

**Maine Turnpike Authority**  
**Construction Resident Engineer/Inspector**  
**SCOPE OF WORK**  
**July 14, 2014**

**A. GENERAL DESCRIPTION**

The Consultant, acting as an independent contractor will serve to supplement the Authority's staff for construction inspection and/or Resident Engineering services, on projects. The consultant inspectors and resident engineer selected under this Scope of Work will work with other Inspectors and Resident Engineers on the Authority's staff (both employees and other consultants).

The Consultant will perform these services on projects as administered by the Authority's Construction Program Manager. Construction Inspectors may be assigned to projects with other consultants acting as Resident Engineers or to projects where the Authority has an employee serving as Resident Engineer.

**B. SCOPE OF WORK**

**1. SCOPE**

Consultants will provide qualified Inspectors and qualified Resident Engineer(s) to perform construction inspection of Authority projects assigned under this Task/Project Order.

Duties Include:

- a. Monitoring and verifying that the Construction Contractor meets the contract requirements through:
  - i. Direct inspections; and
  - ii. Performing acceptance tests; and verifying that all acceptances testing assigned to be performed by inspectors or Resident Engineers is in accordance with the Estimated Minimum Testing Requirements for the Project and all tests to be completed in accordance with the latest applicable AASHTO/NETTCP/MaineDOT/MTA procedures; and
  - iii. Project acceptance sampling as required or necessary; and
  - iv. Generating written documentation of the Contractor's daily activities; and
  - v. Documenting Acceptance Test results, as required by the Authority's Representative.
  
- b. Project Development Design review through:
  - i. Reviewing prepared plans and specifications for constructability issues;
  - ii. Providing comments and evaluations on plans and specifications following project completion or as part of the Authority's annual evaluation of plans and specifications;
  - iii. Estimating quantities; and
  - iv. Other duties as assigned by the Authority's Representative.
  
- c. Managing or coordinating sub-consultants and/or third-party consultants hired by the Authority (as defined in Task/Project Order) by:
  - i. Scheduling other consultant Quality Assurance Inspectors who will perform field testing of soils and aggregate materials, product testing of hot mix asphalt and Portland cement concrete, steel fabrication and specialized painting inspection and other acceptance, verification and independent assurance testing; and

- ii. Verifying that all acceptances testing assigned to be performed by sub-consultants or third party consultants is in accordance with the Estimated Minimum Testing Requirements for the Project and all tests to be completed in accordance with the latest applicable AASHTO/NETTCP/MaineDOT/MTA procedures; and
- iii. Scheduling other sub-consultants or third party consultants to perform work necessary for the project such as surveying for construction layout; and
- iv. Documenting sub-consultant or third party consultant activities, as designated by the Authority representative or Project Resident Engineer.

The work will consist of specific inspection assignments or on multiple projects on the Turnpike from Kittery to Augusta.

The Authority may require the Consultant to provide Materials Testing Sub-Consultant Services as part of the Consultant contract.

### **C. STAFFING**

The Consultant's Inspector I, Inspector II, Senior Resident Inspector III, and Resident Engineer (as defined herein) must have prior experience in the areas of work which they are to perform, for example, if assigned to a bridge, the Inspector must demonstrate bridge experience. Inspectors assigned to a project will be subject to review and approval by the Authority. Inspectors shall not be replaced on the Project without Authority approval. Any Inspector employed by the Consultant who, in the opinion of the Authority, does not perform his/her work in a proper and skillful manner, is intemperate or disorderly, or is unacceptable for any reason shall, at the request of the Authority, be removed from the project immediately.

The Consultant will provide Inspectors who are available to work whatever schedule is directed by the Authority. Night, weekend and holiday work may be required. Work beyond eight hours per day and beyond 40 hours per week is typically required.

The Consultant may provide trained/qualified Inspectors and Resident Engineer who can adequately and completely perform the requirements of the following positions. The actual number and type of inspectors the Authority will require will be determined by the Authority. Prefer all have some bridge inspection experience, though exceptions may be made.

#### **Positions Levels:**

1. **Inspector** I- assigned as an inspector on a single operation on an MTA project. Duties include basic construction inspection, measurement and documentation of construction activities and computation of quantities and test values to insure compliance with specifications. Performs basic field testing and communicates test results to internal and external customers. Specific duties may include but are not limited to being a Hot Mix Asphalt paving ticket taker or performing basic inspection of construction activities.
2. **Inspector** II- assigned as an inspector on single or multiple construction operations on Authority project(s). Duties include inspection, measurement and documentation of work done by the Contractor to insure compliance with specifications.
  - i. Certification requirements include:
    - MCTCB/ACI/NETTCP concrete certification is required for some projects. NETTCP Hot Mix Asphalt Paving Inspector certification is required for paving project.

