

SPECIFICATIONS

QUEQUECHAN RIVER RAIL TRAIL PHASE 4A

CITY OF FALL RIVER, MASSACHUSETTS

PAUL E. COOGAN, MAYOR

DANIEL N. AGUIAR, DIRECTOR OF ENGINEERING AND PLANNING

COMMONWEALTH OF MASSACHUSETTS

EXECUTIVE OFFICE OF ENERGY

& ENVIRONMENTAL AFFAIRS

BID SET

AUGUST 2024

LANDSCAPE ARCHITECT: **BROWN, RICHARDSON & ROWE, INC.**
65 FRANKLIN STREET FOURTH FLOOR
BOSTON, MA 02109
617-542-8552

ENGINEER: **STANTEC CONSULTING SERVICES.**
45 BLUE SKY DRIVE
BURLINGTON, MASSACHUSETTS 01803
781-221-1000

**QUEQUECHAN RIVER RAIL TRAIL
PHASE 4A**

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SECTION 01010

SUMMARY OF WORK

PART 1 – GENERAL

1.01 SUMMARY:

- A. The work of this Contract is in the City of Fall River. The Quequechan River Rail Trail, Phase 4A, spans approximately 800 feet and runs along the east bank of the Quequechan River, connecting Quequechan Street to Father Travassos Park. Development of the Quequechan River Rail Trail, Phase 4A as a shared-use path has been ongoing over the past several years. The goal of this project is to connect the main route of the Quequechan River Rail Trail (Phases 2/3) to Father Travassos Park.

1.02 SCOPE OF WORK:

- A. Furnish all labor, materials, equipment, and incidentals necessary to construct The Quequechan River Rail Trail, Phase 4A. The Work includes the following major items as indicated and specified:

- Construction of a 800+/- foot long, 10-foot wide hot mix asphalt shared-use path, with 2-foot wide soft surface shoulders.
- Installation of a modular block retaining wall.

In general, Quequechan River Rail Trail, Phase 4A project uses permanent and temporary easements secured by the City of Fall River on private property as well public roadway layouts. Temporary construction easements will be required in certain locations to allow for proper grading and restoration where the proposed work meets existing ground. The requirement for any easements or rights-of-entry shall be the responsibility of the City of Fall River to secure.

1.03 WORK SEQUENCE:

- A. Submit a Construction Schedule in accordance with Section 01310.

1.04 CONSTRAINTS:

- A. The active construction to be performed between the periods of April 1 through December
1. Extensions of work periods may be requested in writing for approval from the Engineer.
- B. Before beginning any portion of the Work on site, provide the Engineer 72-hours written notice.

C. Hours of Construction

1. Work on site will be limited to 7 a.m. to 3:30 p.m., Monday through Friday, excluding holidays.

2. Holidays:

3.

| | | |
|------------------------|------------------|---------------------|
| New Years Day | Juneteenth | Thanksgiving Day |
| Martin Luther King Day | Independence Day | Thanksgiving Friday |
| Presidents' Day | Labor Day | Christmas Eve |
| Patriots' Day | Columbus Day | Christmas |
| Memorial Day | Veterans' Day | New Year's Eve |

Holidays which fall on a Saturday will be observed on Monday, following the holiday. Holidays which fall on a Sunday will be observed on Monday, the day after.

4. Contractor to coordinate construction activities with City of Fall River around any specific municipal events.

1.05 TWENTY-FOUR HOUR EMERGENCY CONTACT INFORMATION:

A. Contractor shall be contactable by telephone on 24-hour, 7-day a week basis. A list of the personnel and their telephone numbers, pager numbers, and cell phone numbers shall be submitted to the Authority within 5 days following Notice to Proceed and updated immediately when there is any change in contact information.

B. Community Contacts:

City of Fall River:
Daniel Aguiar
Director of Engineering and Planning
(p) 508-324-2512
(e) daguiar@fallriverma.gov

SECTION 01046

CONTROL OF WORK

PART 1 – GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Control of work within the Limit of Work indicated.

1.02 RELATED SECTIONS:

A. Section 01010 – SUMMARY OF WORK

B. Section 01050 – FIELD ENGINEERING

C. Section 01060 – PERMITS AND REGULATORY REQUIREMENTS

D. Section 01310 – CONSTRUCTION SCHEDULE

E. Section 01500 – CONSTRUCTION FACILITIES

F. Section 01567 – GENERAL ENVIRONMENTAL CONTROLS

1.03 DIMENSION OF EXISTING STRUCTURES AND EQUIPMENT:

- A. Verify the dimensions and locations of existing structures and equipment in the field before the fabrication, installation, or connection of any material or equipment that is dependent on the correctness of such information.

1.04 TEST PITS:

- A. Test pits for the purpose of locating underground utilities, pipeline or structures in advance of the construction shall be backfilled immediately and the surface restored to its pre-existing condition. The number and location of test pits shall be as indicated. Test pits performed by the Contractor not indicated shall be considered for the Contractor's convenience and shall be performed at no additional cost to the Owner.

- 1.05 CARE AND PROTECTION OF PROPERTY:
- A. Preserve and protect all public and private property and prevent damage thereto. Repair damage at no additional cost to the Owner.

- 1.06 INSPECTION OF WORK AWAY FROM THE SITE:
- A. If work to be performed away from the construction site is specified to be inspected on behalf of the Owner during its fabrication, manufacture, or testing, or before shipment, notice shall be provided to the Owner of the place and time where such fabrication, manufacture, testing, or shipping is to be done in writing 30 days prior to fabrication, manufacture, testing, or shipping is to be done.

- 1.07 CLEANUP AND DISPOSAL OF EXCESS MATERIAL:
- A. Keep the site neat and clean. Immediately dispose of all residues resulting from the construction work and remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations in accordance with all applicable laws, rules and regulations.

- 1.08 PARKING
- A. The Contractor to establish a parking plan for employees and submit it to the Engineer for review. No parking will be permitted on public roadways.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

- 3.01 INSTALLATION:
- A. Explosives
 - 1. The use of explosives will not be permitted.

- 3.02 CLEANING OF WORK SITE:
- A. Clean work site prior to Substantial Completion.

SECTION 01050

FIELD ENGINEERING

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. Provide field engineering services related to the following items:
 - 1. Examination of site and conditions of construction.
 - 2. Establishment of project control monumentation.
 - 3. Establishment of lines, grades, and easements.
 - 4. Connections to existing facilities.
 - 5. Preparation of redline drawings.
- B. No separate or additional compensation will be allowed for any survey work, instruments, or personnel therefor, it being agreed and understood that all such cost shall be borne by the Contractor.

1.02 QUALITY CONTROL:

- A. Provide in accordance with Section 01400.
- B. The Work of this section shall be performed by a licensed Land Surveyor registered in the Commonwealth of Massachusetts who has successfully completed at least five projects of similar size and complexity within the last five years.

1.03 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:
 - 1. Resume of the Contractor's Surveyor, and for each of the five projects required in Paragraph 1.02.B above: project location, dates of surveying work, project owner with contact person's address and phone number, contractor's name, and contract cost.
 - 2. Plan specified in Paragraph 3.02.B.
 - 3. Plan specified in Paragraph 3.02.C.1

4. Redline drawings as specified in Paragraph 1.04.

1.04 REDLINE DRAWINGS:

- A. Maintain two sets of redline "as-built locations and dimensions of work". Redline drawings shall be updated weekly to show all Work completed. Redline drawings shall be submitted with monthly payment requests. Receipt of final redline drawings shall be a condition of Substantial Completion.
- B. The as-built information on the Redline Drawings shall include the following:
1. For roadway intersections, traffic control devices, electrical connections and all utility installations.
 2. For near-surface piping (storm drains): the rims, inverts, pipe sizes and pipe material, at all structures; horizontal and vertical locations of any bend between structures; bottom of sump elevation for catch basins; inverts, pipe sizes, pipe material. Also provide the coordinates of the center of the structure itself and coordinates of the cover or grate. For larger or complex structures, provide as-built coordinates of all corners.
 - a) Provide as-built coordinates for locations of all gates, weirs, and bulkheads. Provide as-built weir elevations. Provide as-built locations of hydraulic lines to gates.
 - b) For structures (manholes, chambers and vaults), show the outside dimension of the base structure.
 3. For water lines: horizontal and vertical locations every 25 feet on pipes, at all changes in grade or direction, at all fittings, at all valves, and at hydrants. Provide GPS coordinates tied into the Mass. State Plane Coordinate System at all hydrants, valves, and fittings.
 4. For electrical and communications lines: horizontal and vertical locations every 50 feet on conduits and ductbanks, at all changes in grade or direction, at all duct bank flares or splits, at all handholes, pullboxes, manholes, pole foundations, cabinets, equipment pads, bollards, and other appurtenances. For manholes, provide coordinates at the four exterior corners of the box plus coordinates and rim elevation of manhole cover, as well as elevation of the top of the box. Provide rim elevations on all handholes and pullboxes. Provide top of slab elevations on all equipment pads. Show the as-built footprint of the equipment on all equipment pads. Include coordinates of power and communications cabinets.
 5. Include the location of any existing utility that differs from the location indicated on the Plans.

- 6. Include the location of any utility not indicated but encountered during the Work.
- C. All above as-built information shall be surveyed by the Contractor's Surveyor and shall be based on the ground survey and completed in accordance with the standards established in CMR 250.6.02.
- D. Survey shall reference Massachusetts State Plane (NAD '83).
- E. All measurements shall be to a minimum precision of 1 part in 12,000.
- F. Vertical measurements shall be to the nearest hundredth of a foot.
- G. Global Positioning System (GPS) standards.
 - 1. The minimum (Real Time Kinematics) RTK GPS base station observation time shall be no less than two (2) hours.
 - 2. On-line User Positioning Service (OPUS) solution shall use a minimum of 90 % of the observations, as reported in the OPUS solution report.
 - 3. The OPUS solution shall have fixed a minimum of 50% of the ambiguities, as reported in the OPUS solution report.
 - 4. The OPUS solution shall have an overall (Root Mean Square) RMS not to exceed 3 centimeters, as reported in the OPUS solution report.
 - 5. Individual structure location precision shall not exceed a horizontal and vertical precision of 1.30 feet.
 - 6. As a whole, the average structure horizontal precision shall not exceed 0.50 feet.
 - 7. GPS rover observations time shall be a minimum of three minutes, unless initialization has been achieved with a minimum Horizontal precision of 0.05 feet.

1.05 PROJECT/SITE CONDITIONS:

A. Field Measurements:

- 1. Lines and Grades:
 - a) All Work shall be done to lines, grades, and elevations indicated or specified herein.
 - b) Basic vertical and horizontal control points are indicated on the Drawings. Maintain these controls to the satisfaction of the Owner. Verify all vertical control information that is used.

- i) Control points shall be used as datum for work.
 - ii) Transfer all lines and grades from basic survey control points.
 - c) Perform all additional survey, layout, and measurement work.
 - d) Notify the Engineer, in writing, two weeks in advance, of the times and places at which survey work is to be performed.
2. Location of Work:
- a) Confine construction operations within the limits indicated.
 - b) Do not damage the existing sewer system. Do not damage adjacent property. Do not interfere with adjacent businesses and traffic.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examination of site and verification of conditions. Before starting operations:
 - 1. Examine sites as specified.
 - 2. Notify DIG SAFE (1-888-344-7233) 72 hours (excluding Saturdays, Sundays, and Holidays) prior to excavation.
 - 3. Verify exact locations of sewers, drains, local water mains, gas mains, above or below ground electrical wires, other utilities and conduits and structures.
 - 4. Not less than 72 hours prior to commencing any excavations, installation, backfilling, grading, or paving, notify all public and private utility companies, and the Engineer of intended schedule and nature of Work.

