



## Department of Conservation and Recreation

### **PART I**

### **INSTRUCTIONS TO BIDDERS**

CONTRACTS FOR PUBLIC WORKS PROJECTS  
AND  
FOR BUILDING PROJECTS ESTIMATED TO  
COST MORE THAN \$25,000 BUT NOT MORE THAN \$100,000  
SUBJECT TO THE PROVISIONS OF M.G.L. CH. 30 SEC. 39M

**NOTICE TO CONTRACTORS – M.G.L. C. 30, sec. 39M CONSTRUCTION  
ADVERTISEMENT OF INVITATION FOR BIDS  
COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION AND RECREATION  
251 CAUSEWAY STREET, SUITE 600, BOSTON, MA 02114-2104  
PHONE: 617-626-1250  
www.mass.gov/dcr**

Contract No.P10-2636-C3A  
Title: Blackstone River Greenway Phase 1 Segment 2  
Location: Blackstone, MA

GENERAL BID proposals shall be submitted on a form furnished by the Department and will be received until **12:00 PM on Wednesday, November 30, 2022** through DCR's E-bid room at [www.bidexpress.com/businesses/36765/home](http://www.bidexpress.com/businesses/36765/home).

Individual sets of contract documents will only be available on DCR's E-bid room at [www.bidexpress.com/businesses/36765/home](http://www.bidexpress.com/businesses/36765/home).

If any addenda are issued throughout the open period for this project, DCR will distribute these addenda via Bid Express, which will also email identified prospective at the time plans and specifications are issued.

A pre-bidding conference for prospective bidders will be held on **November 9, 2022, at 10:00 AM** at the Polish American Citizens Club, 6 Mill Street, Blackstone, MA 01504. All questions are due to the project manager: [stella.lensing@mass.gov](mailto:stella.lensing@mass.gov)- No later than 12:00 PM on Monday, November 14, 2022.

This project is a 0.5-mile section from the Canal Street Bridge in Blackstone to Rhode Island. It includes the construction of a trail on top of a single-span and a seven-span viaduct, both of which are historic structures which will be rehabilitated as part of the project.

The estimated project cost is **\$9,500,000**

The work is to be accomplished within **1095** calendar days of a notice to proceed. Liquidated damages in the amount of **\$1,000.00** per day will be assessed if the work has not been completed in accordance with the provisions of the contract within the time specified (as extended by any authorized extension of time granted in accordance with the contract provisions).

**Bidders must be pre-qualified by the Massachusetts Dept. of Transportation (MassDOT) Highway Division in HIGHWAY - BIKE PATHS to bid on the above project. An award will not be made to a Contractor who is not pre-qualified by MassDOT prior to the opening of Proposals.**

The proposed contract includes a combined requirement of 10.4% of the bid price for minority-owned business enterprises and women-owned business enterprises. Proposed MBE/WBE plans that include solely MBE or solely WBE , or do not include a reasonable amount by both MBE and WBE firms to meet the combined requirements, will not be considered responsive.

The applicable local minority workforce utilization percentage is a minimum goal of 15.3%. The applicable local women workforce utilization percentage is a minimum goal of 6.9%.

The Commonwealth requires participation of Veteran-Owned Business Enterprises (“VOBE”) on its construction projects. The Veteran-Owned Business Enterprise participation benchmark for this contract is 3.0%.

Each bid must be accompanied by a bid deposit, in the form of a bid bond, cash, certified check, or a treasurer's or cashier's check issued by a responsible bank or trust company, payable to the Department of Conservation and Recreation in the amount of 5% of the bid.

Each bid must be submitted through DCR's E-Bid room at [www.bidexpress.com/businesses/36765/home](http://www.bidexpress.com/businesses/36765/home). Please ensure that your bid is complete and marked as responsive when submitting through DCR's Bid room. Any bids found to be incomplete and/or marked unresponsive will be rejected by DCR and will not be considered when awarding the project.

Bids are subject to the provisions of M.G.L. Ch. 30, Sect. 39F, G, H and M inclusive. Wages are subject to minimum wage rates as per M.G.L. Ch. 149, sections 26 to 27D inclusive. The Department reserves the right to waive any informalities in or to reject any and all bids if it be in the public interest to do so.

Douglas Rice, Commissioner  
Massachusetts Department of Conservation and Recreation



**COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION AND RECREATION**

**PART I  
INSTRUCTIONS TO BIDDERS**

**CONTRACTS FOR PUBLIC WORKS PROJECTS  
SUBJECT TO THE PROVISIONS OF M.G.L. C. 30. SEC. 39M**

**Awarding Authority:**

Department of Conservation and Recreation  
251 Causeway Street, Suite 600  
Boston, MA 02114  
Telephone: 617-626-1250

DCR Contract No.: P10-2636-C3A

Title: Blackstone River Greenway Phase 1 Segment 2

Project Scope: The construction of a trail on top of a single-span and a seven-span viaduct, both of which are historic structures which will be rehabilitated as part of the project.

**Deadline for filing general bids is 12:00 P.M. on Wednesday, November 30, 2022.**

The minimum wage rate and truck rate requirements for this Contract are located [www.bidexpress.com/businesses/36765/home](http://www.bidexpress.com/businesses/36765/home).

Bid forms for this Contract are located @ [www.bidexpress.com/businesses/36765/home](http://www.bidexpress.com/businesses/36765/home).

The Minority and Women Business Enterprise participation for this Contract are to be found in the Notice to Contractors section (Part I - Page 2/3).

The time for completion of the Work is specified in Article 2 of the Department of Conservation and Recreation - Contractor Agreement. Liquidated damages for failure to complete on time are as stated in Article 8 of the Department of Conservation and Recreation - Contractor Agreement.

As used herein, capitalized terms shall have the meaning assigned to them in the General Conditions of the Contract and the Department of Conservation and Recreation - Contractor Agreement unless the context clearly indicates otherwise.

## **SECTION 1 - BIDDER'S REPRESENTATION**

**1.1** Each bidder (hereinafter sometimes referred to as "Bidder") by making a bid (hereinafter sometimes referred to as "Bid") represents and warrants that Bidder has visited and examined the Site and the Contract Documents; that Bidder is familiar with the local conditions under which the Work is to be performed; that Bidder has correlated personal observations with the requirements of the Contract Documents; and that where the Contract Documents require, in any part of the Work, a given result to be produced, the Contract Documents are adequate and that Bidder will produce the required result within the Bid price and that the Bid is made in accordance therewith.

**1.2 FAILURE TO EXAMINE THE CONTRACT DOCUMENTS AND THE SITE WILL NOT RELIEVE ANY BIDDER FROM ANY OBLIGATION UNDER THE BID AS SUBMITTED. NEITHER THE COMMONWEALTH NOR THE DESIGNER WILL BE RESPONSIBLE FOR ERRORS, OMISSIONS AND/OR CHARGES FOR EXTRA WORK ARISING FROM BIDDER'S FAILURE TO FAMILIARIZE ITSELF WITH THE CONTRACT DOCUMENTS OR EXISTING CONDITIONS.**

### **1.3 Pre-Bidding Conference**

- A. If applicable, a pre-bidding conference for prospective bidders will be held at the date, time and location as specified in the Notice to Contractors section (Part I – page 2/3).
- B. At the conference the project will be discussed in general. It is desirable that all prospective bidders attend. The Contract, Specifications, Drawings, and any other aspects of this project will be explained in response to questions by those attending. For interpretations of questions requiring legal, administrative, or engineering decision, prospective bidders shall comply with Section 3 herein.

## **SECTION 2 - GENERAL BIDDERS - QUALIFICATION**

**2.1** Every Bidder must submit the following documents, as required:

Special certification may be required as required by the Department on a contract-specific basis.

**Refer to the Notice to Contractors for the specific qualification requirements of this contract.**

## **SECTION 3 - REQUESTS FOR INTERPRETATION**

### **3.1 Interpretation**

**A.** The Plans and Specifications and other Contract Documents are to be considered together and are intended to be mutually complementary, so that any work shown on the Plans though not specified in the Specifications, and any work specified in the Specifications though not shown on the Plans, is to be executed by the Contractor as a part of this Contract.

**B.** All things that in the opinion of the Awarding Authority may be reasonably inferred from the Plans, Specifications and other Contract Documents are to be executed by the Contractor. The Awarding Authority shall determine whether the detail Plans conform to the general Plans and Contract Documents.

**C.** The tables of contents, titles, headings and marginal notes or sub-scripts contained herein are solely to facilitate references, are not intended to be construed as provisions of the Contract, and in no way affect the interpretation of the provisions to which they refer.

**D.** Where reference is made in the Contract Documents to publications, standards, or codes issued by associations or societies, such reference shall be interpreted to mean the current edition of such publications, standards, or codes, including revisions in effect on the date of the Advertisement, notwithstanding any reference to a particular date. The foregoing sentence shall not apply to the dates, if any, specified with respect to insurance policy endorsement forms.

**E.** In case of any conflict among the Contract Documents, unless the context clearly otherwise requires, the Contract Documents shall be construed according to the following priorities:

- First Priority: Contract Modifications
- Second Priority: Department of Conservation and Recreation - Contractor Agreement
- Third Priority: General Conditions of the Contract
- Fourth Priority: Drawings - Schedules take precedence over enlarged detail Drawings and enlarged Detail Drawings take precedence over reduced scale Drawings; figured dimensions shall prevail over scale.
- Fifth Priority: Specifications

**3.2** Any questions by prospective Bidders concerning interpretation of the Contract Documents must be submitted in writing to the Awarding Authority and should be in its possession at least five working days before the date set for the receipt of Bids. The Awarding Authority will post to Bid Express any addenda or written interpretations that it deems necessary to Bidders who have taken out plans at the address given by them before the date set for the receipt of affected Bids. Bidders may not rely upon oral

communications or interpretations from the Awarding Authority or the Designer, and the Awarding Authority shall not be bound by them.

Written Questions shall be submitted to:

Attn: Stella Lensing, Project Manager  
Department of Conservation and Recreation  
251 Causeway Street  
Boston, MA 02114  
Email: stella.lensing@mass.gov

**3.3** It is the sole responsibility of the Bidder to ascertain the existence of any addenda issued by the Awarding Authority, all addendums are posted on Bid Express- [www.bidexpress.com/businesses/36765/home](http://www.bidexpress.com/businesses/36765/home). Copies of addenda will be made available for inspection at the locations listed in the Advertisement where the Contract Documents are on file.

**3.4** Wherever in the Contract Documents reference is made to Massachusetts General Laws, it shall be construed to include all amendments thereto effective as of the date of the issuance of the invitation to bid on the proposed work.

#### **SECTION 4 - PREPARATION OF BIDS; ALTERNATES**

**4.1** Bids shall be submitted through the DCR E-Bid room at [www.bidexpress.com/businesses/36765/home?agency=true](http://www.bidexpress.com/businesses/36765/home?agency=true).

**4.2 All Bids submitted thru Bid Express must be deemed responsive by Bid Express to be considered**

**4.3** Where so indicated on the Bid Form, sums shall be expressed in both words and numerals. Where there is a discrepancy between the Bid sum expressed in words and the Bid sum expressed in figures, the Bid sum expressed in words shall control unless the intention of the Bidder clearly is otherwise as determined by the Awarding Authority in its sole discretion.

**4.4** Each Bidder shall acknowledge all required alternates in Section C on the Bid Express by entering the dollar amount of addition or subtraction necessitated by the alternate(s).

**4.5** If an alternate includes work within the Bidder's scope of work and does not involve a change in the cost of the Bid, the Bidder shall so indicate by writing "No Change" or "N/C" or "0" in the space provided for that alternate.

