to the firm submitting the low responsible bid. The "Letter of Recommendation" shall be provided to DPMC within five (5) working days of the bid opening. The letter shall be in a format approved by DPMC.

#### G ATTEND DIRECTOR'S HEARING

The CMF shall attend the Director's hearing meeting and assist the Design Consultant to interpret the design documents if a Contractor submits a bid protest to the DPMC Director.

### XI. CONSTRUCTION PHASE

The CMF shall provide administrative, management and related services as required to monitor that the Contractor(s) complete the project in accordance with their contractual obligations defined in the "Agreement between the State of New Jersey and the Consultant for Construction Management Services" and the DPMC's objectives for cost, time, safety, and quality. The CMF shall include the development and implementation of procedures described in the Agreement and for the tasks and/or programs including, but not limited to the following:

#### A. ADMINSTRATION OF CONTRACTS

Become familiar with the contractual obligations of all entities doing the work for the project. Provide administration of construction contracts, contracts for furniture, fixtures, equipment and other contracts and purchase orders.

The CMF shall assist the DOT with the purchase of any new laboratory equipment. The CMF shall coordinate with the supplier of the new equipment and the DOT contractor during the construction phase for the installation of the new equipment.

#### B. REVIEW CONTRACTOR PERFORMANCE & SCHEDULE

Monitor the work of the Contractor(s) and keep the DPMC informed of the progress of the work on a daily basis and ensure all work is in compliance with the contract documents.

On the basis of on-site inspections, the CMF shall endeavor to guard the DPMC against defects and deficiencies in the work and to achieve satisfactory performance of the work by each of the

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Contractors. Recommend courses of action to the DPMC when contract requirements are not being fulfilled and the non-performing party does not take immediate corrective action.

#### C. SCHEDULE & CHAIR CONSTRUCTON PHASE MEETINGS

The CMF shall schedule, coordinate and chair all construction phase meetings and be the sole publisher of all meeting minutes. The CMF shall prepare a complete agenda prior to each scheduled meeting. The CMF is responsible for the preparation and distribution of all project meeting minutes within two (2) working days of all meetings. The meeting minutes shall be distributed to all attendees and those persons specified to be on the distribution list by the DPMC. The Design Consultant, along with other project team members, will review the meeting minutes and comment if any correction is required. 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 meeting until it is completed and the completion date shall be noted in the minutes of the meeting following the task completion. All meeting minutes shall be maintained for reference on the "web site". The agenda for meetings shall cover at minimum (1) minutes of the last meeting, (2) outstanding issues, and (3) new business. This meeting shall be held at the project site.

#### D. PRO-ACTIVE MONITORING

Provide pro-active participation in monitoring and verification that all schedule activities are occurring in accordance with the approved CPM Construction schedule. Pro-active verification may include phone calls to suppliers or vendors in order to confirm placement of orders, obtain invoice documentation, shipping data and any other actions, review submission of submittals to determine adherence to approved submittal schedule and contact contractors not adhering to such requirements, and other actions required to assure all schedule activities are occurring in accordance with the approved schedule.

#### E. PHOTO DOCUMENTATION

#### 1. Background:

During construction, the CMF will be solely responsible for the photographic record and will be expanded to include progress photographs matching views capturing all key stages of the construction work and additional photographs capturing new salient features.

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### 2. CMF Responsibilities during Construction and Project Close Out:

The CMF shall:

- Maintain a record of all areas that need to be photo-documented during construction.
- Notify the Design Consultant two (2) weeks ahead of schedule that specific construction activities will be performed so that they can be photo-documented by the CMF.
- The CMF will be solely responsible for the photographic record and will be expanded to
  include progress photographs matching views capturing all key stages of the construction
  work and additional photographs capturing new salient features.
- Maintain a digital record of all progress photographs on the "web site" throughout the entire construction phase of the project. Photographs shall include a brief description of the work, date and time the photo was taken.
- The CMF shall prepare a catalog of the comprehensive photo documentation of the completed project.

#### F. EVALUATE AND RECOMMEND CONTRACTOR INVOICES

Through the use of the approved cost loaded Construction Schedule and monthly updating of same, the CMF shall review all applications for payment and/or invoices submitted by the Contractor for progress payments, reduction in retainage, final payment and all other requests for payment in accordance with the requirements of the Contractor's Contract. Following such review, the CMF shall submit to the Design Consultant for review, with recommendations to the DPMC for disposition thereof in accordance with the DPMC's procedures, certifying same, and shall whenever appropriate, make specific recommendation to the DPMC concerning the denial or reduction of any payment of the Contractors monthly requisition or other request for payment should the CMF have cause to be dissatisfied with the Contractor's performance under its contract.

The CMF's certification for payment shall constitute a representation to the DPMC, based on the CMF's determinations at the site and on the data comprising the Contractor's application for payment, that, to the best of the CMF's knowledge, information and belief, the work has progressed to the point indicated and the quality of the work is in accordance with the Contractor's contract documents.

# G. CHANGE ORDER REQUESTS ESTIMATES, LOGS AND ERRORS AND OMISSIONS RECOMMENDATIONS

Review, evaluate and make specific written recommendations regarding change order requests. The CMF shall assess change order requests for validity; merit, cost, and utilizing the approved

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schedule, to perform a schedule impact analysis to determine the effect, if any, the change order request will have on the milestones and completion date of the project.

The CMF shall attend and actively participate at administrative hearings and conferences or settlement conferences in connection with such claims upon request by the DPMC. The CMF shall, upon request of the DPMC, assist in the preparation and presentation of its defense, counterclaim or other position in connection with any claim by or against the DPMC during any lawsuit with no extra costs to the DPMC.

#### 1. Change Order Request Folder:

The CMF shall prepare and deliver to the DPMC Project Manager, a hard copy of a contractor's change order request folder (the CMF shall provide all office supplies and materials related to developing and hard copy change order folder) that contains detailed documentation including, but not limited to, the Contractor submitted DPMC 9b, with supporting cost and labor rate justifications, and any appropriate drawings and/or specifications, the Design Consultants DPMC 10 – Consultant change order review and attachments.

Additionally, the CMF shall prepare and include in the folder, a detailed description of the reason for the change order request, their independent cost estimate, a cost analysis of the Contractor's submitted proposal, a schedule impact analysis, a contractor entitlement statement, and a recommendation for approval or denial or negotiation.

The CMF shall provide this information in a letter to the DPMC Project Manager, formatted as described below. This information shall then be reviewed by the Design Consultant and with the Design Consultant's input, provided to DPMC Project Manager. It shall include separated highlighted sections detailing the following:

#### REASON FOR CHANGE

This section should include a detailed explanation of the change order request with emphasis on the specifications, plans, and any other relevant project documentation or issue history. A classification of the change order request is required.

#### CONTRACTOR ENTITLEMENT

A statement as to why the contractor is or is not entitled to the change order request is required. The basis for this determination of entitlement will be the contract documents.

#### **COST ANALYSIS**

This section should show a comparative analysis between the contractors cost estimate and the CMF's independent cast estimate. Any difference in estimates should be noted and explained. A statement indicating fair market costs, acceptable labor practices, and approval

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of the contractor's cost estimate is to be made.

#### SCHEDULE IMPACT

If the contractor is declaring an impact to the schedule, it is to be analyzed by the CMF. A statement regarding agreement or disagreement is to be made.

#### RECOMMENDATION

The CMF's recommendation will be based on all of the above and will clearly state either approval in the full amount, approval as negotiated in the past (include details of the negotiation), or that the change order request must be negotiated, or rejection (include substantiating details).

If the change order request is negotiated, the CMF shall prepare a "Record of Negotiation" to be included in the change order request folder.

The folder shall be forwarded to the DPMC within ten (10) working days from receipt of the Contractor's change order request. If the change order request folder contents are deemed insufficient by the DPMC, they shall be resubmitted at no additional cost to the State.

#### 2. Cost Estimate:

The CMF shall verify and provide the DPMC with their independent detailed breakdown of all costs associated with the change order request, i.e. material, labor, equipment, overhead, Sub-Contractor work, profit and bond, and certification of increased bond. The estimate shall be in CSI format.

The CMF shall provide immediate response to a "not to exceed" cost proposal submitted by the Contractor in the case of emergent situations.

### 3. Negotiation:

If a negotiation of the change order request is necessary, the CMF shall assist DPMC in negotiating the change order request cost estimate submitted by the Contractor. The CMF will obtain a new change order request 9b form from the Contractor reflecting the negotiated amount and include this, along with the original 9b form, in the folder submitted to the DPMC.

#### 4. Meetings:

The CMF (along with the Design Consultant to extent included in Design Consultant Contract) shall attend and actively participate at all administrative hearings or settlement conferences in

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connection with such change order requests.

#### 5. Change Order Request Log:

The CMF shall maintain a Change Order Request Log on the "web site" to track the status of all project change order requests. The Change Order Request Log shall include, but not be limited to, entries for the Contractor's tracking number, the State's tracking number, the value of the change order request (with running total), separate Error/Omission/Scope designations (with running totals), the approval/denial/cancellation status of the change order request, and payment status.

#### H. COORDINATION OF REVISIONS TO THE CONTRACT DOCUMENTS

Provide coordination of revisions or changes to the Contract Documents to be made by the Design Consultant as required in response to unexpected site conditions or approved scope changes.

### I. QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

Develop a QA/QC program including methods and frequency of inspections. The CMF shall staff the necessary field offices with qualified personnel assigned to carry out QA/QC on each work package or trade. Provide all supervisory and inspection staff at the job site necessary to verify that the project is properly constructed in strict accordance with the contract documents, the Schedule and within budget. On the basis of on-site inspections, the CMF shall recommend rejection of work that does not conform to the requirements of the contract documents. Separate but part of this task, the CMF shall also monitor and report to the DPMC the Construction Contractor(s) quality control operations/inspections.

The CMF shall coordinate and participate in the required code inspections with the Contractors and/or other State Agencies. The CMF shall immediately notify the DPMC of any Contractor code inspection failures and monitor the Contractor's progress for corrective action and reinspection of the work to minimize the impact, if any, to the progress of the work and completion of the project as scheduled.

#### J. SAFETY OVERSIGHT

The CMF shall, on a continuous basis, monitor the Contractor(s) site safety program to ensure compliance. If it is found the Contractor(s) is not in compliance with said program then the CMF shall immediately notify the Contractor(s) and the DPMC in writing of the deficiencies.

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The CMF shall meet with the DPMC's Representative to review the non-compliance issues and proceed in a manner as directed by the DPMC to ensure compliance with the site safety program. The CMF will perform weekly site safety inspections with reports to the DPMC, maintain a complete record of all safety related incidents and perform a monthly Safety Inspection with its Safety Manager including their reports to the DPMC.

All monthly safety reports shall be maintained for reference on the "web site".

#### K. LABOR RELATIONS

Monitor overall labor issues and render assistance to the DPMC, upon the DPMC's request as may be appropriate in labor and PLA issues affecting the project.

#### L. SHOP DRAWINGS AND SUBMITTAL PACKAGES

The CMF shall be responsible for monitoring, receiving, cataloging, logging and processing of all Contractor submittals including, but not limited to, shop drawings, samples, product data, operations manuals, warrantees, project closeout documentation and all other submittal packages utilizing the BIM backgrounds and set ups in conformance with the project specifications. The CMF shall first review each submittal package for completeness and compliance with the specifications, as well as coordination among trades and general conformance with design documents, rejecting incomplete Submittal Packages before forwarding to the Design Consultant for review. The Design consultant shall coordinate with CMF to obtain the DPMC approval for any sample's selection, as needed. The CMF shall return to the Contractor(s) all Design Consultant reviewed Submittal Packages.

The CMF shall maintain an accurate, up-to-date Submittal Log on the "web site", in a form acceptable to the DPMC, which shall include, but not be limited to, a description of each submittal package required by specification number, the date submitted by the Contractor(s), the date sent to the Design Consultant, the date returned by the Design Consultant, the date forwarded back to the Contractor(s) and the status of the returned submittal. The CMF shall generate a submittal log report weekly for the DPMC and Contractor(s), which shall list the status of all project Submittal Packages, the dates submittals are required to be submitted and approved to avoid impacting the scheduled completion of the work.

## M. CONTRACTOR REQUESTS FOR INFORMATIOM (RFI'S)

The CMF shall, in consultation with the Design Consultant, establish a procedure and process acceptable to the DPMC, for contractors to submit requests for information and for the CMF and/or Design Consultant to respond to said requests. The procedure shall be included in

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division 1 of the specifications.

The CMF shall develop and maintain an RFI log on the project web site. The log shall include, but not be limited to, identifying each RFI uniquely, record the date received, include a brief description, identify the party responsible for responding and record the date of the response.

The RFI log shall produce reports of the processed as well as outstanding RFI requests. RFI reports shall be reviewed at each job meeting.

## N. DAILY CONSTRUCTION REPORT

The CMF shall be the sole publisher of the project's official daily construction report and submit a copy to the DPMC and the DOT Project Manager from design to close-out. Reports are due the following business day. Submit a sample report with your technical proposal. The CMF shall maintain all daily logs on the web site.

## O. CONSTRUCTION CLAIMS MANAGEMENT

The CMF shall establish and maintain an active program to avoid or minimize the number of claims from the Contractor(s) and/or Design Consultants. Upon the DPMC's request, analyze any and all claims or requests for extensions of time and costs, using available project records, the approved Design Schedule and/or Construction Schedule, and make specific recommendations regarding same.

The CMF shall attend and actively participate at administrative hearings and conferences or settlement conferences in connection with such claims upon request by the DPMC. The CMF shall, upon request by the DPMC, assist the DPMC in the preparation and presentation of its defense, counterclaim or other position in connection with any claim by or against the DPMC during any lawsuit with no extra cost to DPMC.

## P. CONSTRUCTION SITE MONITORING

The CMF shall provide project monitoring at the site of all activities of all Contractors so that construction is accomplished with a minimum of duplication of effort and interference.