- Stormwater/Erosion Control Certifications or ability to get within a reasonable timeframe.
3. **Senior Resident Inspector III**- assigned as the primary inspector on a single or multiple construction projects or as a lead inspector on large Authority projects. Duties include inspection, measurement and documentation of work performed by the Contractor to insure compliance with specifications. Inspectors in this class may supervise other inspectors;
- i. This position may produce monthly pay requisitions, run project meetings, verify grades and alignment of construction points, and provide weekly reports on status of project to the Authority Representative.
  - ii. This position will work closely with the consultant Project Design Engineer to fulfill the needs of the project and in some cases forgo the need for a Resident Engineer on the Project.
  - iii. Represents Authority with State, local, other government officials, and with public.
  - iv. Certification requirements include:
    - ACI/NETTCP Hot Mix Asphalt Paving Inspector certification is required for any inspector on single or multiple hot mix paving projects.
    - ACI/NETTCP field testing concrete certification is required for Bridge projects, and may be required for some building projects.
    - Stormwater/Erosion Control Certifications or ability to get within a reasonable timeframe.
4. **Resident Engineer**- assigned as the on-site administrator of a single or multiple construction project(s). This position is responsible for the inspection, testing, measurements and documentation of quantities for the project. This position will coordinate and schedule inspectors furnished by the Authority or the Consultant. Certifications may be required on some projects. This position must be a Maine licensed Professional Engineer. This position will review and approve submittals, provide analysis for engineering issues and be required to perform all work listed under Senior Resident Inspector III.

#### **D. TRAINING**

The Authority reserves the right to direct that Inspectors & Resident Engineers attend training, seminars or other meetings conducted by the Authority or other agencies in conjunction with the Authority at the Authority's expense.

All Consultant Inspector/Resident Engineers must have a minimum of 10 hours of Construction Safety Training (OSHA 10) and any other safety or regulatory training in order to perform the job; these costs are borne by the consultant.

#### **E. QUALIFICATIONS**

Consultant personnel shall be selected for Inspector I, II, III and Resident Engineer contracts based upon the individual's qualifications and the needs of the Authority.

#### **F. TERM**

The initial contract term will be for five years though employment of Inspectors and Resident Engineers may be terminated any time their services are no longer required. The Authority reserves the right to reassign these individuals to various projects as the need for staffing occurs and there will be intermittent times when consultant employees will not be needed.

## **G. TASK/PROJECT ORDER PROCESS**

The Task/Project Order will be the Consultant's formal notice to proceed - the letter will include the following information:

- Contract Number
- Project Name and Location
- Work Ordered
- Anticipated duties
- Start date
- Estimated duration
- The name of the Consultant's employee(s).
- The name of the individual to whom this position will report.
- Not to Exceed value of the Assignment
- Method of Compensation
- Any other requirements

Inspectors and Resident Engineers assigned to a particular project shall perform all work to the satisfaction of the Authority.

## **H. COMPENSATION**

Compensation for time worked, shall begin and end at the project location specified in the Task/Project Order. Travel may be required. Inspectors and Resident Engineers will only be compensated for the actual time worked, unless otherwise negotiated.

## **I. REIMBURSEMENT**

Consultant reimbursement, including direct expenses, overtime and overhead and profit rates will be in accordance with the Engineering Consultant General Conditions. The Consultant's Field Office Overhead Rate shall apply for all Position Levels.

## **J. TOLLS**

Non-revenue passes will be provided to Resident Engineers and Inspectors working in the field and selected for a contract, which need to be presented to a toll attendant at the time of travel.

## **K. NOTIFICATION REQUIREMENTS**

The Consultant shall notify the Authority, in writing, regarding projects where they may be working for other third-party clients.

## **L. FIELD OFFICES**

When Inspectors and Resident Engineers are assigned to a Project or Projects, field offices may be provided by the Authority's Construction Contractor or the Authority for the use of the Inspectors and Resident Engineers as described in Section 639 of the Authority's Standard Specifications. The cost of these field offices will be borne by the Authority. For projects where field offices are not available, other MTA accommodations may be made, if needed.

## **M. DOCUMENTATION**

The Inspectors and Resident Engineers shall be experienced in the documentation requirements related to construction inspection, design, and materials inspection and testing. The Authority requires the use of Appia software for project documentation.