**4.6** The lowest Bidder will be determined based on the sum of the base Bid and the accepted alternates.

**4.7** Each bid must be accompanied by a bid deposit, payable to the Department of Conservation and Recreation in the amount of 5% of the bid. Bid Bonds must be submitted electronically, please ensure your company and your bonding agent's

company register with one of the Bid Bond agencies affiliated with Bid Express: If you need additional assistance, please call the Bid Express Customer Support Team at [888-352-2439](tel:888-352-2439), available Monday - Friday from 7:00am – 8:00pm (EST). You can also email the team at [support@bidexpress.com](mailto:support@bidexpress.com)

**4.8** The amount of such bid deposit shall be **5% five per cent** of the value of the Bid.

## **SECTION 5 - SUBMISSION OF BIDS**

**5.1** Each bid, **including the bid deposit**, shall be submitted via DCR's Bid room at [www.bidexpress.com/businesses/36765/home?agency=true](http://www.bidexpress.com/businesses/36765/home?agency=true)

**5.2** All Bids must be received by the Awarding Authority no later than the applicable date and time specified on page 1 of these Instructions to Bidders. Any Bid not received by the applicable deadline will not be accepted.

## **SECTION 6 - WITHDRAWAL OF BIDS; REJECTION OF BIDS**

**6.1** Any Bid may be withdrawn prior to the specified deadline for the receipt of Bids provided that the withdrawal shall be made by a written request signed by a person having the authority to bind the Bidder. The written request must be hand delivered or otherwise delivered to Robert Boncore, Director of Contracts and Procurement, at 251 Causeway St., 6<sup>th</sup> Floor, Boston, MA 02114 or through email at [Robert.Boncore@Mass.Gov](mailto:Robert.Boncore@Mass.Gov), and must be received on or before the date and time appointed as the deadline for the receipt of Bids.

**6.2** A Bidder may withdraw its Bid without penalty at any time up to the time of Award as defined below in subsection 9.1 only upon demonstrating to the satisfaction of the Awarding Authority that a death or disability has occurred, or a bona fide clerical error or mechanical error of a substantial nature was made during the preparation of the bid. Failure to demonstrate conclusively that a bona fide clerical error or mechanical error of a substantial nature was made may result in forfeiture of the Bid deposit

**6.3** The Awarding Authority reserves the right to waive any informality in or to reject any and all Bids if it is in the public interest to do so. Without limiting the foregoing, the Awarding Authority reserves the right to reject unit prices which it deems unduly high or unduly low as unbalanced.



## SECTION 7 – INSURANCE

### 7.1 Insurance Generally

A. The Contractor shall take out and maintain the insurance coverages listed in this Section with respect to the operations as well as the completed operations of this Contract. The insurance requirements stipulated shall cover all damage to property, whether above or below ground, and shall apply to all the Work to be performed under this Contract. This insurance shall be provided at the Contractor's expense and shall be in full force and effect for the full term of the Contract or for such longer period as this Article requires.

B. All policies shall be written on an occurrence basis and be issued by companies authorized to write that type of insurance under the laws of the Commonwealth and rated in Best's Insurance Guide (or any successor thereto or replacement thereof) as having a general policy holder rating of "A" or better and a financial rating of at least "9" or otherwise acceptable to the DCR.

C. The Contractor shall submit two (2) originals of each certificate of insurance, acceptable to the DCR, simultaneously with the execution of this Contract. Certificates shall: **include the DCR Contract Number, state that DCR and the owners of properties at the Site of the Project as identified by DCR from time to time as additional insureds as to all policies of liability insurance and state that the Contractor has paid all premiums and that none of the coverages shall be cancelled, terminated, or materially modified unless and until ten (10) days prior notice is given in writing to the DCR.** The Contractor shall provide each such owners of properties with a certificate of insurance as stated above before the Contractor may enter such owners' properties. The Contractor shall submit updated certificates prior to the expiration of any of the policies referenced in the certificates so that the DCR shall at all times possess certificates indicating current coverage. Certificates shall indicate the contractual liability coverage, and the Contractor's Protective Liability coverage is in force. Certificates shall include specific acknowledgment that the coverages set forth in this Section 7 are included in the policies.

### 7.2 Types and Amounts of Insurance

#### Contractor's Commercial General Liability

Bodily Injury &	<u>500,000.00</u> each occurrence
Property Damage	<u>1,000,000.00</u> general aggregate, per project

This policy shall include coverage relating to explosion, collapse, and underground property damage if blasting operations constitute part of the Work to be performed under this Contract.

If the Contract work includes work to be performed within 50 feet of a railroad, any exclusion for liability assumed under contract for work within 50 feet of a railroad shall be deleted.

Vehicle Liability

The Contractor shall provide the following minimum coverage with respect to the operations of any employee, including coverage for owned, non-owned, and hired vehicles:

Combined Single Limit: 1,000,000.00

Worker's Compensation

The Contractor shall provide the following coverage in accordance with M.G.L. c. 149, sec. 34A and M.G.L. c. 152 as amended, unless a higher coverage is specified below:

Part One	Provide Statutory Minimum
Employer's Liability	\$500,000.00 each accident
Part Two	\$500,000.00 disease per employee
	\$500,000.00 disease policy aggregate

**SECTION 8 – MBE, WBE AND VOB PARTICIPATION**

**8.1** The apparent low Bidder's compliance with the requirements of this Section 8 is a prerequisite for receiving the Award of the Contract. The MBE, WBE and VOB participation for this Contract are as set forth on the first page of these Instructions to Bidders

**8.2.** The Awarding Authority reserves the right to reduce or waive the MBE or WBE participation established for this Contract upon written request made by a Bidder. Requests to reduce or waive the M/WBE participation for this Contract should be received by the Awarding Authority no later than Ten (10) working days before the date set for the receipt of general Bids. **THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY REQUEST TO REDUCE OR WAIVE THE M/WBE REQUIREMENTS FOR THIS CONTRACT THAT IS RECEIVED AFTER THESE DEADLINES.** Such written request must demonstrate to the satisfaction of the Awarding Authority that it is not feasible for a non-MBE or non-WBE general Bidder to meet the percentage established for this Contract based upon any or all of the following: (i) actual M/WBE availability, (ii) the geographic location of the project to the extent related to M/WBE availability, (iii) the scope of the work, (iv) the percentage of work available for subcontracting to M/WBEs and/or (v) other relevant factors, including a **documented** inability by the prospective Bidder to obtain commitments from M/WBE subcontractors sufficient to meet the M/WBE requirements after having made a diligent, good faith effort to do so. All the foregoing documentation shall accompany the Bidder's request for a reduction or waiver of the M/WBE participation requirements. Such documentation shall include, at a minimum, the following:

-- A list of all items of work under the Contract that the Bidder made available for subcontracting to M/WBEs. The Bidder shall identify all items of work that the Bidder did not make so available and shall state the reasons for not making such work

available for subcontracting to M/WBEs. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into units capable of being performed by M/WBEs.

-- Evidence that the Bidder sent written notices soliciting Bids or proposals to perform the items of work made available by the Bidder for subcontracting to M/WBEs to all M/WBEs qualified to perform such work. The Bidder shall identify (i) each M/WBE solicited, and (ii) each M/WBE listed in the Massachusetts Supplier Diversity Office ("SDO" formerly "SOMWBA") directory under the applicable trade category that was not solicited and reasons, therefore. The Bidder shall also state the dates that notices were mailed and provide a copy of the written notice(s) sent.

-- Evidence that the Bidder made reasonable efforts to follow up the written notices sent to M/WBEs with telephone calls or personal visits to determine with certainty whether the M/WBEs were interested in performing the work. Phone logs or other documentation must be submitted.

-- A statement of the response received from each M/WBE solicited, including the reason for rejecting any M/WBE who submitted a bid or proposal.

-- Evidence of efforts made to assist M/WBEs that needed assistance in obtaining bonding or insurance, or lines of credit with suppliers if the inability of M/WBEs to obtain bonding, insurance, or lines of credit is the reason given for the Bidder's inability to meet the M/WBE requirements.

The Bidder may also submit any other information supporting its request for a waiver or reduction in the M/WBE participation, including without limitation evidence that the Bidder placed advertisements in appropriate media and trade association publications announcing the Bidder's interest in obtaining bids or proposals from M/WBEs, and/or sent written notification to M/WBE economic development assistance agencies, trade groups and other organizations notifying them of the Contract and the work to be subcontracted by the Bidder to M/WBEs. The Bidder shall also submit any other information reasonably requested by the Awarding Authority to show that the Bidder has taken all actions that could reasonably be expected to achieve the M/WBE participation.

**8.3** Any reduction or waiver of the M/WBE participation for this Contract will be made by written addendum mailed to all persons who have taken out plans for the project.

**8.4** No later than five (5) working days after the opening of Bids, the apparent low Bidder shall submit the following documents to the Awarding Authority's Contract Officer listed in subsection 5.1: (i) a completed Schedule for Participation by Minority/Women Business Enterprises ("Schedule for Participation") in the form provided by the Awarding Authority showing M/ WBE participation in amounts equal to or exceeding the M/WBE requirements for this Contract, (ii) a completed Letter of Intent in the form provided by the Awarding Authority for each M/WBE listed in the Schedule for Participation, and (iii) a current SDO certification letter for each M/WBE listed in the Schedule of M/WBE Participation showing that the M/WBE is certified in the area of work for which it is listed on the Letter of Intent.

**8.5** Each Letter of Intent shall identify and describe the work to be performed by the named M/WBE (the “M/WBE Work”) with enough specificity to permit the Awarding Authority to identify the items of contract work that the M/WBE will perform for M/WBE participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the M/WBE Work does not bear a reasonable relationship to the value of such work under the Contract as determined by the Awarding Authority.

**8.6** Within five (5) working days after receipt of the Schedule For M/WBE Participation, Letters of Intent, and SDO certification letters, the Awarding Authority shall review and either approve or disapprove the apparent low Bidder’s submissions. If the apparent low Bidder has not submitted an appropriate Schedule For M/WBE and appropriate Letters of Intent and SDO certification letters establishing that the M/WBE participation for the project will be met, the apparent low Bidder may be considered ineligible for Award of the Contract and the Awarding Authority will Award the Contract to the second lowest Bidder, subject to said Bidder’s compliance with these conditions.

**8.7** The Contractor is required to submit to the Awarding Authority signed subcontracts with all subcontractors prior to the commencement of work to be performed under these contracts, and/or a purchase order or invoice from each material supplier and/or manufacturer listed on the Schedule For M/WBE Participation within thirty (30) days of the issuance of the Notice to Proceed by the Awarding Authority.

#### **8.8. VOB E Participation and Program Operation**

8.8.1 In order to be an eligible VOB E for this Contract, the business enterprise must be listed as a veteran-owned business within the VetBiz database, located at [www.VetBiz.gov](http://www.VetBiz.gov), at the time of the bid submission deadline. Only a VOB E identified as a veteran-owned small business via the VetBiz database shall count towards meeting the Program requirements.

8.8.2 The Contractor must demonstrate that VOB E s are eligible for the following participation via its listing as a veteran-owned small business within the VetBiz database, located at [www.VetBiz.gov](http://www.VetBiz.gov), at the time said VOB E seeks to participate in business provided under this Contract; provided, that it shall also be the responsibility of the Awarding Authority to verify the status of the VOB E via said VetBiz database prior to the awarding of the Contract.