3.02 PROJECT MONUMENTATION:

- A. Establish supplemental control points and benchmarks at the project site.
- B. Prepare and submit a plan (1" = 100') showing the location of all control points and benchmarks established by the Contractor's Surveyor. The plan shall indicate the

coordinates, elevation, and description of each point. The plan shall include the pre-construction traverse including coordinates and descriptions of all traverse points. The plan shall be stamped by the Contractor's Surveyor.

- C. Restore all existing survey monuments, property line markers, street and roadway layout monumentation, and other monumentation that is disturbed by the work of the Contract.
 - 1. Prior to the start of construction, the location of existing monumentation and markers shall be surveyed by the Contractor's Surveyor. Prepare a plan indicating the exact location of each item in coordinates and elevation. Include at least three ties to existing features that will not be disturbed by the work of this Contract. The plan shall be stamped by the Contractor's Surveyor.

3.03 APPLICATION:

- A. Connections to Existing Facilities:
 - 1. Make connections to existing facilities as indicated and specified.
 - 2. Obtain permission from specific utility owners in writing prior to undertaking connections.
 - a) Protect existing facilities against damage.
 - 3. All required equipment, materials, and labor shall be on hand at time of undertaking connections to existing facilities in service. Work shall proceed continuously to complete connections.
 - 4. Operation of valves or other appurtenances on existing utilities, when required, shall be performed by respective utility personnel, unless the utility owner grants permission for the Contractor to operate the valve under the direct supervision of the utility owner's representative.

SECTION 01060

PERMITS AND REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. Comply with permits and regulatory requirements as indicated and specified.

1.02 RELATED WORK:

- A. Section 01300 - SUBMITTALS
- B. Section 01567 – GENERAL ENVIRONMENTAL CONTROLS

1.03 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:
 - 1. Copies of all permits, licenses, certifications or approvals obtained by the Contractor.
 - 2. Copies of all written notifications submitted to regulatory agencies, where such notification is required by the permit, license, or agency regulations.
 - 3. Erosion and Sediment Control Plan
 - 4. Storm Water Pollution Prevention Plan (SWPPP)
 - 5. National Pollutant Discharge Elimination System (NPDES) permit(s)

1.04 REGULATORY AGENCIES:

- A. Comply with all applicable federal, state, and local laws, regulations and permits concerning environmental pollution control and abatement. The Work of this Contract is within the City of Fall River. Work shall not commence until all required permits have been obtained and all statutory appeal periods have expired.

1.05 PERMITS OBTAINED BY THE OWNER:

- A. The Appendix of the Contract Documents contains permits that the OWNER has obtained for this Work. The permits are listed below:
 - 1. Order of Conditions – City of Fall River

- B. The Contractor shall comply with all permits obtained by the Owner. Should the Contractor need to modify any work activity addressed by permits obtained by the Owner, the Contractor is responsible for providing the required information to the Owner and the permitting agency to obtain approval for the modification, at no additional cost to the Owner.

1.06 PERMITS OBTAINED BY THE CONTRACTOR:

- A. Obtain and pay for all permits, licenses, certifications or approvals that are required for the Work. These include, but are not limited to water, electrical and other permits required of its equipment, work force, and of particular operations (such as transportation of equipment, materials, chemicals, fuel, hazardous or contaminated materials, items removed from the sites; use and storage of chemicals, explosives, and other materials; fuel storage; air emission; discharge of dewatering and/or storm drainage, whether to water bodies or to storm drainage systems; and the like) in the performance of the Work or the construction and removal of temporary construction facilities (such as temporary utilities including the provision of backwater preventers on temporary water services, above or below ground tanks, piping installation, piping removal, and chemical handling). Equipment shall be installed, tested and maintained in accordance with state and federal requirements.
 - 1. Prepare and submit to the Environmental Protection Agency a Notice of Intent for Storm Water Discharge Associated with Construction Activity under an NPDES General Permit. This submittal shall include a site-specific Stormwater Pollution Prevention Plan (SWPPP) prepared by a registered professional engineer licensed by the Commonwealth of Massachusetts. The Work shall be performed in compliance with the SWPPP.
 - 2. Prior to commencing ground water dewatering activities, obtain a National Pollution Discharge Elimination System (NPDES) General Dewatering Permit (GDP). Perform all activities and collect all data required for timely filing of a Notice of Intent for the GDP.
- B. Schedule and coordinate inspections and receipt of permits/approvals/certifications for any piping and associated appurtenances which are constructed, installed, tested or removed as part of this Contract.

1.07 ENVIRONMENTAL REQUIREMENTS:

- A. Comply with all applicable regulatory requirements including, but not limited to, those issued by the Massachusetts Department of Environmental Protection.
- B. Comply with Massachusetts air quality regulations (310 CMR 7.09) for the Control of Atmospheric Pollution, adopted under the provision of Section 31c, Chapter 111, General Laws. As part of compliance, the Contractor is responsible to maintain construction

equipment to minimize emissions. Comply with Massachusetts Department of Environmental Protection Clean Air Construction Initiative.

1.08 SITE VISITS BY PERMITTING AGENCIES AND NOTIFICATION:

- A. Certain permits require that a representative of the permitting agency be present at the site during the construction of certain items of work. Where such items of work will be backfilled or otherwise buried in the course of subsequent work, the requirement may be that the item of work is viewed by the representative of the permitting agency prior to backfilling or burying. In situations where site visits by the permitting agency are required, the Contractor shall be responsible for notifying the permitting agency in writing in compliance with requirements of such permit. Do not backfill or bury the work to be viewed until the representative of the permitting agency has viewed the work. This provision applies to any permits obtained by the Contractor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

SECTION 01300

SUBMITTALS

PART 1 – GENERAL

- 1.01 EXTENT OF WORK:
- A. The work to be done under this Section consists of submitting shop and working drawings, product data, certificates, instructional materials, samples, and construction photographs.
 - B. Specific requirements are specified in other Sections of these Specifications.
 - C. Deliver submittals directly to the Engineer; any other party will not be considered for review.
 - D. Shop drawing submittals shall be initiated by the Contractor immediately upon receiving Notice of Award from the City.
- 1.02 RELATED WORK:
- A. The construction schedule is specified in Section 01010 - SUMMARY OF WORK.
- 1.03 DRAWINGS, PRODUCT DATA AND CERTIFICATES:
- A. The Contractor shall submit promptly in accordance with an approved construction schedule so as to avoid delay in his work, or that of any subcontractor, an electronic copy of all shop, detail or working drawings, production data and certificates required for the work, and the Engineer shall review them noting comments. If required, the Contractor shall make corrections and resubmit an electronic corrected copy for final review. The Contractor shall direct specific attention in writing or on resubmitted drawings, data or certificates, to revisions other than those requested by the Engineer on previous submittals. A third submission from the same manufacturer will not be accepted.
 - B. Electronic submittals shall be in PDF format conforming to the following requirements:
 - 1. PDF Version and Format: Adobe Version PDF 1.7 (ISO 32000-1), PDF/A-2b
 - 2. Resolution: 300 DPI or higher
 - 3. Color: Same as original document
 - 4. File Image: Text Searchable
 - 5. Reproducibility: PDF file shall provide a true copy of the original that contains all details of the document from which it was made.

6. Engineering Plans: PDF page size shall be the same size as the original printed engineering drawing document.
- C. Each letter of transmittal shall identify each item transmitted by title, drawing number, revision number and date.
- D. The Engineer's review of such drawings, data or certificates shall not relieve the Contractor from responsibility for deviations from the Drawings or Specifications, unless he had in writing called the Engineer's attention to such deviations at the time of submission, and unless the Engineer shall have issued a written waiver of the pertinent Specification, nor shall it relieve him from responsibility for errors of any sort in shop drawings.
- E. Prior to the submission of shop drawings to the Engineer for review, the Contractor shall thoroughly examine the details and check all dimensions and verify all field dimensions. The Contractor shall be fully responsible for the accuracy, proper fit, and coordination of all parts of the work. The Contractor shall stamp each submission with a rubber stamp stating that he has examined and checked the submission as above and shall date and sign each. By stamping, signing, dating and submitting shop, detail and working drawings, data and certificates, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, and that he has thoroughly checked and coordinated each shop drawing and sample with the requirements of the work and of the Contract Documents. Any submission which, upon examination by the Engineer, shows evidence of not having been thoroughly checked, or not in compliance with the provisions of this Section, will be returned to the Contractor for completion before it will be considered for review.
- F. The Engineer generally will not check dimensions, quantities or schedules, except in cases where the information is lacking on the Drawings or in the Specifications.
- G. The Engineer's approval of a separate item shall not indicate approval of any assembly in which the item functions.
- H. Approval of drawings, data and certificates does not exempt the Contractor from the ultimate responsibility of providing completely installed, safe, reliable, functioning systems as defined in this Contract.

1.04

SAMPLES:

- A. Samples as required by the Specifications shall be submitted after the award of the Contract, to the Engineer at the site. No materials for which samples are required shall be delivered to the site for use until representative samples of same have been approved in writing by the Engineer. Such samples shall be furnished by the Contractor without charge.

- B. The Engineer may inspect the material at the source. If approved, such approval shall not preclude a future withdrawal if the material fails to meet the Specifications.

1.05 PHOTOGRAPHS:

- A. The Contractor shall conduct video documentation of sites whether in streets, easements or private property, and furnish two sets of DVDs to the Engineer prior to mobilization of the project. During ongoing construction, sufficient digital photographs (not less than 5 per workday) shall be taken at each site during the progress of the work to document existing conditions and final completion of the work. Digital photographs shall be submitted on CD to the Engineer on a monthly basis.

1.06 PRELIMINARY LIST OF SUBMITTALS:

- B. Time is of the essence. The Contractor is requested to accelerate all submittals to the maximum extent practicable to advance the start of construction and to avoid delays associated with the required approvals by the Engineer.
- C. The following list of submittals is provided to aid the Contractor in identifying the required submittals. This list is not intended to be all inclusive and the Contractor remains responsible for review of the Contract Documents to ensure that **all** required submittals are delivered to the Engineer for review and approval in a timely fashion.
 1. Progress Schedule – an updated progress schedule must be submitted for review by the Engineer with each payment request.
 2. Subcontractor Contact Information
 3. Supplier and Vendor Information
 4. Contractor's Personnel Identification
 5. Registered Professional Engineers and/or Licensed Site Professional
 6. Health and Safety Plan
 7. Draft Payment Requisition Form
 8. Pre-construction Videos and Photographs
 9. Product submittals for all pipes, fittings, couplings, protective coatings, appurtenances, accessories, precast concrete structures, frames, grates, covers, bricks, cement concrete products, bituminous concrete products, etc.
 10. Product samples, including but not limited to, crushed stone, gravel, thermal sand, etc.

11. Test Procedures and Results

12. Product Certifications and Warranties

- D. No construction activities will be allowed until the required submittals for the work to be performed have been made by the Contractor and approved by the Engineer. Pre-Construction Videos and Photographs must be received by the Engineer prior to any excavation work.

SECTION 01310

CONSTRUCTION SCHEDULE

PART 1 – GENERAL

1.01 SUMMARY:

A. Section includes:

1. Planning, scheduling and execution of the Work shall be presented in construction progress schedules.
2. Progress schedule planning and scheduling of the Work, indicating starting and completion dates of all Work.
3. A schedule of product data, shop drawings and samples related to the progress schedule as specified in Section 01300, paragraph 1.04.