The Inspectors and Resident Engineers shall maintain separate and distinct records and files for each Project as directed by the Authority's Representative.

The Consultant agrees to cooperate fully with the Authority and to maintain and protect complete records at the assigned office for review, use and approval at all times. These records shall be transferred to the custody of the Authority when the Inspector or Resident Engineer has completed the assignment and final payment to the Consultant shall be withheld until such transfer has been completed. Electronic records shall be maintained and delivered in accordance with the Authority's Electronic Exchange of Data Standard.

## **N. CLAIMS ASSISTANCE**

The Inspectors and Resident Engineer shall be available to assist the Authority in the processing of any project claims or lawsuits, provided that the Inspector and Resident Engineer is still in the employment of the Consultant. A Contract and Task/Project Order would needed to be executed if the consultant is no longer under contract to the Authority in order to reimburse any costs of the assistance required. The Authority would utilize any legal options afforded to them in any claims or lawsuits in the event that the Inspector or Resident Engineer is no longer employed by the Consultant, i.e. subpoena, etc.

## **O. DISPUTE RESOLUTION**

All Inspectors report to the Resident Engineer assigned to that project. All Resident Engineers report to the Authority's Construction Program Manager.

Every project also has a consultant Project Design Engineer assigned to manage and review any engineering related issue.

If the Inspector has any issues with the Resident Engineer or with the Project Design Engineer they should contact the Authority's Construction Program Manager.

If the Resident Engineer has any issues with the Authority's Construction Program Manager or with the project's Design Engineer they should contact the Authority's Director of Engineering & Building Maintenance.

If problems persist or are not resolved, the Consultant Manager/Principal shall, in turn, follow the Claims and Disputes Process outlined in the most recent version of the Authority's Engineering Consultant General Conditions.

## **P. EQUIPMENT REQUIREMENTS**

The Consultant shall provide all Inspectors and Resident Engineers with cell phones and safety equipment and access to a computer<sup>1</sup> and printer. The Authority does not consider this equipment a direct expense, but rather a cost associated with the Consultant's overhead costs.

In addition to the electronic equipment above the Consultant shall furnish their employees with all necessary personal engineering supplies and equipment required to perform their jobs. This may include, but not be limited to:

- a. OSHA required personal safety equipment including, but not limited to: hard hats, safety vests, and clothing (including Class III attire), proper footwear, ear protection, eye protection, safety harnesses and lanyards, respirators when required and disposable clothing, etc.
- b. Hand levels.
- c. Plumb bobs.
- d. Rain gear.
- e. Scientific calculator.
- f. Drafting tools.
- g. Smart Level.
- h. English folding rule.
- i. English tape measure and/or measuring wheel.
- j. Amber strobe or LED flashing lights for personal vehicles. All vehicles to be used on the Turnpike must be equipped with one or more amber (LED or strobe) flashing light(s) mounted so visible from 360 degrees and must be able to be seen from 500 feet in normal daylight conditions and must distinguish the vehicle as an authorized construction related vehicle.
- k. Disposable equipment.
- l. Survey Equipment (automatic level, rod, etc.)
- m. Digital Camera

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<sup>1</sup> Computer requirements: Lap tops are required when no office trailer is available. All computers require E-mail service, compatibility with Authority's office suite systems (Microsoft Office); and capable of efficiently running electronic documentation software either provided by the consultant and approved for use by the Authority or provided by the Authority.

## **Q. DEFINITIONS**

Definitions can be found in the Engineering Consultant General Conditions. These definitions are considered supplementary to this scope of work.

Consultant Resident Engineer: A Professional Engineer hired by a Consultant Engineering firm and assigned to an MTA Construction project to perform services as outlined in this scope or work (D. 4 on page 4) under this contract and as further defined in a subsequent task/project order.

Inspectors: The Consultant's employee assigned to perform inspection services on a project(s) as authorized in a related Task/Project Order.

Project Design Engineer: Every construction project will be assigned a consultant design engineer, not subject to this scope of work and selected and assigned in a separate RFP, to review engineering issues that arise or provide advice or consultation on project as needed.

Project Resident Engineer: The Authority's Representative responsible for on-site project oversight; assigned to a single or multiple projects. This may be a Consultant or an Authority employee.

**Maine Turnpike Authority**  
**Material Testing Services**  
**SCOPE OF WORK**  
**July 14, 2014**

**A. GENERAL DESCRIPTION**

The Consultant, acting as an independent contractor will provide Material Testing services on construction projects for the Maine Turnpike Authority (Authority), in accordance with the latest version of the Authority's Engineering Consultant General Conditions.