#### **8.8.3 VOB E Reduction/Waiver**

8.8.3.1 The Awarding Authority reserves the right to reduce or waive the VOB E participation established for this Contract upon written request made by a Bidder using their Letterhead and addressed to Procurement Director Robert.Boncore@mass.gov

8.8.3.2 If filed Sub-Bids are solicited for this Contract, requests from prospective general Bidders to reduce or waive the VOB E participation for this Contract should be received by the Awarding Authority no later than four (4) working days after the list of filed Sub-Bidders is mailed by the Awarding Authority to persons who have taken out plans for the Contract, using their

Letterhead and addressed to Procurement Director  
Robert.Boncore@mass.gov

8.8.3.3 If there are no filed sub-Bids solicited for this Contract, requests to reduce or waive the VOB E participation for this Contract should be received by the Awarding Authority no later than five (10) working days before the date set for the receipt of general Bids. **THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY REQUEST TO REDUCE OR WAIVE THE VOB E REQUIREMENTS FOR THIS CONTRACT THAT IS RECEIVED AFTER THESE DEADLINES.** Such written request must demonstrate to the satisfaction of the Awarding Authority that it is not feasible for a non- VOB E or non- VOB E general Bidder to meet the percentage established for this Contract based upon any or all the following:

- i. actual VOB E availability.
- ii. the geographic location of the project to the extent related to VOB E availability.
- iii. the scope of the work.
- iv. the percentage of work available for subcontracting to VOB Es; and/or
- v. Other relevant factors, including a **documented** inability by the prospective Bidder to obtain commitments from VOB E subcontractors sufficient to meet the VOB E requirements after having made a diligent, good faith effort to do so. All the foregoing documentation shall accompany the completed Waiver Request Form. Such documentation shall include, at a minimum, the following:
  - of efforts made to assist VOB E's that needed assistance in obtaining bonding or insurance, or lines of credit with suppliers if the inability of VOB E to obtain bonding, insurance, or lines of credit is the reason given for the Bidder's inability to meet the VOB E requirements.

8.8.3.4 The Bidder may also submit any other information supporting its request for a waiver or reduction in the VOB E requirements, including without limitation evidence that the Bidder placed advertisements in appropriate media and trade association publications announcing the Bidder's interest in obtaining bids or proposals from VOB Es, and/or sent written notification to VOB E economic development assistance agencies, trade groups and other organizations notifying them of the Contract and the work to be subcontracted by the Bidder to VOB Es. The Bidder shall also submit any other information reasonably requested by the Awarding Authority to show that the Bidder has taken all actions that could reasonably be expected to achieve the VOB E requirements.

8.8.3.5 No later than five (5) working days after the opening of general Bids, the apparent low Bidder shall submit the following documents to the Awarding Authority's Contract Officer:

- (i) a completed Schedule for Participation by VOBES ("Schedule for Participation") in the form provided by the Awarding Authority showing VOBES participation in amounts equal to or exceeding the VOBES requirements for this Contract; and
- (ii) a completed Letter of Intent in the form provided by the Awarding Authority for each VOBES listed in the Schedule for Participation.

Each Letter of Intent shall identify and describe the work to be performed by the named VOBES (the "VOBES Work") with enough specificity to permit the Awarding Authority to identify the items of contract work that the VOBES will perform for VOBES participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the VOBES Work does not bear a reasonable relationship to the value of such work under the Contract as determined by the Awarding Authority.

- 8.8.3.6 Within five (5) working days after receipt of the Schedule for VOBES Participation and Letters of Intent, the Awarding Authority shall review and either approve or disapprove the apparent low Bidder's submissions. If the apparent low Bidder has not submitted an appropriate Schedule for VOBES Participation and appropriate Letters of Intent establishing that the VOBES requirements for the project will be met, the apparent low Bidder will be considered ineligible for Award of the Contract and the Awarding Authority will Award the Contract to the second lowest Bidder, subject to said Bidder's compliance with these conditions.
- 8.8.3.7 The Contractor is required to submit to the Awarding Authority signed subcontracts with all subcontractors prior to the commencement of work to be performed under these contracts, and/or a purchase order or invoice from each material supplier and/or manufacturer listed on the Schedule for VOBES Participation within thirty (30) days of the issuance of the Notice to Proceed by the Awarding Authority.
- 8.8.3.8 A filed Sub-Bidder is not required to submit a Schedule for VOBES Participation with its Bid. A filed Sub-Bidder may, at its option, submit a Letter of Intent with its Bid if it is a VOBES. If a filed sub-Bidder intends to sub-subcontract work to a VOBES, and the filed sub-Bidder wishes that sub-subcontract to be credited toward the requirements for this Contract, the filed sub-Bidder should submit a Letter of Intent from that VOBES with its Bid. A filed sub-Bidder can subcontract out up to 20% of its work to VOBES, unless such work is designated as sub-subcontract Paragraph E work in the Bid Documents, in which case the 20% cap does not apply.

## **SECTION 9 - CONTRACT AWARD**

**9.1** "Award" means the determination, selection, and notification of the lowest, responsible, and eligible Bidder by the Awarding Authority.

**9.2** The Contract will be awarded to the lowest responsible and eligible Bidder as determined by the Awarding Authority. Bidders will be required to hold firm their respective bids for thirty (30) days, Saturdays, Sundays, and legal holidays excluded, after the opening of the Bids.

**9.3** As used herein, the term "lowest responsible and eligible Bidder" shall mean the Bidder whose Bid is the lowest of those Bidders who, in the Awarding Authority's opinion, are ready, willing and able to comply with all requirements of the Contract Documents and demonstrably possess the skill, ability, and integrity necessary for the faithful performance of the Work, based on the determination of past performance and financial soundness under M.G.L. c. 30, sec. 39M, (ii) the rules, regulations, orders, guidelines and policies promulgated from time to time by the Commissioner of the Department of Conservation and Recreation and (iii) any other relevant criteria that the Awarding Authority may prescribe.

**9.4** The Bid price shall be the price set forth in paragraph C of the Bid Form.

**9.5** Should the Contract Documents require submission of special data to accompany the Bid, the Awarding Authority reserves the right to rule the Bidder's failure to submit such data an informality and to receive said data subsequently within a reasonable time as set by the Awarding Authority, provided that no such ruling shall result in an unfair advantage to the Bidder.

**9.6** Should the Contract Documents require submission of special data to accompany the Bid, the Awarding Authority reserves the right to rule the Bidder's failure to submit such data an informality and to receive said data subsequently within a reasonable time as set by the Awarding Authority, provided that no such ruling shall result in an unfair advantage to the Bidder. **In addition**, the Department reserves the right to waive minor defects in documents or time limits

## **SECTION 10 - EXECUTION OF CONTRACTS**

**10.1** Upon receipt of the Award, the Bidder awarded the Contract shall submit two (2) properly executed originals of each of the following documents prior to execution of the Contract by the Awarding Authority. All such documents shall be in the form prescribed by the Awarding Authority and received within five working days from receipt of the Award.

- Department of Conservation and Recreation-Contractor Agreement
- Certificate of Corporate Vote
- Joint Venture Authorization (if appropriate)
- Performance and Payment Bonds with power of attorney
- Certificates of Insurance evidencing coverages in amounts required by the Contract Documents.
- Any other documents that the Awarding Authority may reasonably require in connection with the Contractor's execution of the Contract.

**10.2 Please note that no part of the Contractor's work may be subcontracted without the prior written approval of the Awarding Authority.** The Contractor must complete a minimum of 51% of the scope of this contract by his own work force. If the Contractor desires to subcontract any part of the Work, the Contractor must promptly forward to the Awarding Authority a list in duplicate designating the work to be performed and the name of each proposed subcontractor. Approved subcontractors are eligible for direct payments under M.G.L. 30, sec. 39F, as amended. Material suppliers not involving site labor need not be submitted for approval.

## **SECTION 11 - RETURN OF BID DEPOSITS**

**11.1** All Bid deposits of Bidders, except those of the three (3) lowest responsible and eligible general Bidders, shall be returned within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of the Bids. The Bid deposits of the three (3) lowest responsible and eligible Bidders shall be returned upon the execution and delivery of the Contract, or if no award is made; except that, if any Bidder fails to perform its agreement to execute the Contract and furnish performance and payment bonds as stated in its Bid, then said Bidder's Bid deposit shall become the property of the Commonwealth as liquidated damages; provided that the amount of the Bid deposit that becomes the property of the Commonwealth shall not exceed the difference between the Contractor's Bid price and the Bid price of the next lowest responsible and eligible Bidder; and provided further that, in the case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the Bidder, such Bidder's Bid deposit shall be returned.

**11.2** In addition to the provisions for the return of Bid deposits as provided above, upon receipt of a Bid Bond in an amount not less than the amount of the required Bid deposit, the Awarding Authority shall return any Bid deposit of a Bidder forthwith after the public opening of Bids.





**COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION & RECREATION  
STANDARD CONSTRUCTION CONTRACT  
For Projects Subject to M.G.L. c. 149 or M.G.L. c. 30, sec. 39M**

**PART II**

**DEPARTMENT OF CONSERVATION AND RECREATION -  
CONTRACTOR AGREEMENT**

Awarding Authority: The Massachusetts Department of Conservation and Recreation

Department Code: DCR

This agreement ("Contract") is made by and between the Commonwealth of Massachusetts acting by and through the Awarding Authority identified above with a principal place of business at 251 Causeway Street – Suite 600, Boston, MA 02114, and hereinafter called the "Contractor".

Terms used in this Department of Conservation and Recreation - Contractor Agreement, which are defined in the General Conditions of the Contract shall have the meanings designated therein.

The Awarding Authority and the Contractor agree as follows:

**Article 1. Scope of Work.** The Work under this Contract is defined as all work required by the Contract Documents for the construction of\_\_\_\_, Contract No: P in accordance with and as described in the Plans and Specifications prepared by and as modified by Addenda ( ) included herein.

**Article 2. Time for Completion.** The Contractor shall commence the Work under this Contract on the date specified in the written "Notice to Proceed," and shall within Days after such date, bring the Work to Substantial Completion and to the point at which a Certificate of Agency Use and Occupancy may be issued, and shall bring the Work to Final Acceptance within 10 days after the date specified for Substantial Completion.

**Article 3. Contract Price.** The Awarding Authority shall pay the Contractor, in current funds, for the performance of the Work, subject to additions and deductions by Approved Change Order(s), the Contract Price of \_\_\_\_\_ Cents (\$ .00). The Unit Prices, if any, approved by the Awarding Authority are those included in the Contractor's General Bid. The following Alternates have been accepted and their costs are included in the Contract Price:

**Article 4. Approved Subcontractors.** The filed Subcontractors listed in the Contractor's General Bid submitted by the Contractor have been approved for the performance of the specified portions of the Work subject to the Commonwealth's verification that they have complied with state corporation and partnership registration laws. No other filed Subcontractors and no non-filed Subcontractors shall be used for these or any other portions of the Work without the prior written approval of the Awarding Authority.

**Article 5. Certifications.** Pursuant to M.G.L. c. 62C, sec. 49A, the individual signing this Contract on behalf of the Contractor hereby certifies, under the penalties of perjury, that to the best of his or her knowledge and belief the Contractor has complied with any and all applicable state and federal tax laws. The individual signing this Contract on behalf of the Contractor further certifies under penalties of perjury that the Contractor is not presently debarred from doing public construction work in the Commonwealth under the provisions of M.G.L. c. 29, sec. 29F, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder and is not presently debarred from doing public construction work by any agency of the United States.

**Article 6. The Contract Documents:** The following documents form the Contract, are incorporated by reference herein, and are referred to as the "Contract Documents:"

- The Instructions to Bidders
- The General Bid submitted by the Contractor
- This Department of Conservation and Recreation – Contractor Agreement
- The General Conditions of the Contract
- The Special Conditions [Note: the term "Special Conditions" may also refer to Division 1 of the Specifications.]
- The Plans and Specifications, including Addenda identified in Article 1 above
- All Approved Change Orders issued after execution of this Department of Conservation and Recreation - Contractor Agreement

**Article 7. Minority Business Enterprise, Women Business Enterprise and Veteran-Owned Business Enterprises Participation Goals and Minority/Women and Veteran-Owned Business Enterprises Workforce Utilization Percentages:** The applicable goals, if any, for minority business enterprise and women business enterprise participation, as well as those for minority and women workforce utilization percentages established for this Contract are to be found at the Notice to Contractors for this project, at Part I – Instructions to Bidders, and are incorporated by reference herein.