## Q. MONTHLY PROGRESS REPORT

The CMF shall submit monthly a pdf copy via flash drive and a complete hard copy of its monthly progress reports to the DPMC by the 1st of each month including, but not limited to,

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information concerning the adequacy of the work and site manpower of the Contractor(s), the percentage of completion, submittal status, the number and amount of change order requests, the updated schedule with reports, look ahead Construction schedule, progress on photo documentation, as-built document preparation by the Contractor and construction cost summary reports. Additionally, CMF shall provide the monthly progress report shall include current and potential problems deemed of sufficient importance to require DPMC monitoring or action during the forthcoming month and a recommended course of action to achieve resolution of each of these problems. The CMF shall maintain all monthly progress reports on the web site.

### R. DAILY JOB SITE MEETINGS

The CMF's Project Manager shall meet with the DPMC's Representative on the jobsite on a daily basis to observe ongoing work, review the Project's current status, discuss new issues and review the Contractor(s) work to be performed that day.

## S. AVAILABILITY OF MATERIAL AND EQUIPMENT

The CMF shall analyze project requirements for critical material and equipment availability. Work with the Contractors to achieve timely deliveries and installations.

### T. COMPLIANCE WITH LAWS

The CMF shall require each Contractor to comply with all governmental laws, ordinances, rules and regulations and notify the DPMC of a Contractor's non-compliance.

### U. INTERPRETATION

The CMF shall consult with the Design Consultant whenever any Contractor properly requests interpretations of the meaning and intent of the Drawings and Specifications, and assist in the resolution of questions or disputes that may arise.

## V. MONITOR AS-BUILT DRAWING UPDATES

The CMF shall monitor on a continual basis the Contractor's timely preparation of "As-Built" information into BIM backgrounds and set ups, updating and final submission of a complete set of record "As-Built" marked-up drawings to the Design Consultant for review and approval. The approved As-Built Drawings shall be submitted with the Project Closeout documents.

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### W. CODE INSPECTION SCHEDULING

The CMF shall assist the State's Department of Community Affairs or construction inspectors with their required inspections to ensure construction is in compliance with the New Jersey Uniform Construction Code and the contract documents. Require corrective actions as needed.

## X. INSPECTIONS

The CMF shall inspect work in progress, and take action to avoid or prevent installation of defective or non-conforming work by the Contractors. Maintain on the web site a continuing list of non-conforming work as determined from time to time by CMF, DPMC or Design Consultant; publish this list to the responsible Contractors, require timely resolution of the non-conforming work, and report on resolution.

#### Y. PUNCHLIST AND CORRECTION OF DEFECTIVE WORK

Upon issuance of "Certificate of Substantial Completion", the Design Consultant shall, in conjunction with the CMF and DPMC, prepare a punch list of defective and/or noncompliant work to be corrected by the Contractor (s) prior to beneficial occupancy. The CMF shall monitor and maintain an updated punch list on a weekly basis and ensure the responsible Contractor(s) take prompt action to correct defective work necessary to complete all work as required in the contract documents.

The CMF shall maintain the punch list on the "web site" in a format acceptable to the DPMC. The punch list shall state the date of origination, identify the design specification section that is not in compliance, the open/close status, and the date of completion. Additionally, if the punch list item resulted from a DCA code inspection, it shall have a unique identifier that will indicate the need for "priority" correction.

### Z. CONSTRUCTION PHASE PHOTOGRAPHS

The CMF shall be the official and sole publisher of construction photos and provide monthly project photographs from the construction phase NTP to project substantial completion, simultaneously at the project site. Photographs shall be in color, digitally stored and accessible by the State during the course of construction. At the end of the project, the CMF shall provide digital photographs and hard drives of all photos to the State.

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### AA. TESTING AND INSPECTION SERVICES

CMF shall include in their base fee proposal for all work associated with Third-Party testing and inspection services including but not limited to for earthwork, concrete testing, spray-on fireproofing, paving, roof inspection, etc.

## XII. BUILDING COMMISSIONING

### A. GOALS

The overall goal of the Project T0705-01 commissioning process is to ensure that Project T0705-00 is delivered successfully and produces optimal results with respect to its stated requirements as described in the T0705-00 Scope of Work titled "Materials Testing Laboratory Building", as shown in the Existing Documentation. In general, this consists of the following:

The goals of the commissioning process to be completed by the CMF's Commissioning Agent include, but are not limited to:

- Providing an unbiased, objective verification that the design and installation is complete for all building systems and controls including, but not limited to:
  - o HVAC
  - Lighting
  - o Energy Management
  - Security
  - o Fire detection and notification
  - Network wiring
  - Access Control
  - o Building Management System (BMS)
  - o Fire Alarm
  - o Plumbing
  - o Grounding & Lightning Protection
  - o New & Relocated Materials Testing Laboratory Equipment
- Ensuring that the design is satisfactory and addresses the customer needs as identified within the Project T0705-00 scope of work document.
- Ensuring that the construction is satisfactory and is executed in accordance with the Project T0705-00 design documents.

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• Ensuring that all applicable building systems within the Project T0705-00 scope are performing optimally upon completion of final testing.

### B. RESPONSIBILITIES & DUTIES

The responsibilities and specific duties of the Commissioning Agent during each project phase are described in this section. The following requirements were developed based on ASHRAE Standard 202, which shall serve as a guiding document for the Commissioning Agent alongside other applicable industry sources such as ASHRAE Guidelines (0, 0.2, 1.2, 1.5) and NFPA Standards (3, 4).

#### Commissioning Agent shall, during the **Investigation/Program Phase**:

- Develop a commissioning plan that contains and defines the requirements for commissioning Project T0705-00 including but not limited to: roles & responsibilities of project team members, documentation checklists, issue/resolution logs, performance testing procedures, owner training plans, and schedule of activities. This commissioning plan shall be reviewed by the Using Agency and revised as needed throughout the duration of the project.
- Attend the evaluation presentation provided by the Consultant and provide comments.
- Specifically provide an investigation and program phase for developing a commissioning plan of all relocated and new Materials Testing Laboratory Equipment to the new building.

### Commissioning Agent shall, during the **Design Phases**:

- Attend all design review meetings and provide comments.
- Incorporate applicable commissioning requirements into the design documents.
- Review all design document submissions and design presentations by the Consultant and provide comments.
- Coordinate and direct all commissioning activities, including general identification & resolution of issues.
- Develop a commissioning plan for the all building systems and controls including, but not limited to, specifications, installation checklists, functional testing requirements, performance testing requirements, O&M training and O&M documentation to be included in the construction documents.
- Coordinate and direct commissioning activities with the Design Consultant and Project Team.
- Review and comment on Design Consultants design submittals including:
  - o Schematic Phase submittal, including construction cost estimate.
  - o Design Development submittal, including construction cost estimate.

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- o Final Design submittal, including construction cost estimate.
- Coordinate and direct commissioning activities with the Design Consultant and Project Team for the removal, relocation, and installation of existing and new Material Testing Laboratory equipment into the new building.

## Commissioning Agent shall, during the **Bid Phase**:

- Attend the construction pre-bid meeting in order to address any commissioning-related questions and items.
- Assist project team in providing responses to any commissioning-related questions submitted by construction bidders.
- Assist project team in the preparation of project bulletins as needed.
- Coordinate with Design Consultant responses to commissioning related questions submitted by bidders and assist Design Consultant in the preparation of Bulletins as required.

### Commissioning Agent shall, during the **Construction Phase**:

- Coordinate and direct the <u>commissioning activities</u> in a logical, sequential and efficient manner, including material testing equipment and controls.
- Review <u>contractors' schedule</u> to assure commissioning activities are planned and included.
- Review <u>contractors' submittals</u> including, but not limited to, shop drawings, catalog cuts, O&M manuals, equipment warranties for compliance with contract documents and commissioning requirements providing recommendations to the Design Consultant.
- Plan and conduct <u>commissioning meetings</u> as required, coinciding with regularly scheduled bi-weekly construction progress meetings and provide input as needed.
- Perform <u>site visits</u> as necessary to observe construction, equipment, and systems installation.
- Witness all functional and operational equipment and <u>systems tests</u> for all equipment and <u>systems</u>.
  - o Review testing and air balancing (TAB) reports.
- Oversee the training of the operations and maintenance personnel.
- Provide bi-weekly <u>progress reports</u> of commissioning activities to include, but not limited to the status of:
  - Installation checklists
  - Commissioning activities
  - Functional testing
  - o Performance testing
  - o O&M training
  - O&M documentation

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• All commissioning reports shall be <u>maintained</u> on the "web site" for reference.

- Coordinate and <u>direct all building commissioning activities</u>, including general identification & resolution of issues.
- Coordinate, direct, and observe the commissioning of <u>new and relocate material testing laboratory</u> equipment installation to the new building.
- Review and provide comments on all applicable <u>contractors' submittals</u> including, but not limited to: construction schedule, unit pricing, shop drawings, product data, and training plans.
- Review all applicable <u>contractors' requests</u> for information and change orders and advise project team as needed.
- Observe startup, testing, and adjusting of the applicable <u>building systems</u> and review the associated reports, providing comments to project team as needed.

### Commissioning Agent shall, during the Construction Close-Out Phase:

- Ensure that the owner training and demonstrations are executed in a satisfactory manner.
- Attend all inspection / punch list walkthroughs and provide input as needed.
- Review and provide comments on all applicable deliverable submissions including, but not limited to: O&M manuals, as-built/record drawings, and warranties.
- Provide input regarding determination of substantial completion.

## Commissioning Agent shall, during the Commissioning Testing Phase:

- Coordinate and direct all commissioning activities, including general identification & resolution of issues.
- Provide long-term comprehensive performance testing in order to confirm that the
  applicable building systems are performing optimally throughout the full range of
  expected conditions (e.g., on-peak demand, off-peak demand, cooling season, heating
  season, and seasonal commissioning cycles). Both active and passive testing shall be
  utilized as needed.
- Assist project team with resolution of all issues and concerns identified during performance testing.
- Confirm the relocation and installation of the existing and new material testing laboratory equipment are operating properly and assist the project team with the resolution of all issues and concerns identified during performance testing.

#### Commissioning Agent shall, during the Commissioning Close-Out Phase:

 Provide a final commissioning report. Report shall include all records and documentation involving the commissioning process as well as a comprehensive summary of the commissioning results of all equipment and related systems including all installed Provide a final commissioning report.

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- Provide a "Certificate of System Acceptance" upon completion of system performance
- testing, submission of all project documentation and completion of training.

## XIII. CLOSE-OUT PHASE

### A. PROJECT CLOSE-OUT

The CMF shall manage and coordinate the Project Close-Out process to include, but not limited to:

- Commissioning
- As-Built Drawings (BIM)
- Warrantees and Guarantees
- Operating and Maintenance manuals
- Certify Final Completion for acceptance by the DPMC
- Spare Parts list
- Building Equipment and System training
- Materials Testing Equipment Manuals and Special Instructions

## B. PROJECT CLOSE-OUT DOCUMENTATION

The CMF shall monitor and track the progress of the Contractor(s) timely submission of Project Closeout Documentation. The Project Closeout Documentation shall include, but not be limited to operations manuals, certificates, instructions, warrantees, guarantees, maintenance manuals, test reports, as-built drawings and certifications.

The CMF shall forward all Project Closeout Documentation to the Design Consultant for review and approval. The CMF shall produce a bi-weekly Project Closeout Documentation report sorted by Contractor for the DPMC and Contractor(s).

Project Close-out Documentation and reports shall be maintained on the web site.

### C. FINAL INSPECTION

Following the issuance of a certificate of substantial completion of the work or a designated portion thereof, in conjunction with the Design Consultant, evaluate the completion of the work of the Contractors and make recommendations to the DPMC when the work is ready for final inspection. The CMF shall, in conjunction with the Design Consultant and the DPMC, conduct

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final inspection(s) of the contracted work of the Contractors prior to final acceptance by the DPMC. The CMF shall, in conjunction with the Design Consultant, forward to the DPMC a final project application for payment upon compliance with the requirements of the Contractors' contract documents.

### D. WARRANTY INSPECTION

The Contractor's workmanship guarantee or warranty expires after twelve (12) months of the project's substantial completion date. Therefore, within nine (9) months after the project's substantial completion date, schedule and conduct a site inspection with the DPMC's staff to identify warranty work that may need to be completed.

## XIV. GENERAL REQUIREMENTS

#### A. SCOPE CHANGES

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

## XV. ALLOWANCES

## A. DESIGN CONSULTANT ALLOWANCES

The CMF shall review and monitor all allowances for the Design Consultant including Plan Review and Permit Fee Allowances, Site Geotechnical Allowances Utility Upgrade Allowances. The CMF and DPMC Project Manager will monitor the utilization of this funding and any unused portions will be returned to the State at the completion of the project.

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## XVI. SOW SIGNATURE APPROVAL SHEET

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

SOW PREPARED BY:	Alison L. Gottlisb	11/21/2024
	ALISON F. GOTTLIEB, PROJECT MANAGER DPMC PROJECT PLANNING & INITIATION	DATE
SOW APPROVED BY	James Wright  JAMES WRIGHT, MANAGER  DPMC PROJECT PLANNING & INITIATION	11/21/2024 DATE
SOW APPROVED BY	: Dennis W. Meszaros DENNIS W. MESZAROS, EXECUTIVE MANAGER NEW JERSEY DEPARTMENT OF TRANSPORTATION	11/21/2024 DATE ON
SOW APPROVED BY	Cristina Zozzaro  CRISTINA ZOZZARO, PROJECT MANAGER DPMC CONSTRUCTION MANAGEMENT GROUP	11/21/2024 DATE
SOW APPROVED BY	: Cantle M. Banaso JEANETTE BARNARD, DEPUTY DIRECTOR DIV PROPERTY MGT & CONSTRUCTION	11.21.24 DATE

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## XVII.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 <a href="https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf">https://www.nj.gov/treasury/dpmc/Assets/Files/ProceduresforArchitectsandEngineers.pdf</a> 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:

- INVESTIGATION PHASE/PROGRAM PHASE
- SCHEMATIC DESIGN PHASE
- DESIGN DEVELOPMENT PHASE
- FINAL DESIGN PHASE
- PERMIT APPLICATION PHASE
- BIDDING AND CONTRACT AWARD
- CONSTRUCTION PHASE
- PROJECT CLOSE-OUT PHASE

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## **XVIII. EXHIBITS**

The attached or referenced exhibits in this section include supporting documentation to assist the CMF in understanding the project to prepare its technical and fee proposals.