B. Related Sections:

1. Section 01010 - SUMMARY OF WORK
3. Section 01046 - CONTROL OF WORK
4. Section 01060 - PERMITS AND REGULATORY REQUIREMENTS
5. Section 01300 – SUBMITTALS
6. Section 01400 - QUALITY CONTROL
7. Section 01500 - CONSTRUCTION FACILITIES
9. Section 01600 - CONTROL OF MATERIALS

1.02 SYSTEM DESCRIPTION:

- A. The Work shall be completed in accordance with the constraints identified in Section 01010, Paragraph 1.04.

1.03 SUBMITTALS:

- A. Submit the following in accordance with Section 01300.

1. Within ten (10) calendar days after Notice to Proceed, submit for approval the Initial Construction Schedule listing all construction activities using the critical

path method. Submittal shall include hard copy printouts of the bar graph schedule format, predecessor/successor report, and changes report along with executable electronic files (Primavera P3 format).

2. Submit updated Construction Schedule monthly with Application for Payment which shall:
 - a) reflect the actual work completed
 - b) indicate which activities have been started and their progress
 - c) indicate which activities have been completed
 - d) include written narrative to define problem areas, anticipated delays, recommended corrective actions, projections of progress and completion, and the effect of changes on Subcontractors.
 - e) if the progress is delayed beyond that indicated in the prior update, include plan for schedule recovery.

1.04 QUALITY ASSURANCE:

- A. Progress schedules shall include information on activities and sequencing from each Subcontractor and Supplier.

PART 2 – PRODUCTS (NOT USED)

SECTION 01380

CONDITION SURVEYS

PART 1 – GENERAL

1.01 EXTENT OF WORK:

- A. This work shall consist of conducting pre-construction and post-construction surveys of the conditions of existing buildings and structures. This work shall follow the requirements of 527 CMR 13.00 Explosives, as well as the following requirements.
- B. An inspection party under the supervision of a Registered Professional Engineer shall make a detailed examination of the interior and exterior of the buildings and structures and record their conditions before construction begins and after construction is complete.
- C. The Registered Professional Engineer shall have not less than five (5) years' experience and a record of performance in completing condition surveys of similar types of buildings and structures. These qualifications shall be subject to review and approval by the Engineer.
- D. The work shall also include a certified field survey to determine elevations of existing buildings and structures in conjunction with the pre-construction and post-construction condition surveys. The work shall be performed under the supervision of a Registered Land Surveyor.

1.02 REQUIREMENTS:

- A. The pre-construction and post-construction surveys of the conditions of existing buildings and structures shall each include the following:
 - 1. Secure entry permission from the owners of the buildings.
 - 2. Notify the Engineer 48 hours prior to survey. Conduct the survey in the presence of the Engineer or his representative.
 - 3. Interview the owners regarding existing conditions and structural faults, if any; and determine the dates and extent of recent repairs.
 - 4. Prepare and submit a detailed written report for each building and structure surveyed. The report shall include the location and description of the site and a record of the visual examination of the building or structure. It shall contain color photographs of the interior and exterior of each building or structure. Points where deterioration has occurred or where deficiencies exist shall be noted and photographed. The absence of deficiencies shall also be recorded. The report shall include sketches as required and a summary of the interviews. The Engineer shall examine said reports and may indicate additional information that is required.

The property owner shall sign the report before the Contractor submits it to the Engineer for review. If the property owner refuses to sign the report or refuses to allow access, the Contractor shall request the property owner to sign a release form to be supplied by the City. If the property owner refuses to cooperate, the Contractor shall immediately request assistance from the Engineer.

4. Photographs shall be taken by a photographer approved by the Engineer. Photographs shall be color prints 8x10-inches, with a glossy finish. A sufficient number of photographs shall be taken so that all portions of the interior and exterior of the foundation are included.
5. Condition survey reports that do not meet the approval of the Engineer will be returned to the Contractor for revision and resubmission.
6. The Contractor shall report immediately to the Engineer any finding that, in his opinion, indicates that the required construction will adversely affect any building or structure. Excavation operations shall not precede until written instruction is received from the Engineer.
7. The Contractor may elect to perform condition surveys on additional buildings and structures. Such surveys will be done at no additional expense to the City unless otherwise approved by the Engineer.

1.03 FIELD SURVEY:

- A. Field survey shall be performed to determine elevations of existing buildings and structures before construction is started and after construction has been completed.
- B. The survey shall include but shall not necessarily be limited to the buildings and structures listed hereinbefore. The minimum requirements shall be as follows:
 1. Ends of building or structure foundations parallel to the water mains and back to the rear of the building or structure, but not beyond the condition survey limits stated hereinbefore.
 2. Intermediate points within the limits stated in (a) above, including doorways, construction and expansion joints, and other features as appropriate.
 3. The location of each elevation shall be fully described in words and located on a plan.
 4. The field survey shall be performed under the supervision of and certified by a Registered Land Surveyor. This survey shall be included with the submission of the condition surveys.

SECTION 01390

HEALTH AND SAFETY PLAN

PART 1 – GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Prepare a site-specific Health and Safety Plan (HASP) specifying protection for all workers, including Subcontractors, onsite personnel, visitors and abutters from all potential hazards. During the performance of all Work, the Contractor shall furnish all labor, materials and equipment necessary to implement the HASP and to fulfill all applicable requirements under federal, state and local laws, ordinances, rules and regulations governing the safety of persons and protection of property. The HASP shall include a Site Specific Safety Plan (SSSP) meeting all requirements applicable to the Work, including but not limited to, OSHA requirements.

B. Related Sections:

1. Section 01010 - Summary of Work
2. Section 01567 – General Environmental Controls

1.02 REFERENCES:

A. Occupational Safety and Health Administration (OSHA) regulations:

1. 29 CFR 1910 – *Occupational Safety and Health Standards*
2. 29 CFR 1926 - *Safety and Health Regulations for Construction.*

1.03 SYSTEM DESCRIPTION:

A. All Work shall be conducted in compliance with OSHA 29 CFR 1910 and 1926. Safety:

1. The Contractor, Subcontractors, employees, agents and invitees shall comply with the Health and Safety Plan while on site.
2. No later than the fifth working day of each month the Contractor shall submit a monthly safety report providing statistical information on hours worked, number of accidents and injuries, and amount of time lost due to injuries.

3. The Contractor shall provide protection per the SSSP for all persons including, but not limited to, its employees and employees of other Contractors or Subcontractors; members of the public; and employees, agents, and representatives of the Engineer and regulatory agencies that may be on or about the work areas.
4. The Contractor shall protect from damage all Engineer owned property including, but not limited to, structures, pipes, and utilities, above and below ground.
5. No work on site shall be performed until the HASP, SSSP, and Lock-Outs are reviewed by the Engineer. (The Work Request system advises Engineer staff of a Contractor's work activities. The Lock-Out system is a safety procedure to prevent unintended equipment activation.) Compliance with OSHA requirements for the control of the release of hazardous energy during the service and maintenance of equipment shall remain the responsibility of the Contractor.
6. Regulated, Hazardous, and Flammable materials stored in quantities greater than the federal, state, and local Reportable Quantities (RQ) require the Engineer's review before they are brought on site. These materials must be stored in containers, cabinets, or containment structures designed for such storage. Keep any flammable materials such as cleaning solvents, thinners, or adhesive materials away from open flames, sparks or high temperatures. Drums containing regulated, hazardous or flammable materials shall be labeled in accordance with applicable law, not greater than 46 gallons in size, be grounded (if flammable), and shall be stored over full drum containment (110% capacity of largest single vessel).
7. The Contractor shall maintain clean work areas, free of recognized hazards, have readily accessible first aid kits with emergency equipment providing for the risks involved in the Contractor's work.
8. Smoking is not permitted at City facilities or on City property.

1.04

SUBMITTALS:

A. General:

1. SSHO Qualifications: Submit qualifications of a Site Safety and Health Officer (SSHO) who will be responsible for implementing, monitoring and enforcing the Health and Safety Plan during all Work, in the form of a resume demonstrating qualifications specified in Paragraph 1.05.D, within 10 days after Notice to Proceed.
2. CIH Qualifications: If any of the Work is subject to the provisions of 29 CFR 1910.120, submit qualifications of a Certified Industrial Hygienist (CIH) who shall be responsible for preparation of the HASP, in the form of a resume demonstrating qualifications specified in Paragraph 1.05.A, within 10 days after Notice to Proceed.

3. HASP, including the SSSP: Within 30 days after Notice to Proceed, Contractor shall submit a project-specific HASP and SSSP prepared by the CIH, which identifies all known and potential hazards and describes the methods and procedures for protecting worker health and safety. If any of the Work is subject to the provisions of 29 CFR 1910.120, the HASP and SSSP shall be prepared by a CIH. No work shall be performed until the Engineer has reviewed the HASP.
4. Daily Safety Logs: The Contractor shall maintain daily safety logs and reports covering the implementation of the HASP during the duration of the Work. The format shall be developed by the Contractor to include daily safety logs, weekly reports, and a phase out report. Contractor shall submit copies of all logs and reports on a weekly basis. Daily Safety Logs shall include the following:
 - a) Date
 - b) Area (site specific) checked
 - c) Employees in particular area
 - d) Site visitors, name, affiliation, purpose of site visit
 - e) Equipment being utilized by employees
 - f) Protective clothing being worn by employees
 - g) Protective devices being used by:
 - i) Contractor's personnel
 - ii) Visitors
 - iii) Designated State and Federal Representatives
 - h) Air monitoring data including description of area being monitored, equipment used, and readings taken
 - i) SSHO signature and date

1.05 QUALITY ASSURANCE:

- A. If any of the Work is subject to the provisions of 29 CFR 1910.120, the Contractor shall provide a CIH who has performed at least 5 construction projects of similar or greater size and complexity within the past ten (10) years.
- B. The Contractor shall conduct a site reconnaissance to determine the appropriate safety procedures and level of worker safety equipment for use in preparation of the HASP which shall conform to current worker safety practices. If any of the Work is subject to the

provisions of 29 CFR 1910.120, the site reconnaissance shall include hazardous waste safety practices, and the HASP shall be stamped and signed by the CIH.

- C. All onsite workers shall have training and certification for health and safety and for confined space entry, if any is required to perform the Work, as required under OSHA regulations.
- D. The SSHO shall be trained and certified in accordance with OSHA regulations, including confined space entry requirements (29 CFR 1910.146), if any is required to perform the Work. The SSHO shall have performed at least 5 construction projects of similar or greater size and complexity within the past ten (10) years.
- E. The Contractor's SSHO shall be present on-site for all working hours to monitor health and safety requirements throughout the performance of Work. It shall be the SSHO's responsibility to notify the Engineer of any deviations from the HASP.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PREPARATION OF HEALTH & SAFETY PLAN:

- A. The HASP shall be in compliance with the health and safety standards set forth by Occupational Safety and Health Administration (OSHA) as described in 29 CFR1910 and 1926. The site-specific HASP shall include but not be limited to the following:
 - 1. Identification of Key Personnel
 - 2. Understanding of Project Work
 - 3. Identification of Chemical and Physical Hazards and Risks
 - 4. Excavation Entry
 - 5. Personal Protective Equipment (PPE)
 - 6. Respiratory Protection Equipment (RPE)
 - 7. Standard Operating Procedures
 - 8. Worker Training and Medical Requirements
 - 9. Emergency Response Plans and Procedures
 - 10. Personnel Monitoring Program

11. Environmental Monitoring Program

B. Site Specific Safety Plan Program:

1. A sample SSSP is appended to this section as Attachment A. Contractor's corporate safety plan may be used as the basis for the SSSP but the corporate plan must be adapted to address all site specific safety requirements.
2. The SSSP shall include at least the following:
 - a. Site description including the limits of construction, special conditions, intrinsic hazards and a street address for responders.
 - b. A description of the site specific safety organization identifying who has on-site safety responsibilities, their qualifications as well as a description of all safety management reports.
 - c. Description of the Work being performed.
 - d. A Job Hazard Analysis (JHA) specific to the work and work area.
 - e. Hazard mitigation strategies.
 - f. Identification of required procedures in accordance with all work plans and applicable regulations, including OSHA (e.g. Confined Space, Respirator Use).
 - g. Training Matrix identifying the needed training and effected employees for hazard mitigation and procedural compliance.
 - h. Documentation of the training process.