**Article 8. Liquidated Damages.** For the purposes of Article VI of the General Conditions of the Contract, liquidated damages for delay are to be found at the Notice to Contractors for this project at Part I – Instructions to Bidders and are incorporated by reference herein.

**Article 9. Insurance Requirements.** The insurance requirements are set forth in the Instructions to Bidders and are incorporated herein.

In witness whereof, the parties hereto have caused this instrument to be executed in duplicate under seal as of the date set forth above.

### **Forms Used During Contract Award and Execution**

PAYMENT BOND

PERFORMANCE BOND

CERTIFICATE OF CORPORATE VOTE OF AUTHORITY

CERTIFICATE OF COMPLIANCE WITH STATE TAX LAWS AND WITH UNEMPLOYMENT

COMPENSATION CONTRIBUTION REQUIREMENTS

CERTIFICATE OF LIABILITY INSURANCE

A. SEE PART I, SECTION 7 – ARTICLE 7.1 C.

B. ADDING IN THE DESCRIPTION **DCR AS ADDITIONAL INSURED.**

SCHEDULE FOR WOMEN AND MINORITY BUSINESS ENTERPRISE

LETTER OF INTENT – MINORITY AND WOMEN BUSINESS PARTICIPATION

SCHEDULE FOR VETERAN-OWNED BUSINESS ENTERPRISE

LETTER OF INTENT – VETERAN-OWNED BUSINESS ENTERPRISE

EXECUTIVE ORDER 546 – CONTRACTOR CERTIFICATION - VOB POLICY OF THE COMMONWEALTH

EXECUTIVE ORDER 481 – CONTRACTOR CERTIFICATION - UNDOCUMENTED WORKERS POLICY OF THE COMMONWEALTH

EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE FORM

IF APPLICABLE FORM OF SUBCONTRACTOR(S)

**IN WITNESS WHEREOF**, said Contractor has caused these presents to be signed in its name and its behalf under seal by its officers, duly authorized to do so, and the said Commonwealth has executed these presents by the Commissioner of said Department, or its authorized agent, as prescribed by law, who shall not incur any personal liability by reason of the execution of these presents or of anything herein contained, and who hereby certifies under penalties of perjury that all applicable provisions of M.G.L. c. 149, sec. 44J, have been complied with.

(Executed in duplicate under Seal)

**CONTRACTOR:**

By: \_\_\_\_\_ SIGNATURE & SEAL

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION AND RECREATION**

By: \_\_\_\_\_

Name: **Douglas Rice** \_\_\_\_\_

Title: **Commissioner** \_\_\_\_\_

Date: \_\_\_\_\_

**PAYMENT BOND**

**BOND No.** \_\_\_\_\_

Know all men by these presents, that

\_\_\_\_\_ as principal and \_\_\_\_\_ as surety are held and firmly bound unto the Commonwealth of Massachusetts in the sum of Cents (\$ ,000.00) in lawful money of the United States of America, to be paid to the Commonwealth of Massachusetts, for which payments, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Whereas the said principal has made a Contract with the Commonwealth acting through its **Department of Conservation and Recreation** ("Awarding Authority") the construction of Contract No: Project Name: \_

Now the condition of this obligation is such that if the principal shall pay for all labor performed or furnished and for all materials used or employed in said Contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said Contract that may hereafter be made, notice to the surety of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, the provisions of Massachusetts General Laws, Chapter 30, Section 39A, and Chapter 149, Section 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force and virtue.

In witness whereof we hereunto set our hand and seals this \_\_\_ day of \_\_\_\_\_, 2022

\_\_\_\_\_ (Seal)  
(Print Name of General Contractor)

\_\_\_\_\_ (Seal)  
(Print Name of Surety)

By \_\_\_\_\_  
(Signature – Title)

By \_\_\_\_\_  
(Signature – Title)

Surety Address \_\_\_\_\_  
\_\_\_\_\_

**PERFORMANCE BOND**

**BOND No.** \_\_\_\_\_

Know all men by these presents, that

\_\_\_\_\_ as principal and \_\_\_\_\_ as surety are held and firmly bound unto the Commonwealth of Massachusetts in the sum of **000.00**) in lawful money of the United States of America, to be paid to the Commonwealth of Massachusetts, for which payments, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Whereas the said principal has made a Contract with the Commonwealth acting through its **Department of Conservation and Recreation** ("Awarding Authority") the construction of Contract No: **P** Project Name:

Now the condition of this obligation is such that if the principal shall well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of said Contract and any extensions thereof that may be granted by the Commonwealth, with or without notice to the surety, and during the life of any guarantee required under the Contract, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of any and all duly authorized modifications, alterations, changes or additions to said Contract that may hereafter be made, notice to the surety of such modifications, alterations, changes or additions being hereby waived, then this obligation shall become null and void; otherwise it shall remain in full force and virtue.

In the event that the Contract is abandoned by the Contractor or is terminated by the Commonwealth under the provisions of said Contract, said surety shall, if requested in writing by the Commonwealth, take such action as is necessary to complete the Contract.

In witness whereof we hereunto set our hand and seals this \_\_\_\_ day of \_\_\_\_\_, 2022

\_\_\_\_\_ (Seal)  
(Print Name of General Contractor)

\_\_\_\_\_ (Seal)  
(Print Name of Surety)

By \_\_\_\_\_  
(Signature – Title)

By \_\_\_\_\_  
(Signature – Title)

Surety Address \_\_\_\_\_  
\_\_\_\_\_

**CERTIFICATE OF CORPORATE VOTE**

\_\_\_\_\_ / \_\_\_\_\_ **2022**

I hereby certify that I am the \_\_\_ clerk, \_\_\_ assistant clerk, of

\_\_\_\_\_ (the "Corporation") and that at a  
(Name of Corporation)

duly authorized meeting of the Board of Directors of the Corporation held on

\_\_\_\_\_ in \_\_\_\_\_ at which a quorum was  
(Date) (Location)

present and voting it was voted to authorize \_\_\_\_\_  
(Name)

\_\_\_\_\_ of the Corporation to execute  
(Officer Title)

and deliver on behalf of the Corporation Contract, and to act as principal to execute bonds in connection therewith,

I further certify that \_\_\_\_\_ is the duly qualified and acting  
(Name of Corporate Officer)

\_\_\_\_\_ of the Corporation and that said vote has not been  
(Officer Title)

Repealed, rescinded, or amended.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Date

(CORPORATE SEAL)

SUBSCRIBED AND SWORN TO THIS \_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_ BEFORE ME

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

CERTIFICATE OF COMPLIANCE WITH STATE TAX LAWS AND WITH UNEMPLOYMENT  
COMPENSATION CONTRIBUTION REQUIREMENTS

Pursuant to MGL, c. 62C, s. 49A and MGL, c. 515A, s. 29A, I,

\_\_\_\_\_ authorized signatory for  
\_\_\_\_\_ whose principal place of business is at  
\_\_\_\_\_ do hereby certify  
under penalties of perjury that \_\_\_\_\_ has filed all  
state tax returns and paid all taxes as required by law and has complied with all state laws  
pertaining to contributions to the unemployment compensation fund and to payments  
in lieu of contributions.

The Business Organization Social Security Number or Federal Identification Number is

\_\_\_\_\_.

Signed under the penalties of perjury the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_



## Schedule for Participation by Women and Minority Business Enterprise

*(To be completed and submitted within five calendar days from bid opening)*

NOTE I: Participation of a Woman-owned or Minority-owned enterprise may be counted in only one category; the same participation cannot be used in computing the percentage of Minority participation and again of Women participation.

### Minority Business Enterprise Participation in the work

Name & address of MBE	Dollar Value of Participation	Nature of Participation
1. _____ _____		
2. _____ _____		
3. _____ _____		

Total MBE Commitment: \_\_\_\_\_

Participation (divide Total Commitment by Total Bid Price) = \_\_\_\_\_ Percentage MBE

### ITEM II - Women Business Enterprise Participation in the work

Name & address of WBE	Dollar Value of Participation	Nature of Participation
1. _____ _____		
2. _____ _____		
3. _____ _____		

Total WBE Commitment: \_\_\_\_\_

Percentage WBE Participation (divide Total Commitment by Total Bid Price) = \_\_\_\_\_

The bidder agrees to furnish implementation reports as required by the Department to indicate the M/WBE(s) which it has used or intends to use. Breach of this commitment constitutes a breach of the contract.

Name of bidder: \_\_\_\_\_

Date: \_\_\_\_\_ By: \_\_\_\_\_

### Letter of Intent – Women/Minority Business Enterprise Participation

(To be completed by W or MBE and Submitted by the Low Bidder within five calendar days of bid opening)

Project Number: \_\_\_\_\_

Circle one

Project Location: \_\_\_\_\_

WBE MBE

To: \_\_\_\_\_

Name of General Bidder

1. My company has been certified by SDO (Supplier Diversity Office) and it has not changed its women or minority ownership, control, or management without notifying SDO within thirty (30) calendar days of such a change.
2. My company understands that if your company is awarded the contract, your company intends to enter into an agreement with my company to perform the activity described below for the prices indicated. My firm also understands that your firm, as General Bidder, will make substitutions and quantity changes as allowed or required by the provisions of the contract with the Commonwealth.
3. This firm understands that under the terms of Article XIII of the contract, only work **actually performed** by an MBE/WBE will be credited toward MBE/WBE participation goals, and this firm **cannot assign or subcontract out any of its work** without prior written approval of the DCR Compliance Office, and that any such assignment or subcontracting will not be credited toward MBE/WBE participation goals.

#### W or MBE PARTICIPATION

Contract Item	Description of Activity (with Notation such as "Labor Only", "Material Only", etc.)	Quantity	Unit Price	Total Amount
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Total Dollar Value: \_\_\_\_\_

*(Additional copies of this form shall be prepared by the Contractor in the quantity necessary to comply with the contract.)*

Name of MBE or WBE Firm \_\_\_\_\_ Authorized Signature \_\_\_\_\_

Business Address \_\_\_\_\_

Print Name \_\_\_\_\_ Title \_\_\_\_\_

Telephone No. \_\_\_\_\_ FAX No. \_\_\_\_\_ Date \_\_\_\_\_

**COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION AND RECREATION  
VETERAN OWNED BUSINESS ENTERPRISE POLICY  
AND CONTRACTOR CERTIFICATION**

In accordance with Executive Order No. 546, it is the policy of the Commonwealth and its executive agencies to promote self-reliance among veterans by offering such veterans who own and control business enterprises the opportunity to participate in state contracting activity, as well as to assist and encourage the participation of businesses owned and controlled by veterans in all areas of state procurement contracting, including contracts for public construction, design services, and commodities and services.

The Massachusetts Executive Office of Administration and Finance has therefore established the Veteran-Owned Business Enterprise (VOBE) Program (the "Program") to oversee the inclusion of business enterprises owned and controlled by veterans in all areas of state procurement contracting, including contracts for construction, design and professional services, and commodities and services. For more information on this Order, see: <http://www.mass.gov/governor/legislationexecorder/executiveorder/executive-order-no-546.html>.

DCR Requires Contractors to acknowledge this policy and the requirements as provided in the contract by signing this certification as well as the Contract Documents.