- A. SAMPLE PROJECT SCHEDULE FORMAT
- B. PROJECT SITE MAPS
- C. DPMC CONSTRUCTION MANAGEMENT RESPONSIBILITY MATRIX
- D. PRELIMINARY FEASIBILITY STUDY

END OF SCOPE OF WORK

# Deliverables Checklist Investigation Phase/ Program Phase

A/E Name:
-----------

A/E Manual	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
Reference		Yes	No	Yes	No	Yes	No
12.3.1.	A/E Statement of Site Visit						
12.3.2.	Narrative Description of Project						
12.3.3.	Building Code Information Questionnaire						
12.3.4.	Space Analysis						
12.3.5.	Special Features						
12.3.6.	Catalog Cuts						
12.3.7.	Site Evaluation						
12.3.8.	Subsurface Investigation						
12.3.9.	Surveys						
12.3.10.	Fine Arts Inclusion						
12.3.11.	Design Rendering						
12.3.12.	Regulatory Approvals						
12.3.13.	Utility Availability						
12.3.14.	Diagrammatic Sketches/Drawings (6 Sets)						
12.3.15.	Specifications (6 Sets)						
12.3.16.	Current Working Estimate/Cost Analysis						
12.3.17.	Project Schedule						
12.3.18.	Formal Presentation						
12.3.19.	Scope of Work Compliance Statement						
12.3.20.	Program 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.

Date

Consultant Signature

# Deliverables Checklist Schematic Design Phase

A/E Name: _			

A/E Manual	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
Reference		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						
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						
Reference					1		

This checklist shall be completed by the Design Consultant an	d included as the cover sheet of this submission to
document to the DPMC the status of all the deliverables requ	ired by the project specific Scope of Work.
Consultant Signature	 Date

# Deliverables Checklist Design Development Phase

A/E Name:
-----------

Manual Required by S.O.W.		-	y Previously Submitted		Enclosed	
Submission Item	Yes	No	Yes	No	Yes	No
A/E Statement of Site Visit						
Narrative Description of Project						
Building Code Information Questionnaire						
Space Analysis						
Special Features						
Catalog Cuts						
Site Evaluation						
Subsurface Investigation						
Surveys						
Arts Inclusion						
Design Rendering						
Regulatory Approvals						
Utility Availability						
Drawings (6 Sets)						
Specifications (6 Sets)						
Current Working Estimate/Cost Analysis						
Project Schedule						
Formal Presentation						
Plan Review/Scope of Work Compliance Statement						
Design development Phase Deliverables Checklist						
S.O.W. Specific Requirements						
				-		
	A/E Statement of Site Visit Narrative Description of Project Building Code Information Questionnaire Space Analysis Special Features Catalog Cuts Site Evaluation Subsurface Investigation Surveys Arts Inclusion Design Rendering Regulatory Approvals Utility Availability Drawings (6 Sets) Specifications (6 Sets) Current Working Estimate/Cost Analysis Project Schedule Formal Presentation Plan Review/Scope of Work Compliance Statement Design development Phase Deliverables Checklist	Submission Item  A/E Statement of Site Visit  Narrative Description of Project  Building Code Information Questionnaire  Space Analysis  Special Features  Catalog Cuts  Site Evaluation  Subsurface Investigation  Surveys  Arts Inclusion  Design Rendering  Regulatory Approvals  Utility Availability  Drawings (6 Sets)  Specifications (6 Sets)  Current Working Estimate/Cost Analysis  Project Schedule  Formal Presentation  Plan Review/Scope of Work Compliance Statement  Design development Phase Deliverables Checklist	Submission Item  A/E Statement of Site Visit  Narrative Description of Project  Building Code Information Questionnaire  Space Analysis  Special Features  Catalog Cuts  Site Evaluation  Subsurface Investigation  Surveys  Arts Inclusion  Design Rendering  Regulatory Approvals  Utility Availability  Drawings (6 Sets)  Specifications (6 Sets)  Current Working Estimate/Cost Analysis  Project Schedule  Formal Presentation  Plan Review/Scope of Work Compliance Statement  Design development Phase Deliverables Checklist	Submission Item  Yes No Yes  A/E Statement of Site Visit  Narrative Description of Project  Building Code Information Questionnaire  Space Analysis  Special Features  Catalog Cuts  Site Evaluation  Subsurface Investigation  Surveys  Arts Inclusion  Design Rendering  Regulatory Approvals  Utility Availability  Drawings (6 Sets)  Specifications (6 Sets)  Current Working Estimate/Cost Analysis  Project Schedule  Formal Presentation  Plan Review/Scope of Work Compliance Statement  Design development Phase Deliverables Checklist	Submission Item  Submission Item  Yes  No  Yes  No  Yes  No  A/E Statement of Site Visit  Narrative Description of Project  Building Code Information Questionnaire  Space Analysis  Special Features  Catalog Cuts  Site Evaluation  Subsurface Investigation  Surveys  Arts Inclusion  Design Rendering  Regulatory Approvals  Utility Availability  Drawings (6 Sets)  Specifications (6 Sets)  Current Working Estimate/Cost Analysis  Project Schedule  Formal Presentation  Plan Review/Scope of Work Compliance Statement  Design development Phase Deliverables Checklist	Submission Item  Submission Item  Yes No Yes No Yes  A/E Statement of Site Visit  Narrative Description of Project  Building Code Information Questionnaire  Space Analysis  Special Features  Catalog Cuts  Site Evaluation  Subsurface Investigation  Surveys  Arts Inclusion  Design Rendering  Regulatory Approvals  Utility Availability  Drawings (6 Sets)  Specifications (6 Sets)  Current Working Estimate/Cost Analysis  Project Schedule  Formal Presentation  Plan Review/Scope of Work Compliance Statement  Design development Phase Deliverables Checklist  Since Yes No Yes  N

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.

Date

Consultant Signature

# Deliverables Checklist Final Design Phase

A/E Name:
-----------

A/E Manual	Submission Item	Required by S.O.W.		Previously Submitted		Enclosed	
Reference		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						
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.	S.O.W. Specific Requirements						
Reference			I			T	Г
							]

hall be completed by the Design Consultant and ne DPMC the status of all the deliverables requir				ssion to
Consultant Signature	 	 Date	 	

# Deliverables Checklist Permit Application Phase

A/E Manual		-	red by .W.	Previ Subm	-	Enclo	osed
Reference	Submission Item	Yes	No	Yes	No	Yes	No
16.1.	N.J. UCC Permit Application						
16.4.	Drawings, Signed and Sealed (6 Sets)						
16.5.	Specifications, Signed and Sealed (6 Sets)						
16.6.	Current Working Estimate/Cost Analysis						
16.7.	Project Schedule						
16.8.	Plan Review/Scope of Work Compliance Statement						
16.9.	Permit Application Phase Deliverables Checklist						
S.O.W. Reference	S.O.W. Specific Requirements						
	hall be completed by the Design Consultant anne DPMC Project Manager the status of all the						
	Consultant Signature			Date			

# Deliverables Checklist Bidding and Contract Award Phase

A/E Name:

A/E Manual		Requi	red by .W.	Previ Subm	-	Encl	osed
Reference	Submission Item	Yes	No	Yes	No	Yes	No
17.1.1.	Notice of Advertising						
17.1.2.	Bid Proposal Form						
17.1.3.	Bid Clearance Form						
17.1.4.	Drawings (6 Sets)						
17.1.5.	Specifications (6 Sets)						
17.1.6.	Construction Schedule						
17.3	Pre-Bid Conference/Mandatory Site Visit						
17.3.1.	Meeting Minutes						
17.4	Bulletins						
17.5	Post Bid Meeting						
17.6.	Contract Award "Letter of Recommendation"						
17.8.	Bid Protests - Hearings						
17.9.	Bidding and Contract Award Phase						
	Deliverables Checklist						
S.O.W. Reference	S.O.W. Specific Requirements						
	hall be completed by the Design Consultant and he DPMC the status of all the deliverables require						sion to
	Consultant Signature			Date		<del></del>	

**DPMC Project No.:** \_\_\_\_T0705-00\_

## **Deliverables Checklist Construction Phase**

A/E Name:		
	Required by Previously	

A/E Manual			red by .W.		ously	Encl	osed
Reference	Submission Item	Yes	No	Yes	No	Yes	No
18.2.	Pre-Construction Meeting						
18.3.	Submittal Log						
18.4.	Construction Schedule						
18.5.	Project Progress Meetings						
18.7.	Contractor's Invoicing and Payment Process						
18.8.	Contractor Submittals						
18.10.	Testing						
18.11.	Shop Drawings (6 Sets)						
18.12.	As-Built & Record Set Drawings (6 Sets)						
18.13.	Change Orders						
18.14.	Construction Photographs						
18.15.	Field Observations						
18.17.	Construction Phase Deliverables Checklist						
S.O.W.	S.O.W. Specific Requirements						
Reference	3.0.W. Specific Requirements						

This checklist shall be completed by the Design Consultant and document to the DPMC the status of all the deliverables requ	
document to the brive the status of all the deliverables requ	med by the project specific scope of work.
Consultant Signature	 Date

**DPMC Project No.:** \_\_\_\_T0705-00\_

# Deliverables Checklist Project Close-Out Phase

A/E Name: _			

A/E Manual			red by		ously	Encl	osed
Reference	Submission Item	Yes	No	Yes	No	Yes	No
19.3.	Development of Punch List and Inspection						
	Reports						
19.5.	Determination of Substantial Completion						
19.6.	Correction/Completion of Punch List						
19.7.	Submission of Close-Out Documentation						
19.7.1.	As-Built and Record Sets of Drawing (6 Sets)						
19.8.	Final Payment						
19.9.1.	Contractors Final Payment						
19.9.2.	A/E's Final Payment						
19.10.	Project Close-Out Phase Deliverables Checklist						
S.O.W. Reference	S.O.W. Specific Requirements						
Reference							
					1		

This checklist shall be completed by the Design Consultant a document to the DPMC the status of all the deliverables req	
Consultant Signature	 Date

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

	Description	Rspa Weeks	
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Design	u		
CV3001	Schedule/Conduct Predesign/Project Kick-Off Mtg.		
CV3020	Prepare Program Phase Submittal	<b>Y</b>	
CV3021	Distribute Program Submittal for Review		
CV3027	Prepare & Submit Project Cost Analysis (DPMC-38)		
CV3022	Review & Approve Program Submittal	<b>S</b>	
CV3023	Review & Approve Program Submittal		
CV3024	Review & Approve Program Submittal		
CV3025	Consolidate & Return Program Submittal Comments		
CV3030	Prepare Schematic Phase Submittal	<b>AB</b>	
CV3031	Distribute Schematic Submittal for Review		
CV3037	Prepare & Submit Project Cost Analysis (DPMC-38)	<b>X</b>	
CV3032	Review & Approve Schematic Submittal	<b>Y</b>	
CV3033	Review & Approve Schematic Submittal		
CV3034	Review & Approve Schematic Submittal		
CV3035	Consolidate & Return Schematic Submittal Comment		
CV3040	Prepare Design Development Phase Submittal	YE	
CV3041	Distribute D. D. Submittal for Review		
CV3047	Prepare & Submit Project Cost Analysis (DPMC-38)		
CV3042	Review & Approve Design Development Submittal		
CV3043	Review & Approve Design Development Submittal		
CV3044	Review & Approve Design Development Submittal	Wo .	
CV3045	Consolidate & Return D.D. Submittal Comments		
CV3050	Prepare Final Design Phase Submittal	<b>AB</b>	
CV3051	Distribute Final Design Submittal for Review		
CV3052	Review & Approve Final Design Submittal	<b>V</b>	
CV3053	Review & Approve Final Design Submittal	<b>X</b>	
CV3054	Review Final Design Submitl for Constructability	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
NOTE		DBCA - TEST Sheet 1 of 3	
Sco	Refer to section "IV Project Schedule" of the Scope of Work for contract phase durations.	Bureau of Design & Construction Services	RIT 'A'
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Packet & Agriner Fail Design Schooling   Description   D	Activity								C. C								ſ
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Submit Bidding Cost Analysis (DPMC.38)	CV30S6	Consolidate & Return Final Design Comments	CM											00 100 00 100 00 100 00 100 00 100		- 47 - 15 - 20 - 10 - 20 - 20 - 20 - 20	
Contact   Cont	CV3060	Prepare & Submit Permit Application Documents	AE														
Partial Acquisition	CV3068	Prepare & Submit Bidding Cost Analysis (DPMC-38)	CM														
Avarage   Construction Contracts   CA	Plan R	eview-Permit Acquisition											7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7				
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Id Cleannoo	CV4010	Provide Funding for Construction Contracts	CA CA												0 10 00 0 10 00 0 000 0 000 0 000 0 000	1 10 10 10 10 10 10 10 10 10 10 10 10 10	* 00 FG
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Project Site Location Map
NJDOT Headquarters