Sample Training Matrix

| Employee Name | Training Type | | | | | | | |
|---------------|---------------|-----|--------------------|------------------|-----|-------------------|---------------------------------|--------------------------|
| | LOTO | RTK | Hoisting & Rigging | Hand Tool Safety | PPE | Electrical Safety | Fall Prot./Elev. Work Platforms | Staging Competent Person |
| Jane Smith | X | X | X | X | X | X | X | X |

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|
| John Jones | X | X | X | X | X | X | X | X |
| Sara White | X | X | X | X | X | X | X | X |
| Bill Green | X | X | X | X | X | - | - | - |
| Steve Black | X | X | X | X | X | - | - | - |
| Bob Brown | X | X | X | X | X | - | - | - |

SECTION 01400

QUALITY CONTROL TESTING

PART 1 – GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Services of testing laboratories.
2. Furnishing testing services for materials and equipment as specified herein and in other sections of Contract Documents.

1.02 RELATED SECTIONS:

A. SECTION 01300 – SUBMITTALS

1.03 SUBMITTALS:

A. Submit the following in accordance with Section 01300:

1. Written reports of tests and engineering data of materials and equipment proposed to be used in the Work within fourteen (14) days of each test performed.
2. Two (2) copies of a written report within fourteen (14) days of each test performed by laboratory personnel in field or in laboratory.

1.04 TESTING:

A. Field Testing:

1. Provide and schedule all field and laboratory testing and furnish written reports of each test within 48 hours of completion of testing.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Furnish sample materials, personnel and facilities for field testing activities.

1.06 QUALITY ASSURANCE:

- A. Testing company shall have been in business of providing quality control testing services of similar scope and complexity as the quality control services to be provided under this contract for the last five (5) consecutive years.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 APPLICATION:

A. General:

1. Independent commercial testing laboratory, with current certification from the Commonwealth of Massachusetts, shall perform all tests that require services of a laboratory to determine compliance with Contract Documents.

B. Testing Services Furnished by Contractor:

1. Furnish all testing services of materials and equipment proposed to be used in Work and quality control tests made in field, including:
 - a) Concrete materials and mix designs.
 - b) Design of asphalt mixtures.
 - c) Gradation tests for embedment and backfill materials.
 - d) Concrete in place.
 - e) Asphalt in place.
 - f) Moisture-density (Proctor) and relative density tests on:
 - i) Embedments.
 - ii) Fills.
 - iii) Backfill materials.
 - g) In-place field density tests on:
 - i) Embedments.
 - ii) Fills.
 - h) Field welded joints.
 - i) Insulating joints and test stations

j) All other tests and engineering data specified for the Engineer's review of materials and equipment proposed to be used in the Work.

2. Notify the Owner 48 hours prior to inspections and laboratory testing services, so that the Owner may witness testing. All failed test areas shall be reworked and retested, by the Contractor, until passing results are obtained at no additional cost to the Owner.

C. Testing Services Furnished by the Engineer:

1. The Owner reserves the right to hire its own testing laboratories for quality control tests made in field or laboratory on materials and equipment during and after their incorporation in Work.

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY SERVICES AND UTILITIES

PART 1 – GENERAL

1.01 SUBMITTALS:

A. Section includes:

1. Requirements for providing all temporary utilities, lighting, heating, ventilation, temporary facilities and Construction Management Plan.
2. Requirements for protection of property.
3. Requirements for removal of temporary utilities, facilities and controls.

1.02 RELATED SECTIONS

A. SECTION 01300 – SUBMITTALS

1.03 SUBMITTALS:

A. Within 21 days of Notice to Proceed, submit the following in accordance with Section 01300:

1. Submit Construction Facilities Plan to cover all work areas.
 - a) The Construction Management Plan (CMP) shall include a narrative of mobilization and show the layout of equipment, materials, utility connections, storage and stockpiling, contractor parking, location and extents of trail closures, sidewalk closures, Public ROW Access closures and all procedures that the Contractor proposes for construction. The CMP shall include locations of temporary electrical, lighting, water, and field offices, sanitary facilities, as well as lay down areas, flammable materials storage, construction fencing, tree protection fencing, and erosion control barriers.
2. Submit Shop drawings of all signs prior to their manufacture and erection.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 UTILITY CONNECTIONS:

- A. Temporary utilities shall be in accordance with Massachusetts State Building Code and OSHA.
- B. Temporary utilities shall be maintained until completion of all Work.

3.02 TEMPORARY ELECTRICITY:

- A. The Contractor shall supply all materials, tools, equipment and labor to install temporary electrical service to the field offices specified in Section 01590. The Contractor shall provide all breakers, transformers, panel boards, disconnect switches and other appurtenances to install the temporary power in accordance with Massachusetts Electrical Code and National Electric Code. Determine the amount and type of electric power required at each work area and make arrangements with appropriate electrical authority for obtaining temporary electric power service and metering equipment.
- B. The Contractor shall determine the amount and type of electric power required.
- C. Maintain main service disconnect and overcurrent protection at source distribution equipment.
- D. The electrical service shall be of adequate capacity for all tools and equipment without overloading the temporary facilities. The temporary systems and their components shall be furnished and installed in conformance with the requirements of the Massachusetts Electrical Code, Massachusetts Department of Public Safety and all local authorities having jurisdiction.
- E. Provide, connect and maintain temporary construction electrical service. Provide electric service for all areas of work until completion of work on site.
- F. Temporary electrical power installation shall meet the construction safety requirements of Federal (OSHA), state and local government agencies.
- G. Electrical equipment or material used on the project shall be UL approved for the application for which it will be subjected.

3.03 TEMPORARY LIGHTING:

- A. Provide and maintain lighting for construction operations.
- B. Provide and maintain lighting to exterior staging, storage areas and access roads, after dark for safety and security purposes. All exterior lighting shall minimize impact on the public.
- C. Provide and maintain lighting to interior work areas after dark for safety and security purposes.

- D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required per the Massachusetts Electrical Code.
- 3.04 TELEPHONE SERVICE:
- A. Not Used.
- 3.05 TEMPORARY WATER SERVICE:
- A. The Contractor shall provide and maintain temporary water supply for the completion of the work.
 - 1. Furnish and maintain water meter(s). Provide an approved backflow device immediately after each water meter.
 - 2. Provide all hoses, couplings, valves, nozzles and other devices to supply water for construction.
 - 3. Provide, connect, disinfect, test, place in service, and maintain temporary water service for the Contractor and the Owner. Contractor shall provide water service at all areas of Work until completion of Work on site.
 - B. Arrangements for water service shall be made with the City of Fall River Water Department. The temporary connection must include a meter and backflow preventer approved by the municipal Water Departments for connecting to water service at the site.
 - C. Capacity of Service: Contractor shall not withdraw water at volumes and/or pressure that would impact other water service users or the water supply.
 - D. Materials may be new or used, but must be adequate for the purpose required, must be sanitary, and comply with the requirements of applicable codes.
- 3.06 TEMPORARY SANITARY FACILITIES:
- A. The Contractor shall provide temporary sanitary facilities for employees. Connections to local sewer systems will not be permitted. Install and maintain sanitary units. Sanitary units shall be provided for all persons employed on the Work, at the rate of one unit for each 15 persons, beginning with the first workman at the site. A minimum of two sanitary units shall be provided. Sanitary units shall be located near the Work at locations approved by the Owner. Facilities shall be a chemical or incinerator type of unit. If an incineration type, provide capacity to incinerate one-third of the waste each day. Provide screens so as to be inaccessible to flies. They shall be in a clean, sanitary condition at all times.
- 3.07 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS:
- A. After completion of all Work on site:

1. Remove all temporary and construction related above grade or buried utilities, equipment, facilities and materials. Grade site to drain.
2. Restore staging areas and work areas to original condition. Loam, seed, and mulch all grass areas disturbed during the construction. Repair any damaged pavement.

3.08 WATERWAYS:

- A. Keep ditches, culverts, and natural drainages continuously free of construction materials and debris.
 1. Construct, maintain, and operate cofferdams, channels, flume drains, sumps, pumps, or other temporary diversion and protection. Furnish materials required, install, maintain, and operate pumping and other equipment for the removal and disposal of water from the various parts of the Work in accordance with the requirements of the Construction Dewatering Permit. Maintain the foundations and parts of the Work free from water.

3.09 PARKING AREAS:

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.
- B. As part of the initial mobilization, provide parking facilities for personnel working on the Project. Parking spaces to be maintained throughout the course of the Work.

3.10 TRASH COLLECTION:

- A. The Contractor shall collect and dispose of non-hazardous construction debris, garbage (food waste), and office trash from all Contractor work areas.
 1. Trash collection shall occur daily.
 2. The Contractor shall provide refuse containers of sufficient size to allow trash to be removed from the site every 7 days.

3.11 BARRICADES AND GUARD LIGHTS:

- A. Barricades, safety signs, fences and similar safety and warning devices shall be provided around the perimeter of the site.
- B. Provide and maintain guard lights at all barricades.

3.12 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Prior to Application for Final Payment, Contractor shall:

1. Remove all temporary and construction related above grade or buried utilities, equipment, facilities and materials. Grade site to drain.
2. Clean and repair areas and utilities used for temporary facilities to pre-construction condition.

SECTION 01530

SAFETY AND PROTECTION OF PROPERTY

PART 1 – GENERAL

1.01 WORK INCLUDED:

- A. Perform Work within rights-of-way and easements in a systematic manner that minimizes inconvenience to property owners and the public.
- B. Maintain in continuous service all existing oil and gas pipelines, underground power, telephone or communication cable, water mains, irrigation lines, drains, sewers, poles and overhead power, and all other utilities encountered along the line of Work, unless other arrangements satisfactory to owners of said utilities have been made.
- C. Keep fire hydrants and water control valves free from obstruction and available for use at all times.
- D. Notify property owners and utility offices which may be affected by the construction operation at least 2 days in advance.
- E. Before exposing a utility, obtain utility owner's permission. Should service of utility be interrupted due to the Contractor's operation, notify proper authority immediately. Cooperate with said authority in restoring service as promptly as possible.
- F. Do not impair operation of existing sewer systems. Prevent construction material, pavement, concrete, earth, volatile and corrosive wastes, and other debris from entering sewers, pump stations, or other sewer structures. Maintain original site drainage wherever possible.

1.02 BARRICADES AND LIGHTS:

- A. Provide barricades and lights in areas other than roadways to:
 - 1. prevent unauthorized entry to construction areas;
 - 2. provide for public safety and the safety of Contractor's employees, other employer's employees, and others who may be affected by the Work;
 - 3. protect existing facilities and adjacent properties from potential damage; and
 - 4. enable access by facility operators and property owners.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

SECTION 01560

TEMPORARY CONTROLS

PART 1 – GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Furnishing, installing and operating temporary controls during construction for:
 - a) Noise
 - b) Dust
 - c) Debris and Clean Up
 - d) Air Pollution Control

1.02 RELATED SECTIONS:

- A. SECTION 01060 – PERMITS AND REGULATORY REQUIREMENTS
- B. SECTION 01561 – PEST CONTROL
- C. SECTION 01567 - GENERAL ENVIRONMENTAL CONTROLS
- D. SECTION 01570 – CONSTRUCTION SAFETY ZONE PLAN

1.03 REFERENCES:

A. United States Environmental Protection Agency Publication (USEPA):

1. 430/9-73-007 Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity.