The Consultant will perform these services on projects as directed by the Authority. Material Testing Technicians (Technicians) will be assigned to projects with other Consultants serving as Resident Engineers or to projects where the Authority has an employee serving as Resident Engineer.

**B. SCOPE OF WORK**

The Consultant will provide Material Testing Technicians (Technicians) as needed to perform construction material testing of Authority projects. Material testing may include:

- a. Field and lab testing of soils-aggregate materials.
- b. Plant production inspection and product testing of hot mix asphalt.
- c. Product testing of Portland cement concrete.
- d. Steel fabrication inspection
- e. Precast concrete fabrication inspection
- f. Paint systems inspection
- g. Project acceptance sampling.
- h. Documenting and reporting test results.

All tests are to be performed in accordance with the latest applicable AASHTO/NETTCP/MaineDOT or other specified procedures. There may be other acceptance, verification and independent assurance testing performed by the Authority or MaineDOT; however the Consultant is responsible to verify that all acceptance testing assigned to and performed by the Technician is in accordance with the Estimated Minimum Testing Requirements for the Project.

Technicians may also be needed to perform construction inspection by verifying that the Contractor meets the contract requirements through direct inspections and generating written documentation of the Contractor's daily activities.

The work will consist of specific assignments or on multiple projects on the Turnpike from Kittery to Augusta. Inspection of fabrication of structural units and paint systems may require work in facilities outside of Maine.

**C. STAFFING**

The Consultant's Technician(s) must have prior experience and the required certifications in the areas of work which they are to perform. Technicians assigned to a project will be subject to review and approval by the Authority and shall not be replaced on the Project without Authority approval. Any Technician employed by the Consultant who, in the opinion of the Authority, does not perform his/her work in a proper and skillful manner, is intemperate or disorderly, or is unacceptable for any reason shall, at the request of the Authority, be removed from the project immediately.

The Consultant will provide Technicians who are available to work whatever schedule is directed by the Authority. Night, weekend and holiday work may be required. Work beyond eight hours per day and beyond 40 hours per week may be required.

### **Positions Levels:**

1. **Testing Technician I** - assigned as a Technician on single or multiple construction operations on Authority project(s). Performs basic field testing and communicates test results to internal and external customers.

The following certifications are required in the area of work which the Technician will perform:

- NETTCP Soils and Aggregate Inspector; or
- ACI Level I or NETTCP Concrete Inspector; or
- NETTCP Hot Mix Asphalt Paving Inspector.

2. **Testing Technician II** - assigned as the primary Technician on a single or multiple construction projects or as a lead technician on large Authority projects, supervising other Technicians. Performs inspection and field and/or lab testing and communicates test results to internal and external customers.

- a. **Senior Testing Technician** – assigned as a Technician on multiple projects and/or multiple HMA/PCC plants. The following combinations of certifications are required in the area of work which the Technician will perform:
  - i. NETTCP Hot Mix Asphalt Paving Inspector and Plant Technician; or
  - ii. NETTCP Soil and Aggregate Inspector and Soil and Aggregate Laboratory Technician; or
  - iii. MCTCB Concrete Plant Technician or NETTCP Concrete Inspector and Concrete Technician.

- b. **Paint Inspector** – assigned to painting of sophisticated paint systems where NACE Intermediate training (Level 2 or 3) or equivalent training is required.

3. **Testing Technician III** – assigned as the primary Technician on a single or multiple construction projects. Performs inspection on paint systems or fabrication of structural units.

- a. **Chief Paint Inspector** – assigned to painting of sophisticated paint systems where NACE Certified or equivalent certification is required.
- b. **Fabrication Inspector** – assigned to steel fabrication or precast concrete facilities to verify conformance with requirements where certifications in AWS, NACE, SSPC, ACI and/or PCI is required.

### **D. QUALIFICATIONS**

Consultant personnel shall be selected for Testing Technician I, II or III Task/Project Orders based upon the individual's qualifications and the needs of the Authority.

### **E. TERM**

The contract term shall be a maximum of five (5) years though employment of Technicians may be terminated any time their services are no longer required. Multiple contracts will be awarded and may consist of a single project of a short duration or multiple projects for a five (5) year term. The Authority reserves the right to reassign Technicians to various projects as the need for staffing occurs.