**Project Site** 

NJDOT Headquarters



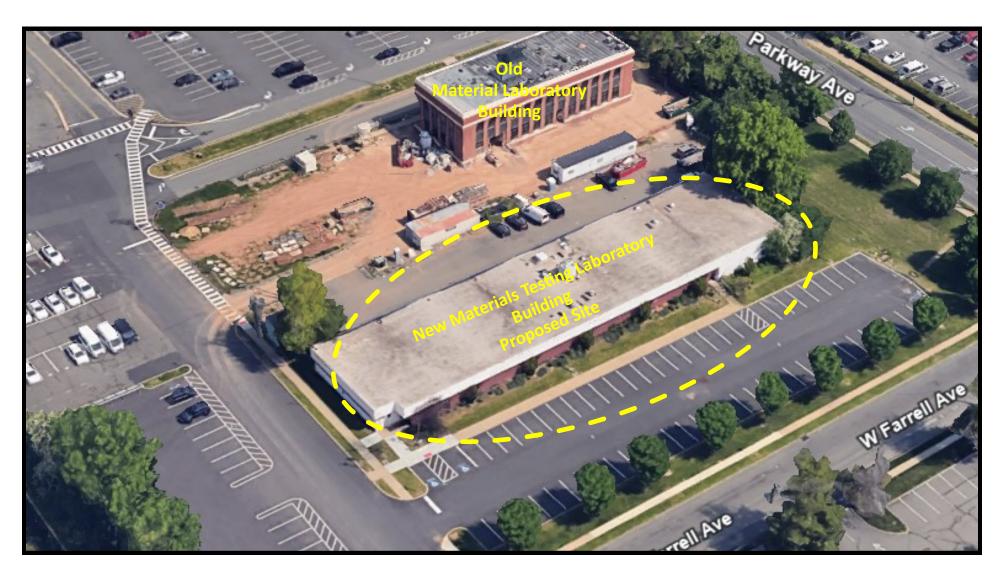
**Project Site** 

Thiokol Complex - New Materials Testing Laboratory



**Project Site** 

Thiokol Complex



Project Site

New Location - Materials Testing Laboratory

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

PROJECT INITIATION PHASE	A/E	DPMC	CMF
Prepare/Review "Project Alert" Form		•	
Prepare/Design Consultants' S.O.W.		•	
Prepare Design & Construction Schedule		•	
Prepare Project Construction Cost Estimate		•	
Schedule & Chair Pre-Design Meeting		•	
Attend Pre-Design Meeting		•	
Site Visit & Inspection		•	
Prepare & Distribute Minutes		•	
Locate "Record Set" Drawings			
Provide MIS Inputs of Project Activities, Durations		•	

CONSULTANT SELECTION PHASE	A/E	DPMC	CMF
Select Consulting Firms		•	
Attend Pre-Bid Meeting @ Site with Firms		•	
Review & Rate Bid Proposals		•	
Select Consultant/Negotiate Costs		•	
Issue Contract/Purchase Orders/NTP		•	
Set Up Project on Financial Information System		•	
Schedule & Chair "Kick-off Meeting"		•	
Prepare & Distribute Minutes of Meeting		•	
Provide Copies of Studies, Reports, Drawings to Firm		•	

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

INVESTIGATION/PROGRAM PHASE	A/E	DPMC	CMF
Conduct Feasibility Studies	•	0	0
Review Previous Feasibility Studies	•	0	•
Market Analysis to Determine Single	0	0	•
Early Bid Package Analysis	0	0	•
Bid Schedule Adjustment Analysis	0	0	•
Conduct Market Labor Study for Project Labor Agreement	0	0	•
Site Evaluation and Geotechnical Report	•	0	0
Site Surveys	•	0	0
SOW Compliance Statement	•		
Interview Client Agency Personnel	•	0	0
Prepare Narrative Description of Program	•		0
Prepare Space Analysis	•		0
Prepare Blocking & Stacking Diagrams	•		0
Prepare Current Working Estimate (CWE) in CSI Format & Cost Analysis 38 Form by A/E.	•		
CMF Review of the CWE and Cost Analysis 38 Form prepared by the A/E.			•
Prepare CPM Design & Construction Schedule	0		•
Oral Presentations of Investigation/Program Phase • Deliverables (50%, 100%)	•		0
Prepare & Distribute Meeting Minutes	0		•
Review all Facility Related Feasibility Studies and Projects and Formally Comment in Writing.	•		•

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

SCHEMATIC DESIGN PHASE	A/E	DPMC	CMF
Schedule & Chair Design Meetings	0		•
Attend Design Meetings	•	•	•
Prepare & Distribute Meeting Minutes	0		•
Special Features Description: Security Fire Protection, Structural, Energy, Etc.	•		
Borings, Surveys, Soils Analysis	•		
Survey Existing Furniture & Equipment	•		
Fine Arts Inclusion Preparation	•		
Design Renderings	•		
Regulatory Agency Approvals	•		
BIM Drawings	•		
Confirm Utility Availability	•		
Prepare Drawings: 25% Completion	•		
Prepare Current Working Estimate in CSI Format &	•		
Cost Analysis 38 Form: 50% & 100% Completion			
CMF Review of the CWE and Cost Analysis 38 Form prepared by the A/E.			•
CPM Design & Construction Schedule	0		•
Prepare & Distribute Meeting Minutes	0		•
Oral Presentation to Project Team @25%	•		•

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

DESIGN DEVELOPMENT PHASE	A/E	DPMC	CMF
Schedule & Chair Design Meetings	0		•
Attend Design Meetings	•	•	•
Prepare & Distribute Design Development Meeting Minutes	0		•
Fine Arts Inclusion - 50% Completion	•		0
Design Renderings	•		0
BIM Drawings	•		
Regulatory Agency Permits & Approvals	•	0	
NJ Department of Agriculture			
Soil Erosion	•	0	0
NJ Department of Community Affairs			
UCC Permit for Building Construction	•	0	0
NJ Department of Environmental Protection			
Equipment Emissions	•	0	0
Fuel Storage for Emergency Generator	•	0	0
Environmental Impact Statement	•	0	0
Wetlands Development Permit	•	0	0
Stream Encroachment	•	0	0
• NJPDES	•	0	0
Sewage System Construction	•	0	0
Exemption from Sewage System Ban	•	0	0
Water Management Plan for Sewage System	•	0	0
Divert Surface Water	•	0	0

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

Hazardous Waste Storage or Disposal	•	0	0
Well Drilling	•	0	0
NJ Department of Health			
Commercial Kitchen Equipment if applicable	•	0	0
Federal Aviation Authority			
Within FAA Jurisdiction	•	0	0
Utility Availability for:	•		0
Sanitary Service	•		0
Storm Water	•		0
Domestic Water	•		0
Gas Service	•		0
Fire Service	•		0
Electric Service	•		0
Telephone Service	•		0
Cable Service	•		0
Drawings: 50%, 90% & 100% Completion	•		
Cover Sheet (See A/E Manual, Vol. II, Div. 1 For Sample Format)	•		
Site Plan	•		
Site Utility Plan	•		
Floor Plans	•		
• Elevations	•		
Sections/Details	•		
Structural Drawings, Seismic, Design Load Criteria, Calculations	•		

TASKS ALWAYS	OPTIONAL			
REQUIRED	TASKS			
• LEAD	■ LEAD			
O ASSIST	■ ASSIST			

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

HVAC Drwgs. Heating & Cooling Equipment Schedules, Calculations	•		
Economic Comparison of Proposed vs. Alternate Fueled System	•		
Plumbing Drwgs, Pipe Distribution & Riser Details, Fixture Schedule	•		
Fire Protection Drwgs, Hydraulic Calcs, Water Pressure & Flow Data	•		
Electrical Drwgs, Riser Diagram, Panel Schedules, Service Size, Lighting Design, Calculations	•		
Emergency Power Equipment & Source	•		
Specifications: 50% Completion	•		
Prepare Current Working Estimate in CSI Format & Cost Analysis 38 Form: 50% Completion	•		
CMF Review of the CWE and Cost Analysis 38 Form prepared by the A/E.			•
CPM Design & Construction Schedule	0		•
Prepare Master Submittal List	•		0
Identify Long Lead Construction Items	0		•
Market Analysis to Determine Single vs Multi-Prime	0	0	•
Provide Info to Consultant for Owner Supplied Equipment		•	
Incorporate Owner Supplied Equipment into Design	•	0	0
Submit Design Documents for Review	•		0
Oral Presentation of Design Develop Phase Deliverables	•		0
Prepare & Distribute Meeting Minutes	0		•
Develop Submission Checklist & Forward to DPMC/DOT	•		0
Accept Consultant Compliance w/SOW Deliverables		•	0
Prepare Consultant Performance Evaluations		•	•
Oral Presentation to Project Team at 50%	•		•

TASKS ALWAYS	OPTIONAL			
REQUIRED	TASKS			
• LEAD	■ LEAD			
O ASSIST	■ ASSIST			

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

CONSTRUCTION DOCUMENT PHASE	A/E	DPMC	CMF
Schedule & Chair Design Meetings	0		•
Attend Design Meetings	•	•	•
Prepare & Distribute Phase Meeting Minutes	0		•
Regulatory Agency Permits & Approvals	•	0	0
Drawings: 50% & 100% Completion	•		
Project Update at 75%	•		•
Specifications: 50% & 100% Completion	•		
Perform Formal Review of Plans For Compliance with S.O.W., DPMC Design Standards, UC, Design Practice, Suitability & Other Regulatory Standards		•	0
Review & Approve Design Amendments to Contract		•	
Perform Constructability Review		0	•
Perform Value Engineering Review	0	0	•
Approval of Design Documents		•	0
Compile Comments of DPMC, Client Agency, DCS, etc., & Forward to Design Consultant for Action		0	•
Resolve All Comments Raised by DPMC, Client Agency, DCA, etc.	•		0
Provide Landscape Design Drawings	•		0
Provide Interior Design Services	•		
Provide Testing & Sampling Devices	•		
Design & Provide Formal Presentation Graphics	•		
Presentations at Public Hearings	•		0
Provide Graphic Design Service (Signage)	•		
Provide Traffic Safety	•		
Provide Financial Study	•		0

TASKS ALWAYS	OPTIONAL		
REQUIRED	TASKS		
• LEAD	■ LEAD		
O ASSIST	■ ASSIST		

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

Provide Design Services for Furnishing Selection	•		
Provide Environmental Monitoring Services	•		
Present Environmental Impact Statement	•		
Incorporate Fine Arts Into Project - 100% Completion	•	0	
Provide Rendering	•	•	
BIM Drawings	•		
Process and Recommended Approval of Invoices	0		•
Process Invoices After Approval		•	
Input Project Data in MIS		•	0
Prepare Current Working Statement in CSI Format & Cost Analysis 38 Form: 50% & 100% Completion	•		
CMF Review of the CWE and Cost Analysis 38 Form prepared by the A/E.			•
CPM Design & Construction Schedule	0		•
Oral Presentation of Final Design Phase Deliverables	•		0
Oral Presentation to Project Team at 50%, 100%	•		•
Prepare & Distribute Meeting Minutes	0		•

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

PERMIT PHASE	A/E	DPMC	CMF
Prepare Pre-Bid Construction Schedule	0	0	•
Prepare Pre-Bid Construction Cost Estimate	•		
Obtain UCC Permit Application & Complete with Related Technical Subcodes	•		0
Complete DCA Permit Fee Calculation Schedule	•	0	0
Provide Signed & Sealed Drawings & Specifications, CWE Cost Analysis (DPMC38 Form)	•		0
Submit Signed & Sealed Drawings & Specifications, Permit Application, Fee Schedule, Invoice to DPMC Plan Review	•	0	0
Obtain UCC Permit	0	•	
Submit Drawings & Specifications and Applications for All Other Project Permits	•		0
Obtain All Other Permits	•		0
Prepare Bid Document Checklist & Proposal Form		•	
Prepare Pre-Bid Clearance Form & Get Sign-Offs as Required on Form & Original Mylars		•	
Confirm Adequate Funding is in Place		•	
Input Project Data into MIS		•	0
Prepare A/E Performance Evaluation		•	

TASKS ALWAYS	OPTIONAL		
REQUIRED	TASKS		
• LEAD	■ LEAD		
O ASSIST	■ ASSIST		

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

ADVERTISE, BID, AWARD PHASE	A/E	DPMC	CMF
Submit Construction Drawings to DPMC	•		
Submit Construction Specifications to DPMC	•		
Print Plans & Specifications for Distribution to Bidders		•	
Prepare Pre-Qualified Bidder List		•	
Review/Recommend Contractor Bid List		•	
Prepare & Arrange for Project Advertisement		•	0
Publish Advertisement of Project		•	
Schedule & Chair Pre-Bid Conference	0	0	•
Prepare & Distribute Minutes	0	0	•
Attend Pre-Bid Conference	•	•	•
Respond to Technical Questions Asked by Bidders	•	0	0
Prepare Bulletins & Deliver Original to DPMC	•		0
Review Bulletins for Technical Correctness	•	0	0
Publish & Issue Bulletins		•	
Conduct Bid Opening	0	•	0
Receive, Open & Record Bids		•	
Review Bids, Provide Cost Analysis & Recommend Award	0	0	•
Review & Accept Recommendation of Award		•	
Prepare & Distribute Construction Contracts		•	
Establish Date of Pre-Construction Meeting	0	•	0
Complete & Submit to DPMC the "Submission Checklist"	•		

TASKS ALWAYS	OPTIONAL		
REQUIRED	TASKS		
• LEAD	■ LEAD		
O ASSIST	■ ASSIST		

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

Review & Approve "Submission Checklist"	•	0
Input Data into MIS	•	
Issue Notice to Proceed	•	
Prepare A/E Performance Evaluations	•	