B. United States Department of Agriculture Soil Conservation Service Publication:

1. Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas.

C. Chapter 21: Section 42 of the Massachusetts Clean Water Act of the Massachusetts General laws as amended.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 APPLICATION:

A. Noise Control:

1. All Work, including machinery, shall not exceed applicable noise limits.
2. Equip all construction machinery and vehicles with sound-muffling devices.

B. Dust Control:

1. Prevent dust.
 - a. Keep earth surfaces subject to dusting moist with water. Calcium chloride shall not be used for dust control.
 - b. Cover materials in piles or in transit to prevent blowing.
2. Protect existing and new machinery, motors, instrument panels, or similar equipment with dust screens with ventilation.
3. After the completion of the work, the Contractor shall remove all temporary structures and equipment built or furnished by him, all debris, and all surplus materials of all kinds from the site of the work and shall dispose of them in a manner satisfactory to the Engineer. The premises shall be left clean, presentable and satisfactory. In addition to cleaning up at the end of the project, the Contractor shall be required to keep all streets free from dirt, stones, dust and all other foreign materials.
4. At the close of each work week the Contractor shall be required to clean up each street and easement under construction and each haul road used during the work week and where and if directed by the Engineer sweep these streets, easements and haul roads. If the Contractor does not comply with the foregoing, the City will hire a mechanically powered sweeper and any other equipment, and personnel required to render the streets clean at the Contractor's expense.
5. The Contractor shall employ a water wagon on the site of the work, and he shall be required to use same during his construction operations in order to keep the dust nuisance to a minimum. The Contractor shall at all times provide adequate freeboard and operate his trucks in such a manner that spillage does not occur on City streets.

6. If, in the opinion of the City Engineer, the Contractor is not taking the necessary precautions to prevent spillage or tracking, the Engineer will order the Contractor to provide a mechanically powered broom to be on the project full time and at no additional cost to the Owner.
7. If the Contractor does not comply, the City will hire a mechanically powered sweeper at the Contractor's expense.
8. No separate compensation for any of the above-described work or materials will be allowed, it being agreed and understood that payment for the above-described work and materials shall be included in the prices bid for the items of work in the Bid Form.

C. Debris and Clean Up:

1. Keep premises free at all times from accumulation of waste materials and rubbish. Legally dispose of all construction debris. Leave the entire site of Work in a neat and orderly condition at the conclusion of Work on site.

D. Air Pollution Control:

1. Comply with all applicable air pollution laws. Burning of trees, brush, and other combustible materials will not be permitted.
2. Provide trash receptacles about site, and empty containers daily.
3. Stack construction materials, such as concrete forms and scaffolding, when not in use.
4. Immediately remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solution from surfaces.
5. Wastes shall not be buried or burned on site.

SECTION 01561

PEST CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. Develop and implement an integrated pest management (IPM) program to control rodents prior to any site disruptions, followed by a maintenance program that ensures continued control until completion of all Work on site.
- B. Perform initial rodent control and pest control prior to demolition, excavation, and site preparation.
- C. Meet rodent control and general pest control requirements within work areas.

1.02 RELATED SECTIONS:

- A. SECTION 01060 - PERMITS AND REGULATORY REQUIREMENTS.

1.03 SUBMITTALS:

- A. Submit the following in accordance with Section 01300.
 - 1. Documentation of pest control firm qualifications, certifications and licenses specified in Paragraph 1.04.A within 30 days after Notice to Proceed.
 - 2. Proposed pest control procedures, indicating materials, quantities, methods, and schedules and a plan showing location where pesticide, bait stations, traps and census bait will be placed within 21 days of Notice to Proceed. Include a copy of the pesticide manufacturer's pesticide label and Material Safety Data Sheet (MSDS) for each pesticide to be used.
 - 3. Documentation of pest control activities and results as follows:
 - a. Monthly - Submit data sheets specified in Paragraph 3.05 for the preceding month at the bi-weekly progress meeting.
 - b. Monthly - Revise and resubmit plan showing locations where pesticide, bait stations, traps and census bait will be placed every 30 days thereafter for the duration of the work on Site.

- 1.04 QUALIFICATIONS:
- A. The firm performing the Work of this section shall have completed at least three (3) pest management programs of similar size and complexity as the pest control services to be furnished under this contract for the last two (2) consecutive years.
 - B. Personnel performing the Work of this section shall:
 - 1. have experience and technical training in commercial vertebrate pest management and integrated pest management; have experience with various rodent control techniques, equipment, and strategies; have training and experience with insect control; and have experience with techniques to reduce non-target hazards.
 - 2. be licensed by the Massachusetts Pesticide Bureau in General Pest Control (category 41).

- 1.05 COORDINATION AND SCHEDULING:
- A. Do not proceed with the work of this section until the Engineer has reviewed the pest control program.
 - B. Establish the program to control rodents before mobilization begins for the construction and with adequate timing to achieve control before environmental disruptions and site work begin. Assume the initial program will be two (2) weeks in duration, depending upon construction methods, field conditions and the need for subsurface baiting.
 - C. Maintain the program until all work on site is completed.

PART 2 – PRODUCTS

- 2.01 PEST CONTROL PRODUCTS
- A. Furnish and use only pesticide formulations registered by the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Food and Agriculture. Use rodenticide that does not pose a secondary poisoning risk to birds of prey and mammals.
 - B. Furnish and use devices and supplies (e.g., traps, bait stations, and census bait) in accordance with the pest control program.
 - C. Toxicant and other control tools shall not pose a hazard to persons, domestic animals, or non-target wildlife.

PART 3 – EXECUTION

3.01 SURVEYS AND INSPECTIONS:

- A. For each work area and before pesticide application begins, conduct a thorough baseline survey of the proposed work areas, as well as accessible or observable bordering areas and premises within 500 feet of the centerline of the water mains. These areas will be referred to as the Pest Control Work Area Limits (PCWAL). Record signs of rodent activity and sanitation deficiencies. Closely inspect all embankments, edge areas, and properties within and adjoining the PCWAL. Review subsurface utility maps, surface conditions, and topography and determine necessary subsurface baiting locations.
- B. Beginning the week after completion of the baseline survey, conduct a thorough inspection of the Pest Control Work Area Limits and record signs of rodent activity (e.g., burrows, droppings, dead rodents, sightings) and sanitation deficiencies (e.g., refuse storage, exposed garbage, debris, weeds). Repeat this inspection weekly throughout the duration of the work onsite. Perform this survey at night once per month (between one hour after sunset and one hour before sunrise).

3.02 BAITING, TRAPPING, AND MONITORING:

- A. Document rodent activity (e.g., bait consumed, animals trapped). Customize the control program using survey, baiting, and monitoring data to determine distribution of baiting locations and quantities. Replenish bait, re-set traps, and shift bait or trap placements to control rodent populations. Bait or trap edge and accessible bordering areas within the Pest Control Work Area Limits, to ensure rodents will not be dispersed by construction activities and rodents will not infest construction areas.
- B. Apply rodenticides in strict accordance with label directions and the Rules and Regulations of the U.S. Environmental Protection Agency and the Massachusetts Department of Food and Agriculture. Assign a unique number to each baiting location and shall be tamper-resistant.
 - 1. Where bait stations are not used, suspend bait by wire or place it in voids or confined spaces where rodent activity is found. Use census (non-toxic) bait to help monitor these locations for activity or re-infestation.
- C. Baiting, trapping, and monitoring rodent activity shall be in accordance with all applicable federal and state regulations.

3.03 CLEANUP

- A. Remove visible animal carcasses daily and dispose of them consistent with pesticide label directions and applicable codes, laws, and regulations.

- B. Upon completion of work on site, remove remaining bait and dispose of it according to the pesticide label and applicable codes, laws, and regulations, and remove all wires used for catch basin and manhole baiting, bait stations, traps, and any other equipment or tools associated with pest control activities.

3.04 COMPLAINT CALLS

- A. Respond to pest-related complaints within 6 hours. Inspect the particular premises and adjacent areas for sanitation and structural deficiencies and also signs of historic and recent pest activity. Use pesticides or traps to resolve the complaint.

3.05 RECORD KEEPING

- A. Use standardized data sheets to maintain accurate records of date, time period of work, locations, and type and amount of pesticide or other control tools (e.g., traps) applied. This includes records of surveys, inspections, baiting, trappings, and changes in pest activity, sanitation conditions, and complaint calls. Submit data sheets monthly to the Engineer. Data sheets shall be in a format acceptable to the Engineer.

SECTION 01567

GENERAL ENVIRONMENTAL CONTROLS

PART 1 – GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Furnishing and installing straw bales and silt fencing for sediment control.
2. Furnishing and installing siltation fabric in catch basins for sediment control.
3. Furnishing and installing a crushed stone pad at the entrance/exit to any staging areas for sediment control.
4. Furnishing and installing a dewatering system for sediment control.
5. Maintenance of erosion and sediment controls.
6. Furnishing of all physical plant, labor, equipment and materials and performing all operations in connection with the provision of general environmental controls.
7. Removal and disposal of erosion controls at project completion.

1.02 RELATED SECTIONS:

- A. SECTION 01060 – PERMITS AND REGULATORY REQUIREMENTS
- B. SECTION 01300 – SUBMITTALS
- C. SECTION 01560 – TEMPORARY CONTROLS

1.03 REFERENCES:

A. The following standards form a part of these Specifications:

1. American Society for Testing and Materials (ASTM)
 - a) ASTM D751 Standard Test Methods for Coated Fabrics
 - b) ASTM D5034 Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)

c) ASTM D5035 Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)

d) ASTM D3786 Hydraulic Bursting Strength of Knitted Goods in Non-Woven Fabrics – Diaphragm Bursting Strength Tester Method

2. Corps of Engineers (COE)

a) COE CW02215 Geotextiles Used as Filters

1.04 DEFINITIONS:

A. The term professional nurseryman shall refer to a person certified by the Massachusetts Nursery and Landscape Association or equivalent with five years of landscaping experience involving landscaping similar to the landscaping to be furnished under this Contract.

1.05 NOTIFICATION TO CONSERVATION COMMISSIONS:

A. Notify the Engineer 48 hours prior to commencement of work on site. The Engineer will notify the Boston Conservation Commission.

B. Comply with all construction impact mitigation measures specified and indicated in the Order of Conditions (DEP #'s 38-454, 061-0725, 67-1075).

1.06 SUBMITTALS:

A. Submit the following in accordance with Sections 01300 and 01060:

1. Stormwater Pollution Prevention Plan (SWPPP) under the NPDES General Permit for Storm Water Discharges from Construction Activities

2. Erosion and Sediment Control Plan.

3. Product Data:

a) Manufacturer's data for erosion control blankets, silt fence material and filter fabric.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Straw Bales

1. Straw bales shall consist of straw from grasses and legumes, free from weeds, reeds, twigs, chaff, debris, other objectionable material or excessive amounts of seeds and grain. Straw shall be free from rot or mold and the moisture content shall not exceed fifteen percent by weight.
2. The straw shall be baled with wire which will withstand rusting and re-handling when the bale is in a saturated condition. Individual bales shall be of a longitudinal shape not exceeding one hundred (100) pounds when weighed.