**CONTRACTOR CERTIFICATION**

As evidence by the signature of the Contractor's Authorized Signatory below, the Contractor certifies under the pains and penalties of perjury that the Contractor acknowledges the above-referenced policy as set forth in Executive Order 546, has read Executive Order 546, and will abide the requirements concerning the policy and order as set forth in the referenced Contract. The Contractor acknowledges that if the Contractor has not submitted an appropriate Schedule for VOB Participation and appropriate Letters of Intent establishing that the VOB participation goal for the project will be met, the Contractor may not be considered eligible for Award of the Contract unless he/she requests a waiver by completing and submitting the waiver form to the Contracts Administrator/DCR and that request is approved. The Contractor also understands and agrees that a breach of any of these terms during the period of the Contract may be regarded as a material breach, subjecting the Contractor to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension and /or termination.

\_\_\_\_\_  
Contractor Authorizing Signature

Date: \_\_\_\_\_

\_\_\_\_\_  
Print Name

Title: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

## Schedule for Participation by Veteran-Owned Business Enterprise

*(To be completed and submitted within five (5) calendar days from bid opening)*

NOTE: Participation of a Veteran-Owned Enterprise may be counted in only one category; the same participation cannot be used in computing the percentage of DBE/M/WBE participation.

### Veteran-Owned Business Enterprise Participation in the work

Name & address of VOB	Dollar Value of Participation	Nature of Participation
1. _____		
_____		
2. _____		
_____		
3. _____		
_____		

Total VOB Commitment: \_\_\_\_\_

Percent VOB Participation (divide Total Commitment by Total Bid Price) = \_\_\_\_\_

The bidder agrees to furnish implementation reports as required by the Department to indicate the VOB(s) which it has used or intends to use. Breach of this commitment constitutes a breach of the contract.

Name of bidder: \_\_\_\_\_

Date: \_\_\_\_\_ By: \_\_\_\_\_

## Letter of Intent – Veteran-Owned Business Enterprise Participation

(To be completed by VOB and Submitted by the Low Bidder within five (5) calendar days of bid opening; use and prepare extra forms as needed)

DCR Contract/ Project Number: \_\_\_\_\_

Project Location: \_\_\_\_\_

To: \_\_\_\_\_

VOBE

Name of General Bidder

My company has been certified by the Department of Veterans Affairs (VetBiz.gov) and or Supplier Diversity Office (SDO). it has not changed its veteran ownership, control, or management without notifying the Department of Veterans Affairs (VetBiz.gov) within thirty (30) calendar days of such a change.

1. My company understands that if your company is awarded the contract, your company intends to enter into an agreement with my company to perform the activity described below for the prices indicated. My firm also understands that your firm, as General Bidder, will make substitutions and quantity changes as allowed or required by the provisions of the contract with the Commonwealth.
2. This firm understands that under all relevant terms of the contract, only work **actually performed** by an VOB will be credited toward VOB participation goals, and this firm **cannot assign or subcontract out any of its work** without prior written approval of the DCR Compliance Office, and that any such assignment or subcontracting will not be credited toward SDVOBE participation goals.

### VOBE PARTICIPATION

Contract **Description of Activity** (with Item Notation such as “Labor Only”, Quantity, Unit Price, Total Amount, “Material Only”, etc.):

Activity	Labor or Material Only?	Quantity Unit Price	Total Dollar Value

VOBE Firm Name \_\_\_\_\_

Authorized Signature \_\_\_\_\_

Printed Name \_\_\_\_\_ Title \_\_\_\_\_

Telephone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

E-mail: \_\_\_\_\_ @ \_\_\_\_\_ ; Date \_\_\_\_\_

**INSTRUCTIONS:**

Executive Order 481 applies to all state agencies in the Executive Branch, including all executive offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established. As it is the policy of the Executive Branch to prohibit the use of undocumented workers in connection with the performance of state contracts, all contracts entered after February 23, 2007, require that contractors, as a condition of receiving Commonwealth funds under any Executive Branch contract, make the following certification:

**CONTRACTOR CERTIFICATION:**

As evidenced by the signature of the Contractor's Authorized Signatory below, the Contractor certifies under the pains and penalties of perjury that the Contractor shall not knowingly use undocumented workers in connection with the performance of all Executive Branch contracts; that pursuant to federal requirements, the Contractor shall verify the immigration status of all workers assigned to such contracts without engaging in unlawful discrimination; and that the Contractor shall not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker(s). The Contractor understands and agrees that breach of any of these terms during the period of each contract may be regarded as a material breach, subjecting the Contractor to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension or termination.

Date: \_\_\_\_\_

\_\_\_\_\_  
Contractor Authorizing Signature

\_\_\_\_\_  
Print Name

Title: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

**EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE FORM**

**Contractor's Certificate**

A contractor shall not be eligible for award of a contract unless such contractor has submitted the following certification to the Awarding Authority, said certification shall be deemed a part of the resulting contract:

**Contractor's Certification**

**X**

\_\_\_\_\_  
(Contractor)

certifies that it intends to use the following listed **certification trades** in the work subject to this contract.

**X**

\_\_\_\_\_  
\_\_\_\_\_  
and, further, that it will comply with the minority manpower ratio and specific affirmative action steps contained herein; and will obtain from each of its subcontractors and submit to the Awarding Authority prior to the award of any subcontract under this contract, the subcontractor certification required by these bid conditions.

**X**

\_\_\_\_\_  
(Signature of authorized representative of contractor)

**Subcontractor's Certification**

Prior to the award of any subcontract, regardless of tier, the prospective subcontractor must execute and submit to the general contractor the following certification, which shall be deemed a part of the resulting subcontract:

\_\_\_\_\_  
(Subcontractor)

certifies that: it intends to use the following listed construction trades in the work under the subcontract

\_\_\_\_\_  
\_\_\_\_\_  
and, further, it will comply with the manpower ratio and specific affirmative action steps contained herein and will obtain from each of the subcontractors prior to the award of any subcontract under this subcontract, the subcontractor certification required by these bid conditions.

\_\_\_\_\_  
(Signature of authorized representative of subcontractor)

In order to ensure that said subcontractor's certification becomes a part of all subcontracts under the general contract, no subcontract shall be executed unless or until an authorized representative of the Awarding Authority administering this contract has determined, in writing, that said certification has been incorporated in such subcontract, regardless of tier. Any subcontract executed without such written approval shall be void.

**Exhibit A**  
**Executive Order 504 Contractor Certification Form**

**BIDDER/CONTRACTOR LEGAL NAME:**

**BIDDER/CONTRACTOR VENDOR/CUSTOMER CODE: VC**

**Executive Order 504:** For all Contracts involving the Contractor’s access to personal information, as defined in M.G.L. c. 93H, and personal data, as defined in M.G.L. c. 66A, owned or controlled by Executive Department agencies, or access to agency systems containing such information or data (herein collectively “personal information”), Contractor certifies under the pains and penalties of perjury that the Contractor (1) has read Commonwealth of Massachusetts Executive Order 504 and agrees to protect any and all personal information; and (2) has reviewed all of the Commonwealth of Massachusetts Information Technology Division’s Security Policies available at www.mass.gov/ITD under Policies and Standards.

Notwithstanding any contractual provision to the contrary, in connection with the Contractor’s performance under this Contract, for all state agencies in the Executive Department, including all executive offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established, the Contractor shall:

(1) obtain a copy, review, and comply with the contracting agency’s Information Security Program (ISP) and any pertinent security guidelines, standards, and policies; (2) comply with all of the Commonwealth of Massachusetts Information Technology Division’s Security Policies (“Security Policies”) available at www.mass.gov/ITD under Policies and Standards.

(2) communicate and enforce the contracting agency’s ISP and such Security Policies against all employees (whether such employees are direct or contracted) and subcontractors.

(3) implement and maintain any other reasonable appropriate security procedures and practices necessary to protect personal information to which the Contractor is given access by the contracting agency from the unauthorized access, destruction, use, modification, disclosure, or loss.

(4) be responsible for the full or partial breach of any of these terms by its employees (whether such employees are direct or contracted) or subcontractors during or after the term of this Contract, and any breach of these terms may be regarded as a material breach of this Contract.

(5) in the event of any unauthorized access, destruction, use, modification, disclosure or loss of the personal information (collectively referred to as the “unauthorized use”): (a) immediately notify the contracting agency if the Contractor becomes aware of the unauthorized use; (b) provide full cooperation and access to information necessary for the contracting agency to determine the scope of the unauthorized use; and (c) provide full cooperation and access to information necessary for the contracting agency and the Contractor to fulfill any notification requirements.

Breach of these terms may be regarded as a material breach of this Contract, such that the Commonwealth may exercise any and all contractual rights and remedies, including without limitation indemnification under Section 11 of the Commonwealth’s Terms and Conditions, withholding of payments, contract suspension, or termination. In addition, the Contractor may be subject to applicable statutory or regulatory penalties, including and without limitation, those imposed pursuant to M.G.L. c. 93H and under M.G.L. c. 214, § 3B for violations under M.G.L. c. 66A.

Bidder/Contractor Name: \_\_\_\_\_

Bidder/Contractor Authorized Signature: \_\_\_\_\_

Print Name and Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

This Certification may be signed once and photocopied to be attached to any Commonwealth Contract that does not already contain this Certification Language and shall be interpreted to be incorporated by reference into any applicable contract subject to Executive Order 504 for this Contractor.





COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION & RECREATION  
STANDARD CONSTRUCTION CONTRACT

**PART III**

**GENERAL CONDITIONS OF THE CONTRACT**

FOR PROJECTS SUBJECT TO M.G.L. CH. 149 OR  
M.G.L. CH. 30, SEC. 39M

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## ARTICLE I: DEFINITION OF TERMS

The following words shall have the following meanings as used in this Contract:

**Advertisement:** The Advertisement or Notice Inviting Bids or Proposals for the Work identified in Article 1 of the Department of Conservation and Recreation - Contractor Agreement.

**Approval: (or Approved):** An approval in writing signed by the authorized signatory of the Awarding Authority.

**As directed (As permitted, as required, as determined or words of like effect):** The direction, permission, requirement, or determination of the Awarding Authority. Similarly, *approved, acceptable, satisfactory* or words of like import shall mean approved by or acceptable or satisfactory to the Awarding Authority.

**Awarding Authority:** The Department of Conservation and Recreation, the public agency awarding and administering this Contract, as identified in the Department of Conservation and Recreation - Contractor Agreement. Where the Awarding Authority is an agency of the Commonwealth, references to the Awarding Authority shall also include the Commonwealth and its agencies.

**Building Code:** All applicable rules and regulations to which the Awarding Authority is subject, and which are contained or referenced in the code authorized by M.G.L. c. 143, sec. 93 et seq., including all amendments thereto.

**Change Order:** (1) A written order not requiring the consent of the Contractor, signed by the Project Engineer, and designated as a Change Order, directing the Contractor to make changes in the Work within the general scope of the Contract, or (2) any written or oral order from the Project Engineer that causes any change in the Work, provided that the Contractor has given the Awarding Authority written notice stating the date, circumstances, and source of the order and that the Contractor regards the order as a Change Order.

**Contract:** The Contract formed by the Contract Documents as defined in Article 6 of the Department of Conservation and Recreation - Contractor Agreement.

**Contract Documents:** The documents listed in Article 6 of the Department of Conservation and Recreation - Contractor Agreement.

**Contract Modification:** Any alteration of the Contract Documents accomplished by a written agreement properly executed by the parties to this Contract.

**Contract Price:** The Contract Price stated in Article 3 of the Department of Conservation and Recreation - Contractor Agreement, which is the total sum, owed to the Contractor for all of the Work.

**DCR:** The Department of Conservation and Recreation, the public agency awarding and administering this Contract.

**Designer:** The architect or engineer who prepared the plans and specifications for the work, identified as the Designer in Article 1 of the Department of Conservation and Recreation – Contractor Agreement.