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

CONSTRUCTION PHASE	A/E	DPMC	CMF
Chair Pre-Construction Meeting	0	0	•
Attend Pre-Construction Meeting	•	•	•
Prepare & Distribute Pre-Construction Meeting Minutes	0		•
Distribute Code-Approved Drawings to DPMC & Contractors, Along with the UCC Permit		•	
Schedule & Chair Project Meeting	0	0	•
Attend Project Meetings	•	•	•
Prepare & Distribute Project Meeting Minutes	0		•
Prepare "Conformed Drawings" & Deliver to CMF Approved documents forwarded to DPMC	•		•
Print & Distribute "Conformed Drawings"	•		
Prepare DPMC Insurance Form & Submit to Proper Parties	•		
Update Construction Progress Schedule	0	0	•
Update CPM Schedule	0	0	•
Track & Distribute Documents		0	•
Review/Approve Sub-Contractors	0	•	0
Review/Approve Samples & Materials	•	0	0
Perform Value Engineering Analysis/Report	0	0	•
Review/Approve Unit Schedule Breakdown	0	0	•
Approve Shop Drawings & Submittals	•	0	0
Approve Test Reports	•	0	0
Conduct all Testing and Inspections			•

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

Evaluate & Recommend Contractor Invoices	•	0	•
Review Contractor's Progress Schedule	0	0	•
Approve Contractor's Progress Schedule	0	•	0
Approve Contractor's Invoices	0	•	0
Review & Approve A/E Invoices		•	
Monitor "As-Built" Plans	0		•
Evaluate/Recommend Contractor Change Order Requests	0		•
Prepare Change Order Plans & Specifications	•		
Negotiate/Authorize Change Orders	0	•	0
Amend Contracts Due to Change Orders		•	
Recommend Change Orders for E/O		0	•
Submit Field Observation Reports	•	0	•
Review Field Observation Reports		•	•
Prepare and Provide Construction Photographs	0		•
Schedule UCC Inspections		0	•
Coordinate Installation of Fine Arts	•	0	•
Prepare Contractor's Performance Evaluation		•	
Prepare A/E Evaluations		•	
Input Data Into MIS		•	

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

CLOSE-OUT PHASE	A/E	<b>DPMC</b>	CMF
Plan, Schedule, Execute Close-Out	0	0	•
Schedule & Chair Close-Out Meeting	0	0	•
Attend Close-Out Meeting	•	•	•
Coordinate Pre-Final Inspection/DCA/Consultant	0	0	•
Develop Punchlist (Contract)	•	0	•
Develop Punchlist (Code)	•	0	•
Manage & Consolidate All Punchlists & Distribute			•
Verify Completion of Punchlist Items (Contract)	•	0	0
Verify Completion of Punchlist Items (Code)	•	0	0
Determine Substantial Completion		0	•
Sign "Certificate of Substantial Completion" for each Contractor		•	
Request Issuance of TCO from DCA		0	•
Plan, Schedule & Control Final Inspection by All Parties	0	0	•
Coordinate Equipment Operation Training	0	0	•
Review Contractor's O&M Manuals	•		•
Review Contractor's Guarantees	•		•
Review Contractor's Testing & Balancing Reports	•		•
Review Contractor's Boiler Inspection Certificates	•		•
Review Contractor's Elevator Inspection Report	•		•
Review Contractor's Master Label (Lightning Protection)	•		
Assemble & Forward Close-Out Documents to DPMC	0		•
Prepare Insurance Transfer Report (DPMC-25)	•	0	0
Collect As-Built Drawings from Contractor			•
Prepare Record Set Drawings & Submit to DPMC	•		

TASKS ALWAYS	OPTIONAL
REQUIRED	TASKS
• LEAD	■ LEAD
O ASSIST	■ ASSIST

With Construction Management Firm (CMF)
DPMC PROJECT #T0705-01
Construction Management Services
New Materials Testing Laboratory Building for NJDOT

Init. Final Contract Acceptance (DPMC-20) for each Contractor		0	•
Sign Final Contract Acceptance		•	
Develop & Submit "Final Cost Analysis"	0		•
Forward "Submission Checklist" to DPMC	•		0
Review and Approve Consultant's "Submission Checklist" to ensure all deliverables have been met		•	0
Obtain all Close-Out Documents		0	•
Close Out A/E Contract		•	
Prepare A/E Performance Evaluation		•	
Prepare Contractor's Performance Evaluation		•	0
Input Data Into MIS		•	
Provide Expert Witness Services	•	•	•
Provide Post Occupancy Assistance	0	•	0
Prepare CMF Performance Evaluation		•	

# PRELIMINARY FEASIBILITY STUDY NEW MATERIALS TESTING LABORATORY BUILDING NJDOT HEADQUARTERS COMPLEX NJ DEPARTMENT OF TRANSPORTATION EWING, MERCER COUNTY, NEW JERSEY



#### RONALD A. SEBRING ASSOCIATES, LLC, ARCHITECTURE AND DESIGN

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Prepared December 16, 2023, by

David A. Clark, R.A.

Principal Architect

**EXHIBIT 'D'** 

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#### **EXECUTIVE SUMMARY**

- The NJDOT wishes to construct a new approximate 80,000 square foot two-story Materials Storage Testing Laboratory Building to Replace the existing occupied building.
- The Program estimates 50,000 square feet to be allocated to the First Floor, 30,000 square feet to the Second Floor and a partial 10,000 square foot basement.
- The new building is to be located within the NJDOT Headquarters Complex in Ewing Township, New Jersey.
- The new building may be constructed at a separate location from the existing building, or at the same location if the existing building is demolished prior. The latter alternative will require temporary relocation of the occupants and essential operations for the duration of demolition and construction.
- Maintaining continuous operation of the Materials Testing Laboratory operations is essential.
- The Materials Testing Laboratory provides in-house testing of construction materials including asphalt, cement, concrete, steel, aggregates, soil, and various liquids.
- All laboratories and the offices of the Independent Assurance Group (IAG) must be located on the first floor (grade level) of the building. Staff toilet rooms shall also be provided on the first floor level.
- The new building must be designed in compliance with the applicable NJ Barrier-Free Subcode and the Americans with Disabilities Act Accessibility Guidelines.
- The existing quad-wide modular office building located on the site to the west of the existing building complex may be removed/demolished.
- Parking must be provided for all staff.
- The actual occupant load for the building will be approximately 100 to 125 occupants, with approximately 50% laboratory staff and the remainder administrative and supervisory personnel.
- It is intended that the majority of the existing equipment is to be relocated and reutilized in the new building. The Design Professional will be required to document and provide a full inventory of existing and new equipment and furnishings as part of the design.
- Each laboratory has its own environmental requirements which must be addressed in the design. A temperature of 72 degrees F and 50% relative humidity is required to be maintained in all labs and throughout the building.
- The total estimated construction cost to demolish the existing building and construct a new Materials Testing Laboratory building, including sitework, is approximately \$44,356,909.
- When soft costs, including design fees and DPMC fees, are added, the total Working Estimate is approximately \$59,537,348.

#### INTRODUCTION

The New Jersey Department of Transportation (NJDOT) wishes to construct a new approximate 80,000 square foot two-story Materials Testing Laboratory Building within their Headquarters Complex in Ewing Township, New Jersey. The building is utilized to perform testing of various construction materials including asphalt, cement, concrete, aggregates, soil, salt, and steel. The new building will replace the existing occupied building. The existing building is no longer adequate spatially to perform the required functions and the building systems are outdated, inadequate, and not energy-efficient. In addition to the 80,820 square foot areas on the first and second floors, a partial basement is desired to house mechanical and electrical space. For the purposes of this Study a basement of 10,000 square feet in area is assumed.

The new building may be constructed at a separate location from the existing building, or at the same location if the existing building is demolished prior. The latter alternative will require temporary relocation of the occupants and essential operations for the duration of demolition and construction. Maintaining continuous operation of the Materials Testing Laboratory operations is essential.

The NJDOT and the representatives of the Materials Testing Laboratory met with David A. Clark, R.A. of Ronald A. Sebring Associates, LLC on September 27, 2023 and provided design programming data consisting of a listing of all required spaces along with approximate required areas of each. On that same day, a walkthrough of the existing Facility was conducted to review the existing operations and individual laboratory functions, spatial, and equipment layout requirements. Attendees included Jitendra Patel of NJDOT Division of Support Services, Rajesh Kabaria and La Zhao of NJDOT Bureau of Materials, Mark Gillace and Ryan Rathbin of NJDOT Materials Testing, and David A. Clark, R.A. of Ronald A. Sebring Associates, LLC.

On November 20, 2023 a review meeting was held at the NJDOT headquarters and the draft version of this Study was reviewed. As a result of this meeting and subsequent comments, the program areas were increased to provide for two (2) future laboratory spaces on the First Floor, and a common receiving area totaling 6,500 square feet, and an additional 5,000 square feet of storage space added to the Second Floor. Also added was a request that all labs include the same fixtures, services (compressed air and vacuum, dust control, etc.), ventilation, and environmental control capacity, as required to allow the use of each lab to be changed to another in the future, if desired by NJDOT.

#### **BACKGROUND AND CURRENT CONDITION**

The current Department of Transportation Materials Storage Building consists of a grouping of four (4) interconnected masonry and steel framed single-story buildings and one metal framed single-story Ouonset hut.

A physical conditions assessment of the existing buildings was not conducted as part of this study. Based on our experience with the building and general observations, the building envelope is not energy-efficient, and in some areas, is allowing moisture intrusion. HVAC systems are inadequate to provide the continuous controlled interior environmental conditions and ventilation required for the laboratories. The compressed air system is not functioning, and air tanks are stored within the laboratories that require compressed air for testing. There is no full building water filtration system. The existing building layout does not provide for efficient maneuvering and transportation of materials from the loading/unloading dock to and from the laboratories. The buildings lack central file storage and file cabinets are positioned throughout hallways, common areas, and offices.

Photographs of existing conditions within the building are presented in Appendix "B".

#### **BUILDING PROGRAM**

#### **Program Required Spaces**

The essential Building Program spaces and functions that must be located on the First Floor of the new building, provided by the NJDOT Bureau of Materials, are included in a spreadsheet titled "Bureau of Materials – Current and Proposed – First Floor". The spreadsheet accounts for the required areas of each required space but does not consider circulation space or infrastructure space for IT and Data closets, mechanical spaces, reception, and toilet facilities. The total estimated area of just the essential spaces is 30,000 square feet. During subsequent meetings and walkthrough it was determined that additional spaces were to be added to the First Floor Program, including a Preparation Room, Loading/Unloading Area, and a Common Batching Area, and two (2) Future Laboratories, which add 9,000 square feet to the base areas for the First Floor. To account for circulation and infrastructure spaces, a minimum of 20% should be added to the base required area. Adding approximately 800 square feet to provide toilet rooms brings the total minimum area of the First Floor of the Materials Testing Laboratory Building to 50,760 square feet. This represents a square footprint area of approximately 225'-0" x 225'-0".

The Second Floor will primarily contain engineer and administration offices, break room, storage, and conference and training space as well as additional toilet facilities totaling approximately 25,000 square feet. Accounting for circulation and mechanical space, the second floor area is anticipated to be approximately 30,060 square feet.

The provision of a basement was mentioned as desired and should be considered to provide mechanical space and electrical service space. For the purposes of this Study, we are assuming a basement area occupying approximately 25 percent of the First Floor area, or 10,000 S.F. This will provide adequate space for mechanical equipment and electrical switchgear and distribution. Proper waterproofing and foundation drainage must be considered in the design of the foundation and site. Windowless stories are required to be provided with an automatic fire suppression (sprinkler) system.

The relationships between associated laboratory spaces and between the laboratory spaces and loading areas and common batching and preparation rooms will be important considerations in the design of the building's interior layout and is considered and provided within this Study.

The total actual occupant load of the building is anticipated to be 100 to 125 occupants. Approximately 50 occupants will be operating within the laboratories and the remainder will be administrative and supervisory staff. Occupying of the Future Laboratories will increase the anticipated occupant load to 65.

In addition to the program spaces that must be included within the building, outdoor storage space is also required. Three (3) covered material storage bins for aggregates are to be located along the outside of the building near the Loading / Unloading Area. The canopy shall be designed to protect the aggregates from weather but also to allow for depositing of the materials by dump truck. Covered space must also be provided for the storage of hazardous materials that are the by-product of testing. The materials are typically stored in metal drums and within secure fencing. Space along the exterior of the building must also be provided for secure storage of gas tanks.

The NJDOT provided "Bureau of Materials – Current and Proposed – First Floor" spreadsheet and the Building Program breakdown based on the data provided at the Pre-Study Meeting are presented on the following pages:

	Bureau of Materials - Current and Proposed - First Floor										
	Current Lab area	Estimated L	ab Area Require	ement (SqFt)	ı	mployee g in Lab	Area Required				
Laboratories	including Storage (SqFt)	Lab Area	Storage	Total	Current	Maximum	for Office (SqFt)	TOTAL AREA	TOTAL AREA	TOTAL AREA	Specific requirement for lab
1	2	3	4	5	6	7	8	(5 + 8)			
Density lab	-	2000	400	2400	5	6	600	3000	Near Loading and Disposal area Saw cutting		
Liquids Lab	5500	2000	400	2400	5	6	600	3000			
Pavement Analysis	5500	1500	400	1900	2	2	200	2100			
Research Lab)		2000	400	2400	4	7	700	3100	2-labs, Curing, Saw cutting		
Aggregate Lab	2200	3000	400	3400	4	6	600	4000	2-Labs; Need 500 sqft separate rm reserch purpose		
Cement Lab	1800	3000	400	3400	3	4	400	3800			
Chemical Lab	3400	4000	400	4400	7	8	800	5200	4-Separate labs (Physical, Chemical, Admixure & Paint) Storage for Gas cylinders, Curing, Distil water		
Concrete Lab	2200	2200	400	2600	5	5	500	3100	Moist-Cure Room Near Loading and Disposal area, ceiling height, Saw cutting		
Steel Lab	600	1000	300	1300	2	3	300	1600	Ceiling height		
IAG	600	0	500	500	6	6	600	1100	No lab.		
Total	15700	20700	3500	24700	37	47	5300	30000	safety (eye wash, shower, chemical storage) Fume Hood, Gas-Dry Air-Vaccume, Dust collection. Humidity, Tempreture, hood, ovens Disposal facility (Concrete Cylinder/HMA Core/Aggregate etc, Paints, Admixures, Asphalt, EpoxSteel)		
Additional add duri	ng walk through										
Preparation Rm	1000	1000	0	1000	0	0	0	1000	for Asphalt lab, Welding, Wet Sawcutting, Sample Preparation		
Loading/Unloading	1000	1000	0	1000	0	0	0	1000			
Common Batch area	1000	1000	0	1000	0	0	0	1000	for ACI , aggregate lab, Cement lab, Separate Drain		

Note: This initial Program has been revised as part of this Study. Refer to Appendix "C" for current Building Program.