B. Silt Fence

1. Filter fabric for silt fence shall consist of pervious sheets of woven polypropylene, nylon, polyester, or ethylene yarn. Material shall be certified by the manufacturer to meet the following requirements:

| <u>Property</u> | <u>Test Method</u> | <u>Requirement</u> |
|-------------------------|-------------------------------------|--------------------------------|
| Tensile Strength | ASTM D5035 Grab Test | 100 lbs (min) |
| Grab Elongation | ASTM D5034 Grab Test | 30% \pm 10% |
| Equivalent Opening Size | Corps of Engineers CW 02215 | 100 sieve (min) 40 sieve (max) |
| Bursting Strength | ASTM D751 Diaphragm Bursting Tester | 175 psi (min) |

2. The filter fabric shall contain a stabilizer and/or inhibitor to make the filaments resistant to deterioration resulting from exposure to sunlight or heat to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 degrees to 120 degrees F. The filter fabric shall be 36 inches wide, cut from a continuous roll to finish fence length to avoid the use of seams. Splice filter fabric together only at a support post, with a minimum 6-inch overlap and securely sealed. The filter fabric shall be free of defects or flaws which affect its physical and/or filtering properties.
3. Wire fence reinforcement for fabric silt fences shall be 30 inches in height, 14 gauge and shall have a mesh spacing of 6 inches or less. The wire fence reinforcement shall be used with all filter fabrics except those approved for use without a wire fence reinforcement by the manufacturer.
4. Posts shall be of wood or steel and of 5 feet 6 inches long for wood and 4 feet 6 inches long for steel. Wood posts shall be at least 4 inches in diameter, or nominal 2 x 4 inches. Steel posts shall be round, or U, T, or C shaped with a weight of at least 1.3 pounds per foot, and have projections for fastening the wire to the fence.
5. Wire staples for attaching filter fabric to wooden posts shall be No. 9 gauge and shall be at least one inch long.

C. Siltation Fabric

1. Shall comply with the requirements of MassDOT Standard Specification Section M9.50.0, Table 1 – Type 1 Fabric.
2. To be used as indicated for:
 - a) Temporary Sediment Trap
 - b) Catch Basin Treatment
 - c) Siltation Control Check Dams

D. Sedimentation Basins

1. Sedimentation Basins shall provide retention time and filtration of the water as required by NPDES permit.
2. Dewatering Filter Bag for Sedimentation Basins
 - a) Bag shall be composed of a UV resistant, non-woven geotextile sewn into a completely enclosed bag. Seams shall be stitched with high strength double stitching.
 - b) Bags shall have a sewn-in sleeve to receive the pump discharge hose.
 - c) The minimum properties are below:

| <u>Property</u> | <u>Test Method</u> | <u>Value</u> |
|--|--------------------|---------------|
| Weight (oz/yd ²) (typical) | ASTM D5261 | 10 oz. |
| Grab Tensile Strength (MD) | ASTM D4632 | 250 lbs. |
| Mullen Burst | ASTM D3786 | 350 psi |
| UV Resistance | ASTM D4355 | 70% @ 500 hrs |
| Flow Rate (Gal/Min/Ft ²) | ASTM D4491 | 70 |
| Filtering Efficiency | ASTM D5141 | 80% |

- d) Submittal shall include the peak flow rate generated from the dewatering pump in gallons per minute. Filter bag shall pass a minimum of two times the peak flow rates generated from the dewatering pump.
3. Flocculation Logs
 - a) Shall be a blended gel polyacrylamide and mineral block.
 - b) To determine proper flocculation log type, soil sample shall be sent to manufacturer for testing. As part of the submittal for flocculation log, include soil sample results.

4. Jute Netting

- a) Shall be of a uniform, open, plain weave, undyed and unbleached single jute yarn. The yarn shall be of loosely twisted construction and shall not vary in thickness by more than one-half the normal diameter. Netting shall be furnished in rolls and shall meet the following minimum requirements.
 - i) Width – Minimum 48-inches.
 - ii) Seventy-eight (78) warp ends per forty-eight (48) inches of cloth width.
 - iii) Weight shall average 1.22 pounds per linear yard (based on a 48-inch width) with a tolerance of 5%.
 - iv) Forty-one waft (weft) ends per yard.
 - v) All material shall be new and unused, and the length shall be marked on each roll.
- b) Staples
 - i) “U” shaped wire staples of 0.12-inch in diameter (No. 11 wire gauge) or greater, with a minimum leg length of six (6) inches and a minimum crown of one-inch shall be used. In sandy soils the minimum leg length of staples shall be nine (9) inches.

2.02 EROSION CONTROL BLANKETS:

A. Erosion control blankets shall meet the following requirements:

1. S1 - 100% straw fibers stitch-bonded to a biodegradable net on the top side. Suitable for low flow to moderate flow runoff conditions.
2. S2 - 100% straw fibers stitch-bonded to a biodegradable net on both top and bottom. Suitable for moderate flow runoff conditions.
3. SC2 – 70% straw, 30% coconut fiber, with biodegradable netting on both sides. For use on 2:1 – 1:1 slopes with heavy run-off conditions. Suitable for steep slide rehabilitation, drought area revegetation, long slope cut and fill, mine land, landfill reclamation, bridge abutments, ski runs, and channel shoulders.
4. C2 – 100% coconut fiber with biodegradable netting on both sides for use as a liner in channels with high velocity intermittent flows, center runs on grassed waterways, drainage ditch lining, and stream bank rehabilitation. Also used as an erosion control blanket on steep slopes and very harsh sites.

PART 3 – EXECUTION

3.01 GENERAL:

- A. In any roadway where storm water is directed from a work area to a catch basin, the Contractor shall install and maintain sediment controls (straw bales or inlet protection filter fabric) to intercept sediment before it enters the storm drain line.
- B. All land-side areas disturbed during construction shall be stabilized upon completion of the installation of near-surface piping, conduit and structures.
 - 1. If disturbed soils will be left in place for longer than 60 days, a temporary cover of rye or other grass shall be established. If the season is not appropriate for plant growth, then exposed surfaces shall be stabilized by straw, snow fence, or other U.S. Natural Resources Conservation Service recommended methods.

3.02 PROTECTION OF LAND RESOURCES AND TREES:

- A. The land resources within the project boundaries and outside the limits of Work performed under this Contract shall be restored to a condition after completion of construction that will reflect the existing condition prior to commencement of construction.
 - 1. Construction activities shall be confined to the limits of Work indicated on the contract drawings.
- B. The Contractor shall destroy and/or remove and properly dispose of all signs of temporary construction facilities such as Work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other indication of construction. Excavation, filling, grading, loaming and planting will be required to restore the areas to conditions that will permit the growth of vegetation thereon. Finish grades shall conform to original grades.

3.03 HAZARDOUS MATERIAL AND WASTE CONTROL:

- A. Disposal of volatile fluid wastes (such as hydraulic fluids, waste oil, gasoline, fuel or paint thinner) onto the ground, in storm or sanitary sewer systems or into streams or waterways shall not be permitted. In the event that any such waste is spilled, the Contractor shall immediately clean up the spillage and all contaminated soil and dispose of the cleanings as hazardous waste material. If a spill occurs, the clean-up activities shall take precedence over normal construction activities in order that damage to the environment is minimized. Disposal of hazardous wastes shall be at no additional cost to the Owner.
- B. All hazardous materials containers shall be marked and their contents identified. All fuel oil, lubricant, gasoline, and hydraulic fluid containers shall be fixed in place on the transport vehicle when the vehicle is in motion.

- C. The Work shall be in compliance with all federal, state, and local laws with respect to hazardous materials and all clean-up and disposal operations shall comply with all applicable federal, state, and local statutes, regulations, ordinances and anti-pollution laws.
- D. The minimum requirements for spill response and prevention equipment that the Contractor shall keep available on site are as follows:
1. Plastic Wading Pools - Three (3) plastic wading pools (inflatable or rigid) shall be available at construction site.
 2. Absorbent - Fifteen (15) 50-pound bags of industrial absorbent shall be available at the construction site. Spread absorbent on puddles of hazardous materials or use as diking material to contain spills.
 3. Plastic Sheeting - A 10-foot-wide by 100-foot long or larger roll of polyethylene plastic sheeting shall be available at the construction site. Use polyethylene plastic sheeting as a protective barrier between the ground and hazardous materials.
 4. Shovels - Five (5) shovels shall be stored at the construction site exclusively for use to build dikes or clean up contaminated soils and absorbent.
 5. Storage Drums - One 55-gallon open top steel drum, or a container of similar construction shall be available at the construction site for disposal of contaminated materials.
 6. Communication Device - A two-way radio or other communication device shall be available at the construction site to call for emergency aid.
- E. During refueling and lubrication, the following spill prevention measures shall be employed. A plastic barrier shall be placed beneath the nozzle where the refueling hose connects to the equipment. Two arrangements may be used:
1. Place an air-filled or rigid plastic wading pool under the filling area. The wading pool shall be approximately three feet in diameter with six inch sides or longer.
 2. Dig a depression in the ground under the filling area. Depression will be three feet in diameter and six inches at its center or more. Sides of the depression will slope towards the center. A single piece of polyethylene plastic shall then be placed over the depression such that the plastic completely covers the center of the depression. Center of the depression is approximately under the fuel fill inlet.
- F. During refueling and lubrication, spill response equipment shall be in close proximity to the operation.
- G. All parked (for greater than 24 hours) mobile construction equipment and any stationary construction equipment containing hazardous substances shall be placed over polyethylene plastic sheeting.

- H. In the event of any spill/leak of hazardous material, Contractor shall immediately clean up the hazardous material and contaminated soil and/or water. The following cleanup procedures apply:
1. Immediately notify local and state officials of the spill or release.
 2. If a spill/leak occurs and is contained in the plastic barrier, absorb the liquid with industrial absorbent and dispose of plastic barrier and absorbent in accordance with federal, state, and local regulations. Do not re-use a contaminated barrier.
- I. In the event of a large spill or release of hazardous material (>1000 gallons) to the environment, the following cleanup procedures apply:
1. Immediately notify local and state officials of the spill or release.
 2. Immediately contain spill with available emergency equipment. Use soil or industrial absorbent dikes to stop spills from running into surface waters. Soak up puddle spills with industrial absorbent.
 3. Eliminate and restrict all sources of ignition from spill.
 4. Determine exact source of leak or spill, amount and area affected by release.
 5. Stop flow of material to the ground if still leaking (i.e. divert spilling material into a container or wading pool).
 6. Position fire extinguishers within twenty-five (25) feet of clean-up area.
 7. Collect contaminated material (for example absorbent, rags, contaminated soil) into a recovery drum and label for legal off-site disposal in accordance with all applicable regulations.
 8. Clean up, restore, and replace spill response equipment.

3.04

INSTALLATION:

- A. Temporary Erosion and Sediment Control:
1. At all sites that include excavation in non-paved areas straw bales and silt fence shall be placed around the periphery of disturbed areas.
 2. Straw bales shall be installed so that bindings are oriented around the sides.
 3. The straw bale and silt fence barrier shall be entrenched and backfilled in unpaved areas. A trench shall be excavated to the width of a bale and the length of the barrier to a depth of 4 inches. The silt fence shall be entrenched to a depth of 6 inches. After the bales are staked and chinked, the excavated soil shall be backfilled

against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

4. Each bale shall be anchored by at least two stakes driven through the bale. The first stake in each bale shall be driven toward the previously laid bale to force the bales together. Stakes shall be driven deep enough into the ground to securely anchor the bales. Silt fence shall be secured to the substrate with wood stakes.
5. The gaps between bales shall be chinked (filled by wedging) with straw to prevent water from escaping between the bales.