**Dispute Review Board:** A panel of three experienced impartial reviewers organized and agreed upon by the DCR and Contractor. The Board members are provided with project plans and Specifications, and become familiar with project procedures and participants. The Board meets on the job site regularly to encourage the resolution of disputes at the job level and renders non-binding recommendations on the resolution of the dispute.

**Drawings:** The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location, and dimensions of the Work, generally including Plans, elevations, sections, details, schedules, and diagrams.

**Engineer:** The Project Engineer, except that the term "Resident Engineer" shall have the meaning otherwise specified herein.

**Final Acceptance:** The written determination by the Awarding Authority that the Work has been 100% completed, except for the Contractor's indemnification obligations, warranty obligations, obligations to continue to maintain insurance coverage for the time periods provided in the Contract Documents, and any other obligations which are intended to survive Final Acceptance and/or the termination of the Contract.

**General Bid:** The completed bid form submitted by the Contractor in accordance with the requirements of either M.G.L. c. 149 or M.G.L. c. 30, sec. 39M.

**Laws:** All applicable statutes, regulations, ordinances, codes, laws, orders, decrees, approvals, certificates, and requirements of governmental and quasi-governmental authorities.

**Neutral:** An impartial third party not having an interest in the Owner, DCR, the Contractor or the Project.

**Notice to Proceed:** The written notice provided by the Awarding Authority to the Contractor which authorizes the Contractor to commence the Work as of a date specified therein and complete the entire Work of the Contract by a date specified therein.

**Or equal (or words of like import):** Equal in the opinion of the Awarding Authority, determined pursuant to the provisions of M.G.L. c. 30, sec. 39M and the provisions of these General Conditions of the Contract.

**Owner:** The Commonwealth of Massachusetts or political subdivision thereof, authority, or other instrumentality that will own the Work.

**Plan(s):** Drawing(s).

**Product Data:** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor or its Subcontractors and suppliers to illustrate materials or equipment for some portion of the Work. Product data also include any such information or instructions produced by the manufacturer or distributor of such materials or equipment and made readily available by said manufacturer or distributor.

**Progress Schedule:** The progress schedule Approved by the Awarding Authority in accordance with Article VI of these General Conditions of the Contract.

**Project:** The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner, the Department of Conservation and Recreation, or by separate contractors.

**Project Engineer:** The Awarding Authority's representative assigned to the Project.

**Punch List:** A list of items determined by the Awarding Authority to be minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work for its intended purpose.

**Resident Engineer:** The On-Site representative of the Awarding Authority.

**Samples:** Samples are physical examples that illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

**Schedule of Values:** The schedule Approved by the DCR pursuant to Article VIII of these General Conditions of the Contract which allocates the Contract Price to the various portions of the Work and is used as a basis for payments to the Contractor.

**Shop Drawings:** Drawings, diagrams, details, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate a portion of the Work.

**Site:** The land and, if any, building(s), space within any such building(s), or other structures on which or in which the Contractor is to perform the Work.

**Specifications:** The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards, and workmanship for the Work and performance of related services.

**Subcontractor:** Person or entity with whom the Contractor contracts in order to perform the Work, except as otherwise specifically provided or required herein or by Law.

**Substantial Completion:** For work subject to M.G.L. c. 30 sec. 39K, "substantial completion" shall occur when (1) the Contractor fully completes the Work or substantially completes the Work so that the value of the Work remaining to be done is, in the estimate of the DCR, less than one percent of the original contract price, or (2) the Contractor substantially completes the Work and the DCR takes possession for occupancy, whichever occurs first. For work subject to M.G.L. c. 30 sec. 39G, "substantial completion" shall mean either that the work required by the Contract has been fully completed, completed except for work having a Contract Price of less than one percent of the then adjusted total Contract Price, or substantially all of the Work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work.

**Superintendent:** The licensed construction supervisor who is an employee of the Contractor designated to be in full-time attendance at the Site throughout the prosecution and progress of the Work and who shall have complete authority to act for the Contractor.

**Work:** The Work defined in Article 1 of the Department of Conservation and Recreation - Contractor Agreement, Article II, Section 2 of these General Conditions of the Contract and otherwise in the Contract Documents.

**Working Hours:** 7:00 a.m. to 5:00 p.m., but not more than eight hours per day, Monday through Friday, unless otherwise specified by applicable Laws or deemed necessary by the DCR for traffic considerations or to minimize other contract impacts to the public.

All terms that this Contract defines may be used with or without initial capital letters. Other terms, abbreviations and references are defined as they appear herein. Words and abbreviations that are not defined in the Contract Documents, but which have recognized technical, or trade meanings are used in accordance with those meanings. For additional definitions of terms, abbreviations and references refer to the *Special Conditions or Specifications*.

## **ARTICLE II: EXECUTION OF THE CONTRACT, SCOPE OF WORK, INTERPRETATION OF CONTRACT DOCUMENTS**

### **1. Execution.**

The execution of the Department of Conservation and Recreation – Contractor Agreement by the Contractor is a representation that the Contractor has visited the Site, has become familiar with local conditions under which the Work is to be performed and has correlated personal observations with requirements of the Contract Documents.

### **2. Scope of Work.**

The Work consists of the Work identified in the Contract Documents. The Work comprises the completed construction required by the Contract Documents and includes all labor, tools, materials, supplies, equipment, permits, approvals, paperwork, calculations, submittals, and certificates necessary to develop, construct and complete the Work in accordance with all Laws, and all construction and other services required to be supervised, overseen, performed or furnished by the Contractor or that the Contract Documents require the Contractor to cause to be supervised, overseen, performed or furnished. The Contractor shall provide and perform for the Contract Price all of the duties and obligations set forth in the Contract Documents.

### **3. Interpretation.**

**A.** The Plans and Specifications and other Contract Documents are to be considered together and are intended to be mutually complementary, so that any work shown on the Plans though not specified in the Specifications, and any work specified in the Specifications though not shown on the Plans, is to be executed by the Contractor as a part of this Contract.

**B.** All things that in the opinion of the Project Engineer may be reasonably inferred from the Plans, Specifications and other Contract Documents are to be executed by the Contractor. The Project Engineer shall determine whether the detail Plans conform to the general Plans and Contract Documents, except as may be otherwise determined by the DCR.

**C.** The tables of contents, titles, headings and marginal notes or sub-scripts contained herein are solely to facilitate references, are not intended to be construed as provisions of the Contract, and in no way affect the interpretation of the provisions to which they refer.

**D.** Where reference is made in the Contract Documents to publications, standards, or codes issued by associations or societies, such reference shall be interpreted to mean the current edition of such publications, standards, or codes, including revisions in effect on the date of the Advertisement, notwithstanding any reference to a particular date. The foregoing sentence shall not apply to the dates, if any, specified with respect to insurance policy endorsement forms.

**E.** In case of any conflict among the Contract Documents, unless the context clearly otherwise requires, the Contract Documents shall be construed according to the following priorities:

- First Priority: Contract Modifications
- Second Priority: Department of Conservation and Recreation - Contractor Agreement
- Third Priority: General Conditions of the Contract
- Fourth Priority: Special Conditions of the Contract
- Fifth Priority: Drawings -- Schedules take precedence over enlarged detail Drawings, and enlarged Detail Drawings take precedence over reduced scale Drawings; figured dimensions shall prevail over scale.
- Sixth Priority: Specifications

#### **4. Distribution of Work.**

The distribution of the Work is intended to be described under the appropriate trades and, except for filed sub-bid work, may be redistributed, except as directed herein, provided that such redistribution shall cause no controversy among the trades and no delay in the progress of the Work.

#### **5. Contract Price.**

The Contract Price constitutes full compensation to the Contractor for everything to be performed and furnished in connection with the Work and for all damages arising out of the performance of the Work and/or the action of the elements and constitutes the maximum compensation regardless of any difficulty incurred by the Contractor in connection with the Work or in consequence of any suspension or discontinuance of the Work. The costs associated with the requirements of the General Conditions and any required in the Special Conditions or Specifications shall be included in the Contract Price and no direct or separate payment shall be made to the Contractor.

### **ARTICLE III: CONTROL OF WORK/ADMINISTRATION OF THE CONTRACT**

#### **1. DCR.**

The Project Engineer shall be responsible for the general administration of the Contract. Except as otherwise specifically provided herein, the Project Engineer shall decide all questions which may arise as to the conduct, quantity, quality, equality, acceptability, fitness, and rate of progress of the several kinds of work and materials to be performed and furnished under this Contract and shall decide all questions which may arise as to the interpretation of the Plans and Specifications and as to the fulfillment of this Contract on the part of the Contractor.

#### **2. Right of Access to Work.**

The DCR, and persons designated by it, may for any purpose enter upon the Work, the Site, and premises used by the Contractor, and the Contractor shall provide safe facilities therefor. Other contractors of the DCR may also enter upon the same for the purposes which may be required by their contracts or work. Any differences or conflicts which may arise between the Contractor and other contractors of the DCR with respect to their work shall be initially resolved by the DCR.

#### **3. Inspection No Waiver.**

No inspection by the DCR or its employees or agents, and no order, measurement, certificate, approval, payment order, payment, acceptance or any other action or inaction of any of them, shall operate as a waiver by the DCR of any provision of this Contract.

### **ARTICLE IV: GENERAL PERFORMANCE OBLIGATIONS OF THE CONTRACTOR**

The Contractor shall complete for the Contract Price all of the Work in a proper, thorough, and workmanlike manner in accordance with the Contract Documents. Without limiting the foregoing and without limiting the Contractor's obligations under any other provision of the Contract Documents, the Contractor shall for the Contract Price perform the following general obligations:

#### **1. Review of Contract Documents and Field Conditions.**

**A.** Before commencing the Work, the Contractor shall carefully study the Contract Documents and carefully compare all Specifications, Plans, Drawings, figures, dimensions, lines, marks, scales, directions of the Project Engineer, and any other information provided by the DCR and shall at once report to the Project Engineer in writing any questions, errors, inconsistencies, or omissions.

**B.** Before commencing the Work, the Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents and shall at once report to the Project Engineer in writing any questions, errors, inconsistencies, or omissions.

**C.** Any work performed by the Contractor after the discovery of said discrepancies without the written approval of the DCR shall be at the Contractor's risk and expense.

**D.** The Contractor shall be responsible for any and all errors in the Work arising from the Contractor's failure to comply with any of the requirements set forth in this section. The Contractor shall not be entitled to any extra compensation for any work or expense arising from or caused by his/her failure to comply with said requirements.



## **2. Supervision and Construction Procedures: Coordination: Cutting and Patching.**

**A.** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and shall have control over, construction means, methods, techniques, sequences, and procedures, and shall be responsible for coordinating all portions of the Work under the Contract.

**B.** The Contractor shall be responsible for the proper fitting of all work and the coordination of the operations of all trades, subcontractors, and material suppliers engaged upon the Work. The Contractor shall guarantee to each of its subcontractors all dimensions which they may require for the fitting of their work to all surrounding work. Where equipment and lines of piping are shown diagrammatically, the Contractor shall be responsible for the coordination and orderly arrangement of the various lines of embedded piping and conduit included in the Work. The Contractor shall coordinate the work of any Subcontractor and prevent all interferences between the equipment, lines of piping or structural and architectural features, and avoid any unsightly arrangements in exposed work.

**C.** The Contractor should note that other contractors may be working on or near the Site where the Contractor's Work is being performed. The Contractor shall coordinate his/her work and the operations of all trades, subcontractors, and material suppliers engaged upon the Work so as not to interfere with or hinder the progress or completion of work being performed under another DCR contract.

**D.** All necessary cutting, coring, drilling, grouting, and patching required to fit together the several parts of the Work shall be done by the Contractor, except as may be specifically noted otherwise under any particular filed sub-bid section of the Specifications.