#### Specific Program Requirements per Space

During the Programming Meeting and walkthrough of the existing Material Testing Laboratory Building, additional requirements specific to each Program Space were identified. The following is a list of requirements and elements that will be necessary to include for each Program Space:

#### **DENSITY LAB**

The Density Laboratory is utilized for the testing of asphalt samples. Equipment includes a large oven for the preparation of samples, and a large ventilation hood. A saw-cutting area is required within this space. The space requires significant ventilation due to the extent of odors produced by the testing and cutting operations. Dust collection is also required specifically in the dried sample area.

The Density Lab requires a laboratory area of approximately 2,000 square feet, office space of 600 square feet, and storage area of 400 square feet.

The Density Lab should be adjacent and connected to the Loading and Unloading Area and the Batching Area and also the Pavement Analysis, Liquids, and Research Laboratories.

#### PAVEMENT ANALYSIS LAB

The Pavement Analysis Laboratory is utilized for the testing of asphalt samples. Equipment includes a large oven for the preparation of samples that are heated to remove asphalt, and a large ventilation hood utilized for equipment cleaning. The space requires significant ventilation due to the extent of odors produced by the testing operations. The space will contain table mounted sieve shakers. Dust collection is also required specifically in the dried sample area.

The Pavement Analysis Lab requires a laboratory area of approximately 1,500 square feet, office space of 200 square feet, and storage area of 400 square feet.

The Pavement Analysis Lab should be adjacent and connected to the Density, Liquids, and Research Laboratories.

#### LIQUIDS LAB

The Liquids Laboratory is utilized for the testing of asphalt liquid samples. In addition to the testing equipment, multiple fume hoods and independent regulated compressed air is required. The space will require ample counter space and a minimum of two sinks. The space requires significant ventilation due to the extent of odors produced by the testing operations.

The Liquids Lab requires a laboratory area of approximately 2,000 square feet, office space of 600 square feet, and storage area of 400 square feet.

The Liquids Lab should be adjacent and connected to the Density, Pavement Analysis, and Research Laboratories.

#### RESEARCH LAB

The Research Laboratory is utilized for the development of test methods and procedures. The operations include saw-cutting, grinding and welding, and construction of crates, which should be performed in a separate space. The new building will include a Batching Area that will contain space for these functions and the Research Lab will need to be located adjacent to the Batching Area. Maintaining these loud and dust producing operations in a separate room from the Research Lab is desired, however, a saw-cutting area is also

required within this space. The Research Lab should be separated into two separate laboratory spaces with the storage and office areas located between.

The Research Lab requires two laboratory areas of approximately 1,000 square feet each, office space of 700 square feet, and storage area of 400 square feet.

The Research Lab should be new to the Batching Area and adjacent and connected to the Density, Pavement Analysis, and Liquids Laboratories.

#### CEMENT LAB

The Cement Laboratory is utilized for the testing of portland cement, grout, patching materials, and pozzolan samples. Equipment includes a prism breaking machine. Fume hoods are required. The space requires dust collection and specific humidity and temperature control to maintain conditions of 73 degrees F temperature and 50% relative humidity.

The Cement Lab requires a laboratory area of approximately 3,000 square feet, office space of 400 square feet, and storage area of 400 square feet.

The Cement Lab should be near to the Batching Area.

#### CONCRETE LAB

The Concrete Laboratory is utilized for the testing of concrete materials and samples. The space requires dust collection and specific humidity and temperature control to maintain conditions of 74 degrees F temperature and 50% relative humidity. A separate curing room is required that is subject to very high humidity and must be maintained at specific temperature and relative humidity requirements. The design of the curing room should carefully consider the materials utilized in the enclosure including the walls, ceilings, doors, frames and hardware, and the storage racks for sample storage since the near 100% humidity results in excessive condensation. The Laboratory will require staging space.

The Concrete Lab requires a laboratory area of approximately 2,200 square feet, office space of 500 square feet, and storage area of 400 square feet. The ceiling within the Concrete Lab shall be 14'-0" in height.

The Concrete Lab should be adjacent and connected to the Loading and Unloading Area and the Batching and Preparation Areas.

#### AGGREGATE LAB

The Aggregate Laboratory is utilized for the testing of various aggregates. The operations include heating and drying, separation of large from smaller aggregates utilizing sieve shakers. The sieve shakers within this laboratory are large and produce excessive noise and vibration. The shakers should be mounted on housekeeping pads with vibration isolation. Each shaker will require independent dust collection. The Aggregate Lab should be separated into two separate laboratory spaces, one for coarse aggregates and one for fine aggregates, with the storage and office areas located between. The fine aggregate laboratory area will require ample counter space. A separate room should be provided for research purposes.

The Aggregate Lab requires two laboratory areas of approximately 1,250 square feet each, a research room of 500 square feet, office space of 600 square feet, and storage area of 400 square feet.

#### CHEMICAL LAB

The Chemical Laboratory is utilized for the testing of various chemicals including soils, cement, concrete, admixtures, paints and coatings, and various other construction related chemicals. The Chemical Lab must be separated into four (4) separate and independent with all spaces receiving compressed air and vacuum connections along the counters at each work station.

The independent laboratory areas are as follows:

- Physical Laboratory
- Chemical Laboratory
- Admixtures Laboratory
- Paint Laboratory

The chemical and Paint Laboratories will each require two (2) fume hoods. One (1) additional fume hood shall be provided for use as a standby.

Distilled water must be provided as well as a secure area for storage of gas cylinders.

The Chemical Lab requires four (4) laboratory areas of approximately 1,000 square feet each, office space of 800 square feet, and storage area of 400 square feet.

#### STEEL LAB

The Steel Laboratory is utilized for the testing of strength of steel members and reinforcing. The main equipment includes one (1) large and one (1) smaller tension compression test machine, each with hydraulic cabinet and dedicated computer. The large machine requires a minimum 14'-0" ceiling height. The machines test reinforcing bars to the point of breaking, which is very loud. Personnel retreat to the office when the machine is utilized to break large reinforcing bars. All walls surrounding the space should be masonry and the ceiling materials should be chosen to resist impact and to provide sound transmission resistance.

The Steel Lab requires a testing area of 1,000 square feet, office space of 300 square feet, and storage area of 300 square feet.

The Steel Lab should be adjacent or near to the Loading, Preparation, and Batching Areas.

#### INDEPENDENT ASSURANCE GROUP OFFICES

The Independent Assurance Group (IAG) monitors compliance with testing requirements and regulations and their offices must be located on the first Floor along withal of the Laboratories.

The IAG offices will require 1,100 square feet in total. 600 square feet is to be dedicated to office space and 500 square feet for file storage.

#### FILE STORAGE

The Materials testing Laboratory is required to maintain current files and archives and a great deal of space is required for file storage. High-Density file storage systems should be considered in the design to conserve floor space and to allow for future file storage needs. The Design Professional will need to obtain data from the Facility and determine the actual space required for file storage. The Building Program includes 10,000 square feet of storage to be provided on the Second Floor. The basement will not contain storage areas.

#### PLUMBING FACILITIES

Based on the size and use of the building, it is recommended that toilet rooms be provided on both floors of the building. Each of the Men's toilet rooms may contain at a minimum, two (2) water closets, one (1) urinal, and the Women's toilet rooms three (3) water closets and three (3) lavatories. Additional fixtures are desired and the 800 square feet allotted to each floor is adequate to support additional fixtures. An accessible drinking fountain and/or bottle filling station and a Janitors closet with a service sink should be provided on each floor.

#### **BATCHING AREA**

The Batching Area will need to be approximately 1,000 square feet in area and will be utilized for concrete batching, ACI preparation, and for an LA abrasion machine. The abrasion machine is utilized to measure the degradation of mineral aggregate using a rotating drum and several steel balls. The machine is very loud when in operation and sound transmission resistance of the enclosing construction will be necessary. The space must also contain a saw-cutting area to support the physical labs (cement and concrete).

The space will need to contain storage cabinets, large floor drains, and a separate washout drain for concrete.

#### PREPARATION AREA

The Preparation Area will be utilized for welding, grinding, and for the making of molds. This space will also be utilized for the making of crates.

The space will need to be approximately 1,000 square feet in area.

#### LOADING AND UNLOADING AREA

The Loading / Unloading area shall be designed to accommodate delivery of materials by truck at grade level for intake. For debris removal a raised dock platform shall be provided through the provision of lowered grade level. The design of the Loading / Unloading Area and the routes to all laboratories through the building shall consider maneuverability for movement of materials on pallet jacks. Restaurant style two-way swing doors shall be utilized where practical and where fire-resistance rating is not required.

#### COMMON RECEIVING AREA

A separate Common Receiving Area of approximately 500 square feet is required to receive samples. The Common Receiving Area will need to be located adjacent to the Loading and Unloading Area.

#### EXTERIOR MATERIAL STORAGE BINS

Three (3) covered material storage bins for aggregates are to be located along the outside of the building near the Loading / Unloading Area. The canopy shall be designed to protect the aggregates from weather but also to allow for depositing of the materials by dump truck.

#### EXTERIOR HAZARDOUS MATERIALS STORAGE AREA

Covered space must be provided for the storage of hazardous materials that are the by-product of testing. The materials are typically stored in metal drums and within secure fencing. Space along the exterior of the building must also be provided for secure storage of gas tanks.

#### FIRST AND SECOND FLOOR PROGRAM AREAS TABLES

Tables indicating the program space areas, approximate dimensions, occupancy, specific program requirements, and relationships to other program spaces, are presented in Appendix "C".

#### **BUILDING CODE AND REGULATORY APPROVALS**

#### **Building Code Criteria**

The following analysis is based on the currently adopted building codes. It is anticipated that the codes will be updated by the State of New Jersey in 2026. Designs that are submitted for Final Design Plan Review prior to the adoption of the new codes, or within the typical 6-month grace period, will be permitted to be designed under the currently adopted codes.

The design consultant will need to determine the most appropriate construction classification (also referenced as construction type) for the building based on the type of construction, proximity to property lines and adjacent buildings, and whether it is cost-effective to utilize compartmentalized fire-rated construction vs. providing automatic fire suppression (sprinkler) systems throughout the building. The type of construction will determine the level of fire-resistance rated construction elements that will need to be incorporated into the construction.

The building will primarily accommodate office and laboratory uses that are both included in the same B-Business Use Group. Other uses contained within the building will include Storage and Assembly. Based on the Building Program, the Storage area and the Assembly areas will each likely exceed the maximum 10 percent of floor area which would allow them to be considered accessory occupancies. These occupancy areas will either need to be separated from the main use with fire-resistance rated construction in accordance with the Code, or the entire building would need to comply with the height and area limitations of the Building Code for the most restrictive Use. If the areas are separated with fire-resistance rated construction, then a tabulation based on the ratios between the occupancies is applied to determine the height and area limits. It should be noted that no fire separation is required between the S-1 and B uses per Table 508.4 of the International Building Code (IBC).

#### USE GROUPS AND AREAS

B Business Use Areas Total\* = 64,820 S.F.

A-3 Assembly Use Areas Total = 6,000 S.F.

S-1 Storage Moderate Hazard Areas Total = 10,000 S.F.

#### CONSTRUCTION CLASSIFICATION (CONSTRUCTION TYPE)

Based on Table 504.3 of the IBC, the maximum allowable building height for even the least restrictive construction type (VB) is 40'-0", however, the S-1 maximum allowable stories is one (1) if an automatic fire suppression (sprinkler) system is not provided. VB construction type will not be able to be utilized as the floor area will exceed the limitations of Table 506.2 of the IBC.

Based on review of the applicable Tables for height and area limitations, the least restrictive allowable Construction Type for the Building is Type IIB. This can be achieved if the Assembly uses (Training and Conference Rooms) are located on the second floor and are separated from the remainder with 1-hour fire-resistance rated construction. This is considered separated mixed-use under the IBC. If the separation is not provided, then the arrangement would be considered non-separated mixed use and the Construction Type would need to be upgraded to IIA to comply with the area limitations. The difference between IIA and IIB construction is that IIA construction requires 1-hour fire-resistance rated assemblies for the primary structural frame, interior and exterior bearing walls, and floor and roof construction throughout the building.

Mechanical and electrical rooms will need to be separated and/or provided with automatic fire suppression (sprinkler) systems based on thresholds of Btu per hour and volts/amps respectively.

<sup>\*</sup>Includes accessory mechanical and circulation areas.

#### ACCESSIBILITY REQUIREMENTS

The building will exceed 10,000 square feet and therefore will require an elevator to satisfy the requirements of the new Jersey Barrier-Free Subcode.

The building will be new construction and the entire building including the site accessible route will need to comply with the requirements of the New Jersey Barrier-Free Subcode, ICC/ANSI A117.1 and the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

#### PLUMBING FIXTURE COUNT

The total quantity of plumbing fixtures required to be provided within the Building is to be tabulated in accordance with the National Standard Plumbing Code. Based on the Building Program data provided by the Client Agency, the actual occupant load for the building is 125 occupants. The Training and Conference Rooms may accommodate additional personnel, and this should be considered by the Design Professional and verified with the Client Agency when determining the required plumbing fixtures for the Building.