3.05 MAINTENANCE:

- A. Maintain erosion and sediment control devices in accordance with the Stormwater Pollution Prevention Plan and Erosion and Sediment Control Plan as specified in Paragraph 1.06A.2 above and the following:
 1. The Contractor shall inspect all erosion and sediment controls daily, before an anticipated storm greater than 0.5 inches, and following a significant storm event (0.5 inches or greater total rainfall).
 2. Any silt fence or straw bale that becomes damaged shall be repaired or replaced immediately at no additional cost to the Owner.
 3. Silt fences and straw bales shall have sediment removed before depth of sediment is half height of fence or bale.
 4. Remove built up debris and sediment where devices are used for catch basin protection, so that ponding or flooding does not occur.
 5. Dispose of sediment deposits off-site, in accordance with all applicable laws.

3.06 SEDIMENTATION BASIN INSTALLATION AND MAINTENANCE:

- A. The Contractor shall construct basins that are sized to prevent overtopping and shall provide filtering.
- B. The Contractor shall construct outlet area from all sedimentation basins to prevent erosion of the area surrounding the basin.
- C. The Contractor shall maintain sedimentation basins as follows: Inspect at least twice daily during dewatering operations. Provide any repairs immediately at no additional cost to the Owner. Clean clogged sections daily. Remove sediment when deposits reach 6 inches below the top of the straw bales. Dispose of sediment deposits off-site in accordance with DEP regulations for disposal of surplus material.

3.07

REMOVAL

- A. Erosion control measures shall be removed after disturbed areas are stabilized.
 - 1. Stabilized shall mean that the following is accomplished: trenches are backfilled and compacted, and the finish surface materials installed including sod, pavement (bituminous concrete or cement concrete), warning track mix, or crushed stone surface treatment.

SECTION 01570
CONSTRUCTION ZONE SAFETY PLAN

PART 1 – GENERAL

1.01 SUMMARY:

- A. Comply with the Construction Zone Safety Plan (the "Plan") including without limitation installing and maintaining traffic control devices and employing Police details, all as are required by the Plan. Traffic control devices shall include but are not limited to channelizing devices, signs, barricades, temporary pavement markings, lighting devices, variable message boards, and hand signal devices in the amounts and locations indicated in the Plan.
- B. Comply with all aspects of the Plan in the maintenance, support, adjustment, and relocation of all utility systems, regardless of utility owner and regardless of whether the actual work is being performed by the Contractor, by a Subcontractor, by the utility owner's forces, or by a contractor working for the utility owner.

1.02 SEQUENCING AND SCHEDULING:

- A. Schedule implementation of all traffic maintenance equipment and procedures required by the Plan.
- B. Coordinate all Work in this Section with the Engineer, and all other governing authorities indicated in the Plan.

1.03 REFERENCE STANDARDS:

- A. U.S. Department of Transportation, Federal Highway Administration "Manual of Uniform Traffic Control Devices for Streets and Highways" (MUTCD), latest edition.
- B. Massachusetts Department of Transportation (MassDOT), "Standard Specifications for Highways and Bridges".
- C. Code of Massachusetts Regulations 701 CMR 7.00 "Use of Road Flaggers and Police Details on Public Works Projects".
- D. Other standards, if any, indicated in the Plan.

1.04 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:
 - 1. Shop drawings and product data for all traffic control devices indicated, including barriers, fencing, barrels, cones, flashing arrows, and signs.

PART 2 – PRODUCTS

2.01 TRAFFIC CONTROL DEVICES:

- A. Provide all interim traffic signage and traffic control devices in accordance with the Plan. All barriers, barrier fences, traffic signs, and other traffic control devices shall conform to the MUTCD and other standards, if any, indicated in the Plan.
- B. Portable Changeable Message Signs shall be temporary traffic control devices programmable to display messages meeting the requirements of the MUTCD, Section 6F-52. When in operating mode, minimum mounting height shall be 7 feet above the roadway to the bottom of the panel, except on vehicle mounted panels which should be mounted as high as possible.

PART 3 – EXECUTION

3.01 GENERAL

- A. Vehicular and pedestrian traffic shall be maintained in accordance with the Plan.
- B. Notify all abutters with respect to work that may impede traffic at least one week prior to beginning Work at the site.
- C. Provide at least 72 hours notice of detours, lane closures, and street closures indicated in the Plan to the Engineer, all property owners abutting the street closure, and other governing authorities with jurisdiction as indicated on the Plan.

3.02 LANE CLOSURES AND TRAFFIC DETOURS

- A. General:
 - 1. Provide and erect all traffic control devices, lighting and signage as indicated in the Plan.
- B. Construction in Public Streets without full street closure:
 - 1. Maintain clear passage for emergency vehicles at all times.
 - 2. Excavations adjacent to travel lanes, parking spaces and driveways shall also be protected by concrete median barriers and as required by 520 C.M.R. 14.00.
 - 3. Any street, road, walk, driveway, private way or land area, public or private, that is not indicated to be closed shall be maintained passable and safe by the Contractor. If any street, road or private way shall be rendered unsafe by the Contractor's operations as determined by the Engineer, or if the Contractor is not in compliance

with the Plan, provide additional personnel and traffic control devised as directed by the Engineer or other governing authorities, at no additional cost to the Owner.

C. Street Closures:

1. The closing of streets or roadways shall only occur where indicated on the Plan.
2. Use battery or solar powered barricades with warning signs to protect all streets and roadways which are closed to traffic.

3.03 INSTALLATION:

A. General:

1. Conduct work in manner to interfere as little as possible with public travel, whether vehicular or pedestrian.
2. Provide and maintain steel cover plates for accommodation of public and private travel whenever it is necessary to cross, obstruct, driveways, and walks, whether public or private.
 - a) Installation of temporary steel plates shall be in accordance with 520 C.M.R. 14.00.
3. When indicated in the Plan, widen shoulder on opposite side of the work site and provide temporary surfacing on shoulders.
4. Detours. If indicated in the Plan, construct and maintain a detour around construction work to maintain traffic, including all indicated traffic control devices.
5. Illuminate all barricades and obstructions with warning lights from sunset to sunrise.

3.04 TRAFFIC CONTROLLER SERVICES:

- A. Provide traffic controllers consisting of Police Details for the direction and control of pedestrian and vehicular traffic in accordance with the Plan.

3.05 RESTORATION:

- A. Remove all traffic control devices, signage, and pavement markings upon completion of Work in the area and restore the area, including pavement markings and signage, to its original condition.

SECTION 01600
CONTROL OF MATERIALS

PART 1 – GENERAL

1.01 SUMMARY:

- A. Section Includes:
 - 1. Submittals
 - 2. Quality Assurance
 - 3. Manufacturers Written Instructions
 - 4. Transportation and Handling
 - 5. Storage, Protection and Maintenance
 - 6. Salvage

1.02 RELATED SECTIONS:

- A. SECTION 01300 – SUBMITTALS

1.03 SUBMITTALS:

- A. Proposed Manufacturers List: Submit to the Engineer with the schedule of shop drawing submittals as specified in Section 01300, Paragraph 1.03 A, a list of the names of proposed manufacturers, materials, suppliers and Subcontractors, obtain Engineer review of this list prior to making submittals. Upon request, submit evidence to Engineer that each proposed manufacturer has manufactured a similar product to the one specified and that it has previously been used for a like purpose for a length of time to demonstrate its satisfactory performance.
- B. Furnish and install Material and Equipment which meets the following:
 - 1. Manufactured and fabricated in accordance with the following:
 - a) Design, fabricate, and assemble in accordance with best engineering and shop practices.
 - b) Manufacture like parts of duplicate units to standard sizes and gauges, and to be interchangeable.
 - c) Provide two or more items of same kind identical, by same manufacturer.

- d) Provide materials and equipment suitable for service conditions.
- e) Adhere to equipment capabilities, sizes, and dimensions shown or specified.
- f) Working parts are readily accessible for inspection and repair, able to be duplicated and replaced.

2. Use material or equipment only for the purpose for which it is designed or specified.

1.04 QUALITY ASSURANCE:

- A. Instruction Distribution: When the Contract Documents require that installation, storage, maintenance and handling of equipment and materials comply with manufacturer's written instructions, obtain and distribute printed copies of such instructions to parties involved in installation, including two copies to the City of Fall River and Engineer.
 - 1. Maintain one set of complete instructions at the job site during storage and installation, and until completion of work.
- B. Manufacturer's Requirements: Store, maintain, handle, install, connect, clean, condition, and adjust products in accordance with manufacturers written instructions and in conformity with Specifications. Do not omit preparatory steps or installation procedures.

1.05 DELIVERY, STORAGE AND HANDLING:

- A. The Contractor is responsible for the security of all materials until they are incorporated in the work.
- B. Coordination with Schedule: Arrange deliveries of materials and equipment in accordance with Construction Progress Schedule. Coordinate to avoid conflict with work and conditions at site.
 - 1. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Protect bright machined surfaces, such as shaft and valve faces, with a heavy coat of grease prior to shipment.
 - 3. Protect painted surfaces against impact, abrasion, discoloration and other damage.
 - a. Repaint all painted surfaces, which are damaged prior to acceptance, to the satisfaction of the Owner, at no additional cost to the Owner.
 - 4. Immediately upon delivery, inspect shipments to determine compliance with requirements of Contract Documents and submittals and that material and equipment are protected and undamaged.

5. Ensure that complete packing lists and bills of materials are included with each shipment.
- C. Handling: Provide equipment and personnel to handle material and equipment by methods recommended by manufacturer to prevent soiling or damage to materials and equipment or packaging.
 - D. Immediately upon discovery, remove from the jobsite all damaged materials and equipment. Replace with new material and equipment at no additional cost to the Owner.
 - F. Interior Storage:
 1. Store materials and equipment in accordance with manufacturer's instructions, with seals and labels intact and legible.
 2. Store materials and equipment, subject to damage by elements, in weathertight enclosures.
 3. Maintain temperature and humidity within ranges required by manufacturer's instructions.
 - G. Accessible Storage: Arrange on site and off site storage in a manner to provide easy access for inspection and inventory. Make periodic inspections of stored materials or equipment to assure that materials or equipment are maintained under specified conditions and free from damage or deterioration.
 1. Perform maintenance on stored materials of equipment in accordance with manufacturer's instructions, in presence of the Owner.
 2. Submit a report of completed maintenance to the Owner with each Application for Payment.
 3. Failure to perform maintenance or to submit maintenance report may result in rejection of material or equipment.
 - H. Surface Damage: Where structural concrete is also the finished surface, do not mark or damage surface.

PART 2 – PRODUCTS

2.01 MATERIALS:

- A. Conform to specified referenced standards.
- B. Comply with size, type, and standard of quality specified.

- C. Use only new materials and equipment in permanent construction.
- D. The materials and equipment used on the work shall comply with the Contract Documents, the reviewed shop drawings, samples or other data.

2.02 FABRICATION:

- A. Design, fabricate, and assemble products in accordance with engineering and shop practices as recommended by the manufacturer.
- B. Do not use material or equipment for any purpose other than that for which it is designed or specified.

2.03 SPARE PARTS:

- A. Provide spare parts for products as specified. See Attachment A for spare parts form to be completed by Contractor and submitted with all spare parts. Include current (by submittal date) prices.
- B. Pack spare parts to protect them during storage. Tag spare parts and containers to clearly identify them in accordance with specified parts numbering system. All parts shall be cross-referenced to their applicable sections.

2.04 SPECIAL TOOLS:

- A. For each type of equipment furnished, provide a complete set of all special tools (including grease guns or other lubricating devices) which manufacturer supplies or recommends for the adjustment, operation, maintenance, and disassembly of such equipment. Tools shall be high-grade, smooth, forged, alloy, tool steel. Grease guns shall be lever type.
- B. Special tools shall be delivered at the same time as the equipment to which they pertain. Store and safeguard such special tools until Substantial Completion, at which time they shall be delivered to the Owner.