**E.** The Contractor shall be responsible to the DCR for the acts and omissions of the Contractor's employees, agents and Subcontractors, and their agents and respective contractors' employees, and other persons performing portions of the Work or supplying materials therefor.

**F.** The Contractor shall be responsible for the inspection of portions of the Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

**G.** The Contractor shall employ a registered land surveyor to perform any engineering required for establishing grades, lines, levels, dimensions, layouts, and reference points for the trades. The Contractor shall be responsible for maintaining benchmarks and other survey marks and shall replace any benchmarks or survey marks that may have become disturbed or destroyed. The Contractor shall verify the materials shown on the Drawings before laying out the Work and shall be responsible for any error resulting from its failure to exercise this precaution.

**H.** Unless otherwise required by the Plans and Specifications, or directed in writing by the DCR, Work shall be performed during regular Working Hours. However, if the Contractor desires to carry on the Work outside of regular working hours or on Saturdays, Sundays, or Massachusetts or federal holidays, then the Contractor shall allow ample time to allow satisfactory arrangements to be made for inspecting Work in progress and shall bear the costs of such inspection. The DCR shall bill the Contractor directly for such costs.

**I.** Work performed outside of regular Working Hours without the consent or knowledge of the DCR shall be subject to additional inspection and testing as directed by the DCR. The cost of this inspection and testing shall be borne by the Contractor whether the Work is found to be acceptable or not. The DCR at its election shall be entitled either to issue a credit Change Order to cover such cost or to withhold such cost from any further payments due the Contractor and/or to receive a payment from the Contractor of the amount of such cost.

## **3. Superintendent.**

**A.** The Contractor shall employ a Superintendent whose appointment shall be subject to the Approval of the DCR. The Superintendent shall be in attendance at the Site full-time during the performance of the Work. The Superintendent shall represent the Contractor. Communications given to and from the Superintendent shall be deemed given to and from the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed upon written request in each case. The Superintendent shall attend each job meeting. The Superintendent shall be responsible for coordinating all of the Work of the Contractor and the Subcontractors.

**B.** The Superintendent shall be a competent employee regularly employed by the Contractor. The Superintendent shall be licensed in accordance with the Building Code, if applicable, and shall have satisfactorily performed similar duties on previous construction projects similar in type, complexity, and scale to the Project. The Superintendent's resume shall be submitted to the DCR prior to commencement of construction together with such other information as the DCR may reasonably require in order to determine whether or not to Approve of his or her appointment. Any change in the Superintendent shall require the prior consent of the DCR. The Contractor shall establish an emergency telephone line by which the DCR or its agents may contact the Superintendent during non-working hours.

#### **4. Labor.**

**A.** The Contractor shall employ only competent workers. The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. Whenever the DCR shall notify the Contractor in writing that any worker is, in the DCR's opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such employee shall be discharged from the Work and shall not again be employed on the Project except with the consent of the DCR.

**B.** The Contractor shall employ a sufficient number of workers to carry on the Work with all proper speed in accordance with Laws, the requirements of the Contract Documents, and the Progress Schedule.

**C.** The Contractor shall procure materials from such sources and shall manage its own forces and the forces of its Subcontractors and any sub-subcontractors in such a manner as will result in harmonious labor relations on the Project Site. If union and nonunion workers are employed to perform any part of the Work, the Contractor shall establish and maintain separate entrances to the Site for the use of union and nonunion workers. The Contractor shall cause persons to be employed in the Work who will work in harmony with others so employed. Should the Work be stopped or materially delayed in the DCR's reasonable judgment due to a labor dispute, the DCR shall have the right to require the Contractor to employ substitutes acceptable to the DCR.

**D.** The Contractor shall bear the entire expense, and no separate or direct payment shall be made by the DCR, as a result of extra work which may be necessary because of inferior workmanship, or for specific items of work which are normally considered a part of good workmanship in completing any particular phase of the work.

#### **5. Notices and Permits.**

**A.** The Contractor at its sole cost shall take out and pay for all approvals, permits, certificates and licenses required by Laws, pay all charges and fees, and pay for (or cause the appropriate Subcontractor to pay for) all utilities required for the proper execution of the Work. All permits secured by the Contractor, complete with the application and orders of conditions, shall be kept on file in the Contractor's office and field office with copies submitted to the Project Engineer.

**B.** The Contractor shall comply with all Laws and shall give all notices required thereby.

**C.** Except as otherwise specified in this Contract, it is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable Laws. However, if the Contractor observes that portions of the Contract Documents are at variance with the requirements of Laws, the Contractor shall promptly notify the DCR in writing, and necessary changes shall be accomplished by an appropriate Contract Modification.

**D.** If the Contractor performs work knowing it to be contrary to Laws without giving such notice to the DCR, the Contractor shall bear full responsibility for such Work and all costs attributable thereto, including, without limitation, corrections to the Work.

#### **6. Lines, Marks etc.**

The Contractor shall furnish batter boards and stakes and shall cause to be placed and maintained thereon so as to be easily read, such lines, marks and directions relating to the Work as the Project Engineer shall from time to time direct. The Project Engineer shall establish base lines and benchmarks on the Drawings for the locations of the Work but all other lines and grades in the field shall be determined by the Contractor.

#### **7. Excavation.**

The Contractor shall prevent by sheeting and shoring or bracing, if necessary, any caving or bulging of the sides of any excavation made by the Contractor, leaving sheeting, and shoring in place, or if any is removed, filling solid the spaces left thereby.

#### **8. Dewatering/Hoisting/Staging.**

The Contractor shall provide pumping, drainage, and disposal of all water and other flows so that no puddle, nuisance, or damage will be caused by water or flooding. If pumping results in contaminated water the Contractor shall take appropriate measures to treat this water prior to discharge and shall seek appropriate permits for discharge of water. The Contractor shall provide all hoisting equipment and machinery required for the proper execution of the Work. The Contractor shall provide all exterior and interior staging required to be over eight feet in height, except as may be otherwise provided in the Contract Documents.

### **9. Corrections to the Work: Inspection No Bar to Subsequent Corrections.**

The DCR's inspection of the Work shall not relieve the Contractor of its responsibilities to fulfill the Contract obligations. Defective work may be rejected by the DCR whether or not such work and/or materials have been previously overlooked or misjudged by the Resident Engineer or Project Engineer and accepted for payment. If the Work or any part thereof shall be found defective at any time before the Final Acceptance of the whole Work, the Contractor shall forthwith cease the performance of any defective work in progress and, whether or not such work is still in progress, shall forthwith correct such defect in a manner satisfactory to the Project Engineer. If any material brought upon the Site for use in the Work, or selected for the same, shall be rejected by the Project Engineer as unsuitable or not in conformity with the Contract Documents, or as damaged by casualty or deteriorated due to improper storage at the Site or to any other factor, the Contractor shall forthwith remove such materials from the Site. The Contractor shall pay for the cost of making good all work or property of other contractors, the Owner or of the Department of Conservation and Recreation destroyed or damaged by such removal or replacement; repair any injury, defect, omission, or mistake in the Work as soon as it is discovered; finish and immediately make good any defect, omission, or mistake in the Work; and complete and leave the Work in perfect condition.

### **10. Sanitary Facilities.**

The Contractor shall provide and maintain sanitary facilities for all persons employed on the Work, beginning with the first worker at the Site. Said facilities shall meet the following requirements unless otherwise specified in the Special Conditions or Specifications.

**A.** There shall be no fewer facilities than the number required by applicable Laws.

**B.** Facilities shall be always kept in a clean sanitary condition and shall be adequately screened to be inaccessible to flies. (**Note:** If existing sanitary facilities at the Site are to be used by the Contractor, this requirement will be modified accordingly in the Special Conditions or Specifications.)

### **11. Temporary Offices.**

**A. Contractor's Field office.** The Contractor shall erect a temporary field office at or near the Site of the Work at which the Contractor's authorized representative shall be always present while the Work is in progress. Instructions, notices, and other communications delivered there by the DCR shall be deemed delivered to the Contractor. The Contractor shall adequately furnish and maintain this office in a clean, orderly condition.

**B. Resident Engineer's Office.** The Contractor shall erect an Office for the Resident Engineer if, and as required by the Special Conditions or Specifications of the Contract.

### **12. Telephones.**

**A.** The Contractor shall provide and maintain telephone service in the Contractor's field office. The Contractor shall pay for all calls and costs relating to this service. The DCR and its employees and authorized agents shall always be allowed the use of this telephone service without charge. Telephone service and equipment shall meet the requirements, if any, of the Special Conditions or Specifications.

**B.** The Contractor shall also provide and maintain telephone service in the Resident Engineer's Office, when the Contractor is required to erect such office, for the use of the DCR and its employees and authorized agents. The Contractor shall pay for all calls and costs relating to this service. Telephone service and equipment shall meet the requirements, if any, of the Special Conditions or Specifications.

### **13. Project Sign.**

**A.** The Contractor shall furnish and erect at a suitable location, Approved by the Project Engineer, at the start of the work, a sign having dimensions of at least eight (8) feet long by four (4) feet high, bearing the words: Massachusetts Department of Conservation and Recreation. Also included may be the project title, expected completion date, and facility name.

**B.** The Contractor shall submit the design of the sign to the Project Engineer for review and approval prior to posting.

#### **14. Contract Documents and Samples at the Site.**

The Contractor shall maintain at the Site for the use and information of the DCR one record copy of the Drawings, Specifications, Addenda, Change Orders, Approved Shop Drawings, Product Data, Samples, updated Progress Schedule, and all other submittals, all in good order and marked currently to record changes and selections made during construction. These shall be available to the DCR and shall be delivered to the DCR upon completion of the Work.

#### **15. Safety Laws, Regulations, and Practices.**

**A.** The Contractor shall comply with all health and safety Laws applicable to the Work. Without limitation,

(1) If the Contractor uses or stores toxic or hazardous substances it shall comply with M.G.L. c. 111F, sec. 2, the "Right to Know" law and regulations promulgated by the Department of Public Health, 105 CMR 670, the Department of Environmental Protection, 310 CMR 33, and the Department of Labor and Workforce Development, 441 CMR 21; and shall post a Workplace Notice obtainable from the Department of Labor and Workforce Development.

(2) The Contractor shall comply with the Federal Resource Conservation and Recovery Act, the Federal Comprehensive Environmental Response, Compensation and Liability Act, M.G.L. c. 21C, M.G. L. c. 21E, and any other Laws affecting toxic or hazardous materials, solid, special, or hazardous waste (collectively "Hazardous Materials Laws"). Should the Contractor discover unforeseen materials subject to Hazardous Materials Laws at the Site, the Contractor shall immediately notify the DCR of such discovery.

(3) The Contractor shall be responsible for the location of all utilities in connection with the Work. Without limiting the foregoing, the Contractor shall comply with Dig Safe Laws. Dig Safe is the Utility Underground Plant Damage Prevention System established pursuant to M.G.L. c. 164, sec. 76D. This System is operated by Dig Safe Systems, Inc., located at 331 Montvale Avenue, Woburn, MA 01801, whose toll-free telephone number is 1-888-DIG-SAFE (1-888-344-7233). The Contractor shall notify Dig Safe of contemplated excavation, demolition, or explosive work in public or private ways, and in any utility company right of way or easement, by certified mail, with a copy to Department of Environmental Protection (DEP). This notice shall be given at least 72 hours prior to the work, but not more than sixty days before the work is to be done. Such notice shall state the name of the street or the route number of the way and shall include an accurate description of the location and nature of the proposed work. Dig-Safe is required to respond to the notice within 72 hours of receipt by designating the location of pipes, mains, wires, or conduits at the Site. The Contractor shall not commence work until Dig-Safe has responded. The work shall be performed in such manner and with reasonable precautions taken to avoid damage to utilities under the surface at the work location. The Contractor shall provide the Superintendent with current Dig-Safe regulations, and a copy of M.G.L. c. 82, sec. 40. Any costs related to the services performed by Dig-Safe shall be borne by the Contractor.