Based on the 125 occupants and the population being equally divided between men and women (63 each), the following are the minimum requirements for plumbing fixtures:

For Business uses the following are the minimum requirements for plumbing fixtures:

#### Male

- (3) Water Closets [1 of which may be a urinal]
- (2) Lavatories

#### Female

- (3) Water Closets
- (3) Lavatories

Two (2) drinking water facilities will need to be provided and one (1) service sink provided per floor.

For Assembly uses the following are the minimum requirements for plumbing fixtures:

#### Male

- (2) Water Closets [1 of which may be a urinal]
- (2) Lavatories

#### Female

- (2) Water Closets
- (2) Lavatories

One (1) drinking water facility will need to be provided and one (1) service sink provided per floor.

A separate enclosed Lactation Room should be provided within the building. The room should contain counter space, a sink, and space for a reclining chair. The room should be enclosed within sound transmission resistant construction.

#### **ENERGY CODE**

The building design must be in accordance with the ASHRAE 90.1 standard in effect at the time the design is submitted for Final Design Plan Review. The current adopted version is 2019.

#### SPECIAL INSPECTIONS

The building falls into the parameters of a Class I Building per the New Jersey Uniform Construction Code which requires that Special Inspections be conducted by approved and certified third-party inspectors during construction. Limiting the first (largest) floor building area to less than 37,500 square feet will place the building into Class II which does not require special inspections and would save on construction costs. For purposes of this Study, the building is considered Class I as the Program requires over 50,000 square feet of area on the First Floor.

#### **Regulatory Agency Requirements (Prior Approvals)**

#### **D&R CANAL COMMISSION**

The site is located within the D&R Canal Commission's Zone B, which requires review and approval for any Major Project. This would be any project that disturbs 1 acre of land or there will be 1/4 acre or more of impervious surface (This requirement is cumulative for all impervious surface since 1980 on a given site). The areas of the building footprint alone will approach 1-acre and the demolition of the existing building and provision of parking will likely result in a disturbance of 5-acres +/-. therefore, review and approval of the D&R Canal Commission will be required as a Major Project.

The Commission reviews for visual, stormwater, stream corridor, and traffic impact and reviews groundwater recharge, runoff quantity, water quality calculations prepared and submitted by the Civil Engineer for the Project. The estimated fees based on the current fee schedule totals \$8,000.

Ample time should be considered in the Project Schedule for stormwater management design and engineering and for the review and approval of the D&R canal Commission.

#### MERCER COUNTY SOIL CONSERVATION DISTRICT

The area of disturbance will exceed 5,000 square feet and a Soil Erosion and Sediment Control Permit will be required. The final site design will need to be reviewed and approved by the Mercer County Soil Conservation District. The estimated fee, based on the current fee schedule, totals \$2,375.

#### LOCAL ZONING (EWING TOWSHIP) N/A

The property is owned and operated by the State of New Jersey and local zoning ordinances do not apply. For projects of this scale, a courtesy submission to the local authority is customary, but is not required.

#### **ENVIRONMENTAL REQUIREMENTS**

#### **Interior Environment**

Each laboratory has its own environmental requirements that must be addressed in the design. Specific individual space temperature and humidity requirements and controls shall be defined during the building programming as part of the Design Professional's programming. A temperature of 72 degrees F and 50% relative humidity is required to be maintained in all labs and throughout the building. The curing room at the Concrete Lab requires near 100% humidity.

#### RECOMMENDATIONS

#### **Construction Type and Code Related Features**

The building may be constructed as Type IIB provided that it is protected throughout with an automatic fire suppression (sprinkler) system, the assembly uses are located on the second floor, which is of smaller area, and the assembly areas are separated from the remainder of the building with 1-hour fire-resistance rated construction. If the building is placed in close proximity to property lines or other buildings on the site, exterior wall fire resistance rating and opening limitations may apply. Type IIB construction is economical as there are no requirements for fire-resistance rated construction above what is described above.

#### **Plumbing Fixtures and Toilet Rooms**

One set of Men's and Women's toilet rooms may be provided to satisfy the plumbing fixture requirements of the Code. Based on the size and use of the building, it is recommended that toilet rooms be provided on both floors of the building. The Men's toilet rooms should contain, at a minimum, two (2) water closets, one (1) urinal, and the Women's toilet rooms should contain three (3) water closets and three (3) lavatories. An accessible drinking fountain and/or bottle filling station and a Janitors closet with one (1) service sink should be provided on each floor.

#### **Phasing**

The design consultant will need to coordinate with the NJDOT to address construction phasing. All phasing requirements should be included in Division One of the Project Specifications.

#### PHASING OPTION ONE:

Phasing Option One applies if the new building will be constructed at a different location than the existing building.

- Construct new building.
- Relocate equipment from existing building into new building.
- Relocate personnel from existing building into new.
- Demolish existing building and construct new parking area.

#### PHASING OPTION TWO:

Phasing Option Two applies if the new building will be constructed at the same location as the existing.

- Vacate existing building relocating personnel to an alternate Facility.
- Salvage existing equipment from existing building and store in offsite Facility.
- Demolish existing building.
- Construct new building and parking area.
- Relocate equipment from storage into new building.
- Relocate personnel from temporary facility into new building.

#### **Pre-Design Investigation**

Based on previous projects undertaken at the Fernwood and Thiokol sites, where unfavorable soil conditions, debris, and even hazardous materials contamination were found to be present, it is highly recommended that a thorough geotechnical survey and engineering report be conducted throughout the areas proposed for the new building and related site improvements. The geotechnical data obtained from the investigation will also be valuable for use in stormwater management design.

A site-specific geotechnical report, prepared by a New Jersey licensed engineer, will be required by the Office of Plan and Code Review and DCA to obtain plan approval.

#### **CONCEPTUAL SITE LOCATIONS**

#### **Site Locations**

Three potential building locations were considered and are presented in Appendix "C" of this Study. The conceptual site layouts include the footprint of the first floor of the building and associated site improvements, including parking, loading, and circulation. Potential wetlands buffers and Code required clearances are considered in this design scheme, providing 300'-0" clearance to Gold Run stream.

#### SCHEME 1:

This scheme locates the new Materials Testing Laboratory Building in the vicinity of the existing building and to the west. The existing modular office building will need to be demolished. When the new building is constructed, equipment can be relocated from the existing building into the new and then personnel relocated. The existing building would then be razed and a new parking lot, accommodating up to 230 cars, constructed on the site.

#### SCHEME 2:

The scheme places the new Materials Testing Laboratory Building at the location of the existing parking lot to the east of the Geodetic Survey Building. The Geodetic Survey Building will need to be relocated (demolished and reconstructed) to accommodate the footprint of the new building. The existing modular office building may remain. Similar to Scheme One, when the new building is constructed, equipment can be relocated from the existing building into the new and then personnel relocated. The existing building would then be razed and a new parking lot, accommodating up to 167 cars, constructed on the site. The parking area will accommodate less vehicles than Scheme One due to the relocation of the Geodetic Survey Building.

#### SCHEME 3:

The scheme places the new Materials Testing Laboratory Building at the location of the former Foran Building which is in the process of demolition. This Scheme utilizes the area previously occupied by the Foran Building and its parking area and utilizes the area where Building No.18A was previously demolished to provide for a parking area adjacent to the new building. The existing parking lots located to the south and west would be utilized to serve the building occupants. Similar to Scheme One, when the new building is constructed, equipment can be relocated from the existing building into the new and then personnel relocated. The existing building would then be razed.

#### PRELIMINARY CONSTRUCTION COST ESTIMATE

#### **Construction Cost Estimates**

An order of magnitude per square foot construction cost estimate is presented in Appendix "A".

The total cost of the proposed Project is estimated to be approximately \$44,119,941 including sitework and the demolition of the existing building. When soft costs, including design fees and DPMC fees, are added, the total Working Estimate is approximately \$59,219,336.

#### **DESIGN AND CONSTRUCTION SCHEDULE**

The following durations should be considered in preparation of a schedule for the Project and Scope of Work:

Project Alert - A/E Selection	150 Calendar Days
Schematic Design	60 Calendar Days
DPMC/NJDOT Review	14 Calendar Days
Design Development	60 Calendar Days
DPMC/NJDOT Review	14 Calendar Days
Final Design	60 Calendar Days
DRCC Review and Approval	76 Calendar Days*
DPMC/NJDOT Review	14 Calendar Days
Final Design2	7 Calendar Days
DPMC/NJDOT Review	14 Calendar Days
DCA Submission and Review	45 Calendar Days**
Permit-Bid Documents	7 Calendar Days
Bid and Award	70 Calendar Days
Construction	370 Calendar Days***
Close-out	30 Calendar Days
Total	973 Calendar Days

<sup>\*</sup>D&R Canal Commission review and approval is a required prior approval that must be received prior to submission to the DCA for plan review. The actual review and approval duration is unknown and can range from 30 to 90 calendar days, or even greater. The review can occur concurrently with the initial Final Design review performed by the DPMC Office of Plan and Code Review. The time included in the above schedule reflects 90 calendar days less the 14 days included for DPMC/NJDOT Review.

#### RIGHT TO REVISIONS

The findings in this report are based upon information available to us at the time of our assessment review. We reserve the right to update, add, or delete any information contained herein once our review and analysis of any new information is complete.

<sup>\*\*</sup> DCA submission and plan review will be required based on the inclusion of plumbing, mechanical, and elevator trades and the overall scale of the Project. The anticipated time-frame for this phase, based on recent experience, can vary between 30 and over 90 calendar days depending on the reviewers assigned to the Project and the ability of the A/E to provide submissions meeting the DCA's intake requirements for the E-File system.

<sup>\*\*\*</sup> Construction Duration is approximate and includes time for submittal review, mobilization, phasing, site and building construction, and punch list inspections. The actual duration will vary based on phasing, underground soil conditions, and lead-times for materials at time of bid.

# **APPENDIX "A"**

# **CONSTRUCTION COST ESTIMATES**

2 PAGES

# CONSTRUCTION COST ESTIMATE - PRELIMINARY FEASIBILITY STUDY NEW MATERIALS TESTING LABORATORY BUILDING NJ DEPARTMENT OF TRANSPORTATION - TRENTON, MERCER COUNTY, NJ 12/16/2023

#### **NEW FACILITIES**

(1) New 80,000 +/- Square Foot Office / Laboratory Building w/ 10,000 Square Foot Partial Basement

BASIC BUILDING COST		
Steel frame with concrete masonry walls and exterior face brick or split fa	aced block.	
Includes Contractor's overhead and profit. Based on R.S. Means Square		
Laboratory (50,160 Square Feet): \$235.80 /S.F.	50,760 Square Feet at \$235.80	\$11,969,208
Office (30,060 Square Feet): \$210.40 /S.F.	30,060 Square Feet at \$210.40	\$6,324,624
Basement (10,000 Square Feet) \$58.90/S.F	10,000 Square Feet at \$58.90	\$589,000
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, ,
Demolition of Existing Building Including Hazardous Materials	702,000 Cubic Feet at \$2.68	\$1,881,360
TOTAL	90,820 Square Feet TOTAL:	\$20,764,192
ADDITIVES		
Items not included in "Basic Building Cost" requiring increase from the ba	asic square foot construction cost.	
SECURITY CAMERAS	\$1,275 /Each (12)	\$10,200
LABORATORY - METAL CABINETS	\$552 /L.F. (2500)	\$1,380,000
LABORATORY - COUNTERTOPS	\$300 /L.F. (2800)	\$840,000
SPRINKLER SYSTEM	\$5.25/S.F. (95000)	\$498,750
FURNITURE / OFFICE PARTITIONS / DOORS	\$11.43 /S.F. (40000)	\$457,200
SAFETY EQUIPMENT	\$485 /Each (6)	\$2,910
PARTIAL DEDUCTION FOR EXISTING LAB. EQUIPMENT	\$-17.15 /S.F. (40,000)	(\$686,000)
TRANSFERRING OFFICE EQUIPMENT	(LUMP SUM)	\$115,000
TRANSFERRING LABORATORY EQUIPMENT	(LUMP SUM)	\$190,000
FUME HOOD w/ DUCTWORK	\$11,400 /Each (2)	\$22,800
LOADING DOCK w/ CANOPY & LEVELER	\$16,675 /Each (2)	\$33,350
SITEWORK AND SITE LIGHTING	\$16.00/S.F. (158,000)	\$2,528,000
ELEVATOR	\$96,000 /Each (1)	\$96,000
800 SQUARE FOOT MATERIAL STORAGE BIN	(LUMP SUM)	\$84,000
WATER TREATMENT SYSTEM	\$108,025 /L.S.	\$108,025
HOUSEKEEPING PADS w/ VIBRATION ISOLATION	(LUMP SUM)	\$8,500
SOUND RESISTANT CONSTRUCTION	(LUMP SUM)	\$30,000
SUBTOTAL INCLUDING ALL ADDITIVE CONSTRUCTION FEATU	RES	\$26,482,927
ADJUSTMENTS TO CONSTRUCTION COST		
LOCATION FACTOR (1.11 Based on Means Construction Cost Data	1)	\$2,939,605
LABOR ADJUSTMENT (PLA) (Labor estimated 40% of CCE, Increa	se Factor 29.7% of Labor)	\$3,495,397
CONTINGENCY (10%)		\$3,291,793
HISTORIC COST INCREASE TO 2026 Mid-Construction (2.5 years	= 22.5%)	\$8,147,187
ADJUSTED TOTAL COST - NEW BUILDING AND SITE CONSTRU	ICTION	\$44,356,909
SOFT COSTS		
DESIGN FEES (12% of Construction Cost)		\$5,322,829
CM FEES (6% of Construction Cost )		\$2,661,415
DPMC DESIGN CONTINGENCY (10% of Design Fee)		\$532,283
DPMC CONSTRUCTION CONTINGENCY (5% of Construction Cost	)	\$2,217,845
DPMC MANAGEMENT FEE (8% of Construction Cost)		\$3,548,553
AFFIRMATIVE ACTION (1/2% Construction Cost)		\$221,785
DCA PERMIT FEES (1 1/2% Construction Cost)		\$665,354
REGULATORY PERMIT FEES (D&R Canal Commission / Soil Erosi	on)	\$10,375
TOTAL ALL COSTS - NEW BUILDING AND SITE CONSTRUCTION	N	\$59,537,347
CONSTRUCTION/DEMOLITION COST PER SQUARE FOOT INCL	UDING ADDITIVES	\$488.40
BUILDING AREA SQUARE FOOT TOTAL (ALL FLOORS)		90,820
SOFT COSTS		\$14,515,084
TOTAL COSTS		\$59,537,348