2.05 NAMEPLATES:

- A. Except as specified in Paragraph B below, each piece of equipment shall be provided with a nameplate of non-corrodible metal, fastened in place and inscribed with the manufacturer's name, model or type designation, serial number, principal rated capacities, electrical or other power characteristics.
- B. This requirement shall not apply to standard, manually operated hydrants or to gate, globe, check and plug valves.
- C. Each piece of equipment shall be provided with a tag of non-corrodible metal fastened in place and inscribed with an identification number in conformance with the Owner's requirements.

2.06

GENERAL MATERIAL AND EQUIPMENT REQUIREMENTS:

- A. Should these requirements conflict with the Supplier's recommendations the Supplier's requirements shall govern.

- B. Bolts, Anchor Rods and Nuts:
 - 1. All bolts, anchor rods, nuts, washers, plates and bolt sleeves shall be as specified herein and in other sections.
 - 2. Stud, tap, and machine bolts, and nuts shall conform to the requirements of ASTM A325 Standard Specification for Carbon Steel Externally and Internally Threaded Standard Fasteners, Designation A325. Hexagonal nuts of the same quality of metal as the bolts shall be used. All threads shall be clean cut and shall conform to ASME B1.1 for Unified Inch Screw Threads (UN and UNR Thread Form).
 - 3. Anchor rods shall be set using templates and where indicated. Anchor bolts shall be provided with square plates at least 4 in. by 4 in. by 3/8 in. or shall have square heads and washers and be set in the concrete forms with pipe sleeves. Anchor rods shall have washers and hexagonal nuts of the type indicated on the Drawings.
 - 4. Anchors in existing concrete structures shall be placed by drilling and grouting or caulking without damaging the structure or finish.

- C. Concrete Inserts for Hangers:
 - 1. Concrete inserts for hangers shall be designed to support, in the concrete that is used, the maximum load that can be imposed by the hangers used in the inserts. Inserts for hangers shall be of a type which will permit adjustment of the hangers both horizontally (in one plane) and vertically and locking of the hanger head or nut. All inserts shall be galvanized by the hot-dip process in conformity with the ASTM Standard Specification for Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Designation A123, or the ASTM Standard Specifications for Zinc Coating (Hot Dip) on Iron and Steel Hardware, Designation A153.

- D. Protection against Electrolysis:
 - 1. Where dissimilar metals are in contact with one another, provide insulation between adjoining surfaces to eliminate direct contact and any resultant electrolysis. Provide bituminous insulation, heavy bituminous coatings, nonmetallic separators or washers, or impregnated felt to provide insulation.

PART 3 – EXECUTION

3.01 FIELD QUALITY CONTROL:

A. General:

1. Provide manufacturer's field services in accordance with this subsection for those tasks specified in other sections.

B. Installation Instruction: Provide instruction to the Owner's operational personnel by technical representatives of equipment manufacturers or system suppliers to resolve assembly or installation procedures which are attributable to, or associated with, the equipment furnished.

C. Installation Inspection and Adjustments:

1. Provide technical representatives of equipment manufacturers to inspect the completed installation as follows.

- a) Verify that each piece of equipment has been checked for lubrication, rotation, or for other conditions which may cause damage.
- b) Verify that equipment or system is installed in accordance with the manufacturer's recommendations, shop drawings and the Contract Documents.
- c) Verify that nothing in the installation voids any warranty.

2. Provide manufacturer's representatives to perform initial equipment adjustment and calibration conforming to the manufacturer's recommendations and instructions, shop drawings and the Contract Documents.

3. Furnish the Owner with three copies of the following:

- a) Detailed report by manufacturers' representatives, for review by the Owner, of the installation and inspection of all valves performed, including:
 - i) Description of calibration and adjustments if made.
 - ii) Description of any parts replaced and reason for replacement.
 - iii) Type, brand name, and quantity of lubrication used, if any.
 - iv) General condition of equipment.
 - v) Description of problems encountered, and corrective action taken.

3.02

CLEANING:

A. Salvage of Materials:

1. Existing materials removed, and not reused, as part of work shall become Contractor's property.
2. Do not reuse existing materials and equipment in Work except where so specified or indicated.

SECTION 01620

SIGNS

PART 1 – GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Furnishing, installing, and maintaining project identification sign.
2. Removing all installed signs on completion of the Work on site.

1.02 RELATED SECTIONS:

A. SECTION 01300 – SUBMITTALS

1.03 SYSTEM DESCRIPTION:

A. Project Identification Sign:

1. Do not erect or display signs of any kind other than those specified herein.
2. At start of Work, furnish, erect, and maintain on site where directed by the Engineer, two project identification signs bearing the following information:

B. DEP FILE # SIGN

1. Provide DEP File # identification signs as required by Municipal Order of Conditions for posting at location to be determined by Engineer. (SE-24-837)

1.04 PROJECT IDENTIFICATION

- A. Provide two (2) Project Identification signs to be located where directed by Owner and Engineer, as depicted herein. Contractor to provide a shop drawing to Engineer and for review of sign and text layout prior to fabrication. The sign layout shall be as the following:

QUEQUECHAN RIVER RAIL TRAIL PROJECT

Phase 4A

City of Fall River
Mayor Paul E. Coogan

Landscape Architect

Brown, Richardson & Rowe, Inc.
65 Franklin Street, 4th Floor
Boston, Massachusetts

Engineer

Stantec Consulting Services
45 Blue Sky Drive, 3rd Floor
Burlington, Massachusetts

Contractor

Name
Address

Funding for this project generously provided by:

GATEWAY CITY PARKS PROGRAM

Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs



- B. Signs shall be made of 4'x 8' durable, exterior grade painted plywood or metal securely mounted to wood posts and be professionally lettered as shown on the Drawings herein. Submit samples of lettering layouts to Landscape Architect for approval.
- C. Signs shall be securely mounted with galvanized metal attachments to wood or steel posts and shall be framed so as to be durable. All attachments and mountings shall be child safe and vandal resistant.
- D. Signs shall be installed facing the street or access points to the construction area so as to be visible and to inform the general public. Where possible, the signs should be located so as not to conflict with the construction process.
- E. The construction signs shall be maintained in satisfactory condition during construction and then removed and disposed of legally by the contractor just prior to the final acceptance of the work.
- F. As directed, permanent signs shall be installed and protected until project acceptance.
- G. Remove all signs at Substantial Completion and dispose of or deliver to storage area as directed by Engineer.
- H. No other temporary signs are allowed without Engineer's permission except those required by law.

1.04 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:
 - 1. Product data for paint.
 - 2. Shop drawings with information to be displayed on project identification signs and each portable message sign.
 - 3. Sketch showing the locations where the project identification signs are to be installed.

1.05 QUALITY ASSURANCE:

- A. Finishes, painting and printing shall resist weathering and fading until completion of the Work on site.

1.06 MAINTENANCE:

- A. Maintain signs and supports in a neat, clean and legible condition; repair damage to structures, framing or signs, at no additional cost to the Owner.

- B. Promptly remove graffiti from signs and display cases.

PART 2 – PRODUCTS

2.01 MATERIALS:

A. Project Identification and Informational Sign Materials

1. Structure and Framing: Pressure Treated Structural Lumber, pressure treated with waterborne preservative in accordance with AWPA U1.
2. Sign Surfaces: overlaid plywood, use standard large sizes to minimize joints:
 - a) Overlaid Plywood: PS1, waterproof, resin-bonded, exterior type, medium density cellulose fiber overlay; APA Group 4 or better, Grade E Ext-MDO-BB.
 - b) Thickness: Minimum ¾-inch to span framing members, to provide even, smooth surface without waves or buckles.
3. Wrought Hardware: Galvanized.
4. Bolts and Nuts: ASTM A307, galvanized ASTM A153, cadmium plated ASTM B776, Type NS, or zinc plated ASTM B633, SC-4.
5. Wood Screws: 18-8 stainless steel or brass.
6. Nails: Galvanized or aluminum coated.

PART 3 – EXECUTION

3.01 PREPARATION:

A. Project Identification Sign

1. Paint exposed surface of supports, framing and surface material; one coat of primer and one coat of exterior white paint.
2. Print graphics in styles, sizes and colors selected.

3.02 GENERAL:

A. Project Identification Sign and Portable Message Signs:

1. Remove project identification signs upon completion of work on site.

2. Place portable message signs at locations indicated and remove upon completion of work.
3. Maintain in good condition and remove upon completion of work on site.

SECTION 01700
CONTRACT CLOSEOUT

PART 1 – GENERAL

1.01 DESCRIPTION:

A. Section Includes:

1. Requirements for closing out the work.

1.02 RELATED SECTIONS:

A. SECTION 01300 – SUBMITTALS

1.03 SUBMITTALS:

A. Submit the following in accordance with Section 01300:

1. When the Contractor considers work is complete, the Contractor shall submit written certification that:
 - a) Contract Documents have been reviewed.
 - b) Work has been inspected for compliance with Contract Documents.
 - c) Work has been completed in accordance with Contractor Documents.
 - d) Equipment and systems have been tested in the presence of the Engineer and are operational.
 - e) Work is complete and ready for final inspection.
2. At contract close-out, deliver the following to each municipality:
 - a) Project Record Documents:
 - i. Drawings.
 - ii. Specifications.
 - iii. Addenda.
 - iv. Change Orders and other modifications to the Contract.
 - v. Field Orders or written instructions.

- vi. Approved Shop Drawings and Product Data.
 - vii. Construction photographs and videotapes.
 - b) Operating and maintenance data, and instructions to the Owner's personnel.
 - c) Spare parts and maintenance manuals.
 - i) Provide spare parts, maintenance manuals, and special tools as specified herein.
 - d) Evidence of Payment and Release of Liens.
 - e) Two copies of each warranty and consent of surety for payment as specified as applicable to each municipality.
 - 3. Submit to the Engineer a Final Statement of Accounting that shall reflect all adjustments to the contract sum.
 - a) Original contract sum.
 - b) Additions and deletions resulting from:
 - i. Change orders.
 - ii. Deductions for uncorrected work.
 - iii. Deductions for liquidated damages.
 - iv. Deductions for re-inspection payments.
 - v. Other adjustments.
 - c) Total contract sum, as adjusted.
 - d) Previous payments.
 - e) Amount remaining due.
 - 4. Submit final application for payment.
 - 5. Final payment will not be made until all requirements contained in Paragraph 1.03A.1-3 have been met and all spare parts, maintenance materials, and special tools specified herein have been delivered to the Owner in a new and undamaged condition.

6. Accompany submittal with transmittal letter in duplicate containing:

- a) Date.
- b) Project title and number.
- c) Contractor's name and address.
- d) Title and number of each Record Document.
- e) Signature of Contractor or authorized representative.

1.04 DELIVERY, STORAGE, AND HANDLING:

- A. At or prior to the time of inspection for Substantial Completion, deliver all required items to the Engineer.
 - 1. The Contractor and the Engineer shall inspect and inventory all items delivered.
- B. Submit to the Engineer a detailed invoice of all items delivered.
 - 1. Organize invoice by specification sections.
 - 2. Indicate on invoice any items delivered which were damaged or unsatisfactory.
 - 3. The Contractor and the Engineer shall sign the invoice certifying that all items listed were delivered, and that unless otherwise noted on invoice, all items were in good condition at the time of delivery to the Engineer.
- C. The Engineer will review the invoice for completeness and inform the Contractor promptly of any deficiencies therein.
- D. The Contractor will deliver all additional items identified by the Engineer and replace, at no additional cost to the Owner, all damaged and unsatisfactory items noted on original invoice before requesting final inspection.
- E. Invoices for additional and replacement items, signed by the Contractor and the Engineer, shall be submitted.
- F. Store items in a clean, dry, heated, storage shed or bonded warehouse.
- G. Protect all items from damage during storage.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)