## **F. TASK/PROJECT ORDER PROCESS**

The Task/Project Order will be the consultant's formal notice to proceed - the letter will include the following information:

- Contract Number
- Project Name and Location
- Work Ordered
- Anticipated duties
- Start date
- Estimated duration
- The name of the Consultant's employee(s).
- The Not to Exceed value of the Assignment
- Method of Compensation
- The name of the individual to whom this position will report.
- Any other requirements

Technicians assigned to a particular project shall perform all work to the satisfaction of the Authority.

## **G. COMPENSATION**

Compensation for time worked, shall begin and end at the project location specified in the Task/Project Order. Travel may be required. Technicians will only be compensated for the actual time worked, unless otherwise negotiated.

## **H. REIMBURSEMENT**

Consultant reimbursement, including direct expenses, overtime and overhead and profit rates will be in accordance with the Engineering Consultant General Conditions. The Consultant's Field Office Overhead Rate shall apply for all Technicians.

## **I. TRAINING**

The Authority reserves the right to direct that Inspectors & Resident Engineers attend training, seminars or other meetings conducted by the Authority or other agencies in conjunction with the Authority at the Authority's expense.

All Consultant Inspector/Resident Engineers must have a minimum of 10 hours of Construction Safety Training (OSHA 10) and any other safety or regulatory training in order to perform the job; these costs are borne by the consultant.

## **J. NOTIFICATION REQUIREMENTS**

The Consultant shall notify the Authority, in writing, regarding projects where they may be working for other third-party clients.

## **K. DOCUMENTATION**

The Technicians shall be experienced in the documentation requirements related to construction inspection, design, and materials inspection and testing.

The Technicians shall maintain separate and distinct records and files for each Project as directed by the Authority's Representative.

The Consultant agrees to cooperate fully with the Authority and to maintain and protect complete records at the assigned office for review, use and approval at all times. These records shall be transferred to the custody of the Authority when the Technician has completed the assignment and final payment to the Consultant shall be withheld until such transfer has been completed. Electronic records shall be maintained and delivered in accordance with the Authority's Electronic Exchange of Data Standard.

#### **L. CLAIMS ASSISTANCE**

The Technicians shall be available to assist the Authority in the processing of any project claims or lawsuits, provided that the Technician is still in the employment of the Consultant. A Contract and Task/Project Order will be executed if the Consultant is no longer under contract to the Authority in order to reimburse any costs of the assistance required. The Authority will utilize any legal options afforded to them in any claims or lawsuits in the event that the Technician is no longer employed by the Consultant, i.e. subpoena, etc.

#### **M. DISPUTE RESOLUTION**

The Technician's direct supervisor is the Resident Engineer assigned to that project.

If the Technician has any issues with the Authority's Resident Engineer acting as their direct supervisor the Technician should contact the Authority's Construction Program Manager.

If the Technician has any issues with the Authority's Construction Program Manager, the Consultant should contact the Authority's Director of Engineering & Building Maintenance.

If problems persist or are not resolved, the Consultant Manager/Principal shall, in turn, follow the Claims and Disputes Process outlined in the most recent version of the Authority's General Conditions.

## N. EQUIPMENT REQUIREMENTS

The Consultant shall provide all Technicians with cell phones and safety equipment and access to a computer<sup>1</sup> and printer. The Authority does not consider this equipment a direct expense, but rather a cost associated with the Consultant's overhead costs.

In addition to the electronic equipment above the Consultant shall furnish their employees with all necessary personal engineering supplies and equipment required to perform their jobs. This may include, but not be limited to:

- a. OSHA required personal safety equipment including, but not limited to: hard hats, safety vests, and clothing (including Class III attire), proper footwear, ear protection, eye protection, safety harnesses and lanyards, respirators when required and disposable clothing, etc.
- b. Hand levels.
- c. Plumb bobs.
- d. Rain gear.
- e. Scientific calculator.
- f. Drafting tools.
- g. Smart Level.
- h. English folding rule.
- i. English tape measure and/or measuring wheel.
- j. Amber strobe or LED flashing lights for personal vehicles. All vehicles to be used on the Turnpike must be equipped with one or more amber (LED or strobe) flashing light(s) mounted so visible from 360 degrees and must be able to be seen from 500 feet in normal daylight conditions and must distinguish the vehicle as an authorized construction related vehicle.
- k. Disposable equipment.
- l. Survey Equipment (automatic level, rod, etc.)
- m. Digital Camera

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<sup>1</sup> Computer requirements: All computers require E-mail service, compatibility with Authority's office suite systems (Microsoft Office); and capability to efficiently run electronic documentation software either provided by the Consultant and approved for use by the Authority, or provided by the Authority.