# CONSTRUCTION COST ESTIMATE - PRELIMINARY FEASIBILITY STUDY NEW MATERIALS TESTING LABORATORY BUILDING NJ DEPARTMENT OF TRANSPORTATION - TRENTON, MERCER COUNTY, NJ 12/16/2023

#### NEW FACILITIES (BUILDING CONSTRUCTION ONLY - NO SITEWORK OR DEMOLITION)

(1) New 80,000 +/- Square Foot Office / Laboratory Building w/ 10,000 Square Foot Partial Basement

BASIC BUILDING COST			
Steel frame with concrete masonry walls and exterior face brick or spli	t faced block.		
Includes Contractor's overhead and profit. Based on R.S. Means Squa			
Laboratory (50,760 Square Feet): \$235.80 /S.F.	50,760 Square Feet at	\$235.80	\$11,969,208
Office (30,060 Square Feet): \$210.40 /S.F.	30,060 Square Feet at		\$6,324,624
Basement (10,000 Square Feet) \$58.90/S.F	10,000 Square Feet at		\$589,000
	,		, ,
TOTAL	90,820 Square Feet	TOTAL:	\$18,882,832
ADDITIVES			
Items not included in "Basic Building Cost" requiring increase from the		st.	_
SECURITY CAMERAS	\$1,275 /Each (12)		\$10,200
LABORATORY - METAL CABINETS	\$552 /L.F. (2500)		\$1,380,000
LABORATORY - COUNTERTOPS	\$300 /L.F. (2800)		\$840,000
SPRINKLER SYSTEM	\$5.25/S.F. (95000)		\$498,750
FURNITURE / OFFICE PARTITIONS / DOORS	\$11.43 /S.F. (40000)		\$457,200
SAFETY EQUIPMENT	\$485 /Each (6)		\$2,910
PARTIAL DEDUCTION FOR EXISTING LAB. EQUIPMENT	\$-17.15 /S.F. (40,000)		(\$686,000)
TRANSFERRING OFFICE EQUIPMENT	(LUMP SUM)		\$115,000
TRANSFERRING LABORATORY EQUIPMENT	(LUMP SUM)		\$190,000
FUME HOOD w/ DUCTWORK	\$11,400 /Each (2)		\$22,800
LOADING DOCK w/ CANOPY & LEVELER	\$16,675 /Each (2)		\$33,350
ELEVATOR	\$96,000 /Each (1)		\$96,000
800 SQUARE FOOT MATERIAL STORAGE BIN	(LUMP SUM)		\$84,000
WATER TREATMENT SYSTEM	\$108,025 /L.S.		\$108,025
HOUSEKEEPING PADS w/ VIBRATION ISOLATION	(LUMP SUM)		\$8,500
SOUND RESISTANT CONSTRUCTION	(LUMP SUM)		\$30,000
SUBTOTAL INCLUDING ALL ADDITIVE CONSTRUCTION FEAT	TIIDEE		\$22,073,567
	IONES		\$22,013,301
ADJUSTMENTS TO CONSTRUCTION COST			#0.450.400
LOCATION FACTOR (1.11 Based on Means Construction Cost Da	,		\$2,450,166
LABOR ADJUSTMENT (PLA) (Labor estimated 40% of CCE, Increase (A88))	ease Factor 29.7% of Labor)		\$2,913,419
CONTINGENCY (10%)	00.5%)		\$2,743,715
HISTORIC COST INCREASE TO 2026 Mid-Construction (2.5 year	rs = 22.5%)		\$6,790,695
ADJUSTED TOTAL COST - NEW BUILDING AND SITE CONSTI	PLICTION		\$36,971,563
	KOOTION		ψ30,37 1,303
SOFT COSTS  DESIGN FEES (420) of Construction Cost)			¢4.400.500
DESIGN FEES (12% of Construction Cost)			\$4,436,588
CM FEES (6% of Construction Cost )			\$2,218,294
DPMC CONSTRUCTION CONTINGENCY (10% of Design Fee)			\$443,659
DPMC CONSTRUCTION CONTINGENCY (5% of Construction Co	วรเ)		\$1,848,578
DPMC MANAGEMENT FEE (8% of Construction Cost)			\$2,957,725
AFFIRMATIVE ACTION (1/2% Construction Cost)			\$184,858
DCA PERMIT FEES (1 1/2% Construction Cost)	:		\$554,573
REGULATORY PERMIT FEES (D&R Canal Commission / Soil Erc	OSIO(1)		\$10,375
TOTAL ALL COSTS - NEW BUILDING AND SITE CONSTRUCTI	ON		\$49,626,212
TOTAL ALL COSTS - NEW BUILDING AND SITE CONSTRUCTI  CONSTRUCTION COST PER SQUARE FOOT INCLUDING ADD			\$49,626,212 \$407.09
			\$407.09
CONSTRUCTION COST PER SQUARE FOOT INCLUDING ADD			\$407.09
CONSTRUCTION COST PER SQUARE FOOT INCLUDING ADD BUILDING AREA SQUARE FOOT TOTAL (ALL FLOORS)			90,820

# **APPENDIX "B"**

# **PHOTOGRAPHS**

8 PAGES



Existing Exterior Material Storage Bins for Aggregates

Existing Loading and Unloading Area



EXHIBIT 'D'



Existing Concrete Lab.
Compressive Strength Test
Equipment Shown

Existing Moist Curing Room



EXHIBIT 'D'



**Existing Aggregates Lab** 

Existing Aggregates Lab.

Large Shakers on

Housekeeping Pads



EXHIBIT 'D'



**Existing Cement Lab** 

Existing Aggregates Lab.

Dryers and Ovens



EXHIBIT 'D'



Existing Cement Lab. Fume Hood and Typical Countertops and Cabinets Shown

**Existing Cement Lab** 





**Fume Hoods** 

Existing Laboratory Equipment



EXHIBIT 'D'



Existing Preparation and Batching Equipment.
Note Washout Drain

Existing Exterior Secure and Covered Hazardous Materials Storage Area

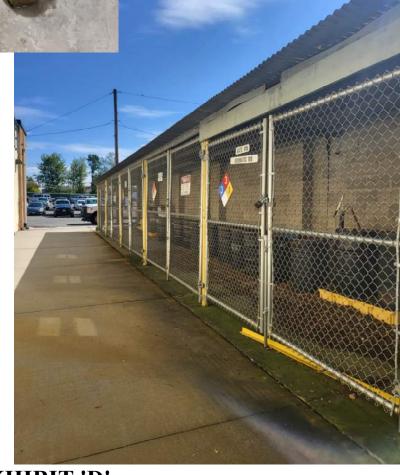


EXHIBIT 'D'



Existing Laboratory
Equipment and Typical
Countertops and Cabinets

Existing Gas Cylinder Storage



# **APPENDIX "C"**

## FIRST AND SECOND FLOOR PROGRAM AREAS TABLES

(2) 11" x 17" PAGES

PROGRAM SPACE	REQUIRED LAB AREA	REQUIRED OFFICE AREA	REQUIRED STORAGE AREA	REQUIRED TOTAL SPACE AREA	APPROXIMATE TOTAL SPACE DIMENSIONS	OCCUPANTS	RELATED (ADJACENT) SPACES	NOTES
DENSITY LAB	2,000 S.F.	600 S.F.	400 S.F.	3,000 S.F.	50' x 60'	6	LOADING / BATCH / LIQUIDS / PAVEMENT / RESEARCH	Ventilation, Large Hood, Large Oven, Dust Collection System, Saw Cutting*
PAVEMENT ANALYSIS	1,500 S.F.	200 S.F.	400 S.F.	2,100 S.F.	40' x 53'	2	DENSITY / LIQUIDS / RESEARCH	Ventilation, Large Hood, large Oven, Dust Collection System, Sieve Shakers
LIQUIDS LAB	2,000 S.F.	600 S.F.	400 S.F.	3,000 S.F.	50' x 60'	6	DENSITY / PAVEMENT / RESEARCH	Ventilation, Multiple Fume Hoods, Independent Compressed Air, Two Sinks, Exces Counter Space
RESEARCH LAB	2,000 S.F.	700 S.F.	400 S.F.	3,100 S.F.	50' x 62'	7	BATCH /LIQUIDS / PAVEMENT / DENSITY	Two separate laboratory rooms 1,000 S.F. each. Storage room shall be between the labs. Sawcutting*
CEMENT LAB	3,000 S.F.	400 S.F.	400 S.F.	3,800 S.F.	56' x 68'	4	BATCH	Ventilation, Multiple Fume Hoods, Dust Collection
CONCRETE LAB	2,200 S.F.	500 S.F.	400 S.F.	3,100 S.F.	50' x 62'	5	BATCH / PREPARATION/ LOADING	14'-0" Ceiling Height
AGGREGATE LAB	3,000 S.F.	600 S.F.	400 S.F.	4,000 S.F.	50' x 80'	6		Two separate laboratory rooms fine and coarse 1,250 S.F. each. 500 S.F. Research Room. Ventilation, Large Shakers on housekeeping Pads, Dust Collection individual at each Shaker, Dryers and Ovens
CHEMICAL LAB	4,000 S.F.	800 S.F.	400 S.F.	5,200 S.F.	60' x 87'	8		Four separate Laboratory Rooms 1,000 S.F. each (Physical, Chemical, Admixtures, Paint), Five Fume Hoods, Gas Cylinder Storage, Distilled Water
STEEL LAB	1,000 S.F.	300 S.F.	300 S.F.	1,600 S.F.	30' x 54'	3	LOADING / BATCHING / PREPARATION	Must have Masonry Walls, 14'-0" Ceiling Height
FUTURE LAB	3,000 S.F.	600 S.F.	400 S.F.	4,000 S.F.	50' x 80'	6		
FUTURE LAB	3,000 S.F.	600 S.F.	400 S.F.	4,000 S.F.	50' x 80'	6		
INDEPENDENT ASSURANCE GROUP (IAG) OFFICES	0 S.F.	600 S.F.	500 S.F.	1,100 S.F.	30' x 37'	6		This office space must be located on the first floor level
BATCHING AREA	1,000 S.F.	0 S.F.	0 S.F.	1,000 S.F.	25' x 40'	0	LOADING / LIQUIDS / PAVEMENT / RESEARCH	Batching Room is for Concrete batching, Steel ACI Preparation, loud Abrasion Machine. Equipment Vibration Isolation and Sound Resistant Construction required. Large floor drains and separate washout drain.
PREPARATION AREA	1,000 S.F.	0 S.F.	0 S.F.	1,000 S.F.	25' x 40'	0	LOADING / LIQUIDS / PAVEMENT / RESEARCH	Preparation Room is for Grinding and Welding, Mold Casting, and Crate Construction
LOADING / UNLOADING AREA	0 S.F.	0 S.F.	1,000 S.F.	1,000 S.F.	25' x 40'	0	DENSITY / CONCRETE / STEEL / RESEARCH / COMMON RECEIVING	Exterior access with grade level and elevated loading entrances.
COMMON RECEIVEING AREA	0 S.F.	0 S.F.	500 S.F.	500 S.F.	20' x 25'	0	LOADING / UNLOADING	Exterior access with grade level and elevated loading entrances.
TOILET ROOMS				800 S.F.				At least one set of toilet rooms must be provided on the First Floor
SUBTOTAL FIRST FLOOR	28,700 S.F.	6,500 S.F.	6,300 S.F.	42,300 S.F.		65		
CIRCULATION AND INFRASTRUCTURE SPACE (20%)				8,460 S.F.				
TOTAL REQUIRED FIRST FLOOR SPACE				50,760 S.F.				

<sup>\*</sup>Batch Room will be utilized for sawcutting, preparation of molds, grinding, welding, and similar operations that create excessive noise, dust, and sparks.

<sup>\*\*</sup> All laboratories to heave humidity and temperature controls set to meet regulations / standards applicable to their use.

<sup>\*\*\*</sup> Ceiling heights to be 11'-0" minimum at all laboratories, except 14'-0" height is required at the Steel and Concrete Labs.

<sup>\*\*\*\*</sup>Corridors shall be designed to provide a minimum width and height to accommodate forklift movement between labs and the Loading/Unloading Area. Forklift movement will occur only when the corridors and associated spaces are otherwise vacated to alleviate the need for striping, bollards, or guiderails.

PROGRAM SPACE	REQUIRED AREA	APPROXIMATE TOTAL SPACE DIMENSIONS	PER	OCCUPANTS PER CODE FOR MEANS OF EGRESS	NOTES
OFFICES	6,250 S.F.	60' x 105'	PROGRAM 50	42	
CONFERENCE	3,000 S.F.	50' x 60'	0	42	
FRAINING	3,000 S.F.	50' x 60'	0	200	
BREAK ROOM	2,000 S.F.	40' x 50'	0	133	
TOILET ROOMS / LACTATION	800 S.F.	20' x 50'	0	20	
STORAGE	10,000 S.F.	50' x 100'	0	17	
SUBTOTAL SECOND FLOOR	25,050 S.F.		50	840	
CIRCULATION AND NFRASTRUCTURE SPACE (20%)	5,010 S.F.				

# **APPENDIX "D"**

## **CONCEPTUAL SITE PLAN DRAWINGS**

(3) 24" x 36" PAGES