(4) The Contractor shall comply with Public Law 92-596, "Occupational Safety and Health Act of 1970" (OSHA), with respect to all rules and regulations pertaining to construction, U.S. Code Title 29, sections 651 et seq. including Volume 36, numbers 75 and 105 of the Federal Register as amended, and as published by the U.S. Department of Labor.

(5) The Contractor shall comply with M.G.L. c. 149, sec. 129A, relative to shoring and bracing of trenches.

**B.** The Contractor shall take reasonable precautions to prevent damage, injury, or loss to persons (whether under his management, DCR staff, or the general public) or property. Nothing herein shall relieve Subcontractors of their responsibility for the safety of persons and property, and for compliance with all Laws applicable to the Work and their activities in connection therewith. Without limitation, the Contractor shall take all reasonable precautions for the safety of, and the prevention of injury or damage to (1) all agents and employees and contractors on the Work and all other persons who may be affected thereby including the general public, (2) all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the Site, under the care custody or control of the Contractor or any of its Subcontractors or any contractors directly or indirectly contracting through any of them, and (3) other property at the Site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of the Work. The Contractor shall promptly remedy all damage or loss to any such property caused in whole or in part by the Contractor, any Subcontractor, or anyone directly or indirectly contracted or employed by any of them or by anyone for whose acts any of them may be liable. Without limiting the foregoing, the Contractor shall:

(1) post and maintain adequate danger signs and other warnings against hazards.

(2) promulgate safety regulations and give appropriate notices to the DCR and users of adjacent utilities and property.

- (3) ensure the adequate strength and safety of all scaffolding, staging and hoisting equipment, temporary shoring, bracing, and tying.
- (4) protect adjoining private or public property.
- (5) provide barricades, temporary fences, and covered walkways required by prudent construction practices, Laws and/or the Contract Documents.
- (6) furnish approved hard hats and other personal protective equipment, furnish approved first aid supplies, furnish the name of the first aid attendant, and maintain a posted list of emergency facilities.
- (7) provide proper means of access to property where the existing access is cut off by the Contractor, including maintaining traffic over, through or around the Work included in this contract, with the maximum safety, and practicable convenience to such traffic suspended temporarily.
- (8) maintain from the beginning of any darkness or twilight through the whole of every night sufficient lights on or near any obstruction to guard or protect travelers from injury from such obstruction.
- (9) maintain adequate security at the Site so as not to expose the Work, the materials to be incorporated in the Work, DCR's materials stored or otherwise located upon the Site, and surrounding property to vandalism or malicious mischief.
- (10) provide adequate fire protection procedures during the use of cutting torches, welding equipment, plumbers' torches and other flame and spark producing apparatus.
- (11) take prompt action to correct any dangerous or hazardous conditions.

**C. Use of Explosives:** The use of explosives will not be permitted in the Work unless specifically authorized in the technical Specifications, Special Conditions and/or Drawings or approved by the DCR in writing. If such approval is given, the Contractor shall comply with all Laws and obtain all permits, approvals, and certificates required in connection with the same and shall exercise best efforts, including but not limited to the employment and supervision of properly qualified personnel, to prevent damage, injuries, and accidents involving said explosives.

**D.** Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of public or private utilities of his/her intention to commence operations affecting such utilities at least seventy-two (72) hours exclusive of Saturdays, Sundays, and legal Holidays in advance of the start of such operations, and the Contractor shall at the same time file a copy of said notice with the DCR.

**E.** When necessary, the Contractor shall cooperate with representatives of public service companies to avoid damage to their structures by furnishing and erecting suitable supports, props, shoring or other means of protection. Fire hydrants adjacent to the work always shall be readily accessible to fire apparatus and no materials or other obstructions shall be placed within a radius of 10 feet of a fire hydrant.

**F.** Although the drawings may indicate the approximate location of existing subsurface utilities in the vicinity of the work, the accuracy and completeness of the information is not guaranteed by the DCR. Before commencing any work, or operations which may endanger or damage any subsurface structures, the Contractor shall carefully locate all such structures and conduct his/her operations in such manner as to avoid damage thereto. He/she shall not interrupt live services until new services have been provided. All abandoned services shall be plugged or otherwise made secure.

**G.** If the Contractor wishes to have any utilities temporarily relocated for his/her convenience, other than those specified by DCR, he/she shall submit such a request in writing to the Project Engineer. If the DCR approves this request, the Contractor shall pay for the cost of the relocation at his/her sole expense.

**H.** Land monuments and property markers shall be carefully protected. If is necessary to remove land monuments and/or property markers to perform the contract Work, the Contractor shall do so only at the DCR's direction and after an authorized agent of the DCR has referenced their location.

**I.** The Contractor shall not injure or remove trees or shrubs without authorization from the DCR.

**J.** Disturbance or damage to any above- or below-ground structures, conduits, cables, or the like, caused by any act of omission, neglect or misconduct in the execution or non-execution of work thereof by the Contractor shall be repaired, and/or replaced by the Contractor to the satisfaction of the DCR and at no additional expense to the DCR.

**K.** Disturbance or damage to any structure shall be replaced or repaired by the Contractor to the satisfaction of the DCR and at no additional expense to the DCR.

**L.** The Contractor shall receive no extra compensation for protection and restoration of property unless said compensation is authorized in writing by the DCR, as specified under Article VI I of the Contract General Conditions.

**M.** The Contractor shall not permit cutting or welding in or immediately adjacent to existing property of the Department of Conservation and Recreation or of anyone else without the DCR's prior approval in each instance.

**N.** The Contractor shall designate by notice to the DCR a responsible member of its organization at the Site whose duties shall include preventing accidents.

**O.** The Contractor shall submit to the DCR without delay verbal and written reports of all accidents involving bodily injury or property damage arising in connection with the Work.

**P.** In any emergency affecting the safety of persons or property the Contractor shall immediately act in the exercise of reasonable judgment to prevent threatened damage, injury, or loss. The Contractor shall immediately notify the DCR of such emergency.

## **16. Environmental Protection**

**A.** The DCR shall secure the required environmental permits required under M.G.L. Chapters 131 and 91, including the National Pollutant Discharges Elimination System (NPDES) Construction General Permit and those issued by the Army Corps of Engineers under Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). The Contractor is obligated to conform to all the requirements of the permits and subsequent requirements issued by the governing agencies.

**B.** Contractors operating under a DEP permit shall post on the Site a sign in a format consistent with that enclosed.

**C. Prevention of Water Pollution:**

1. The Contractor shall take such precautions in the conduct of the Work as may be necessary to avoid contaminating water in adjacent watercourses, water resources or wetlands. All earthwork, moving of equipment, water control for excavation or foundation areas, and other operations likely to create silting shall be conducted to avoid pollution of watercourses, water resources and wetlands.

2. Erosion Control: The Contractor shall utilize such methods as may be necessary to effectively prevent erosion and sediment from entering nearby waterways.

3. Control of Surface Water Runoff: The Contractor shall keep the rate of runoff from the Site at a minimum, and control it by constructing diversion ditches, trenches, and berms, and taking any other necessary action to retard and divert runoff to protect watercourses. The Contractor shall inspect said Site controls regularly, after significant storm events (greater than one-half inch over a 24-hour period) and in accordance with a site-specific storm water pollution prevention plan (SWPPP) prepared by the Contractor. The Contractor shall repair any damage to Site controls to prevent discharge of sediments or pollutants.

4. The Contractor shall construct silt retention basins in areas of the Work adjacent to streams, or rivers, as directed by the DCR. These basins shall be removed upon completion of the Work. Water used during the Work which has become contaminated with oil, bitumen, harmful or objectionable chemicals, sewage or other pollutants shall be discharged in accordance with all Laws to avoid affecting nearby waters.

5. Under no circumstances shall the Contractor discharge pollutants into any watercourse, water resource, or wetland. When water from adjacent natural sources is used in the contract work, intake methods shall be such as to avoid contaminating the source of supply.

**D. Protection of Land Resources**

1. Prevention of Landscape Defacement: The Contractor shall not deface, injure, remove, cut, or destroy trees or shrubs, without authority from the DCR. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically approved by the DCR. Where such activity is permitted, the Contractor shall adequately wrap the tree with burlap or rags over which softwood slats shall be tied. The Contractor shall be responsible for any damage resulting from such use. Where trees may possibly be defaced, bruised, injured, or otherwise damaged by equipment, dumping, or other operations, the Contractor shall protect such trees by placing boards, planks or approved protective fencing around them.

2. Restoration of Landscape Damage: Any trees or other landscape feature scarred or damaged by equipment or operations shall be restored as nearly as possible to the original condition, as approved by DCR. All trimming or pruning shall be performed in an approved manner by licensed arborists with saws or pruning shears. Trimming with axes will not be permitted.

3. Plant Pest Control: If the Work under this contract requires the use of soil moving equipment in an area with plant infestation, the Contractor shall be subject to applicable plant quarantine regulations. In general, these regulations require the thorough cleaning of soil from equipment before such equipment is moved from regulated areas to area's noninfected

**E. Noise Control:** The Contractor shall use every effort and every means possible to minimize noise caused by his/her operations which the DCR may consider objectionable. Each Contractor shall provide working machinery and equipment designed to operate with the least possible noise, and when gearing is used, such gearing shall be of a type designed to reduce noise to a minimum. Compressors shall be equipped with silencers on intake lines. All gas or oil operated equipment shall be equipped with silencers or mufflers on intake and exhaust lines. Electricity shall be used for power to reduce noise. Dumping bins, hoppers and trucks used for disposal of excavated materials shall be lined with wood or other sound-deadening material if required. Where required by agencies having jurisdiction, certain noise-producing work may have to be performed during specified periods only.

**E. Air Pollution Control:** The Contractor shall conduct his/her operations to comply with all Laws pertaining to air pollution, including Section 142B of Chapter 111 of the Massachusetts General Laws.

1. Diesel Equipment Emission Controls

a.) All motor vehicles and construction equipment shall comply with all pertinent local, state, and federal regulations covering exhaust emission controls and safety.

b.) All Contractor and Sub-Contractor diesel-powered non-road construction equipment with engine horsepower (HP) ratings of 50 and above, which are used on the Project Site for a period in excess of 30 calendar days over the course of the construction period on the Project Site, shall be retrofitted with Emission Control Devices to reduce diesel emissions.

c.) The reduction of emissions of volatile organic compounds (VOCs); carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment shall be accomplished by installing Retrofit Emission Control Devices.

d.) Acceptable Retrofit Emission Control Devices for the Project shall consist of oxidation catalysts that are (1) included on the US Environmental Protection Agency (EPA) *Verified Retrofit Technology List* and/or the California Air Resources Board (CARB) *Currently Verified Technologies List*; and (2) are verified by EPA, CARB, or certified by the manufacturer to provide a minimum emissions reduction of 50 percent for VOCs, 40 percent for CO and 20 percent for PM. Attainment of the required reduction in PM emissions can also be accomplished by using less polluting Clean Fuels. Verified technologies can be identified on the following websites:

EPA: <http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>

CARB: <http://www.arb.ca.gov/diesel/verdev/verifiedtechnologies/cvt.htm>

e.) The emission control equipment can be procured through the Statewide Contract #VEH71 that has fixed costs associated with retrofitting of diesel emission control devices.

f.) Construction shall not proceed until the Contractor has submitted a certified list of the non-road diesel-powered construction equipment subject to this provision which either are or will be retrofitted with emission control devices. The list shall include (1) the equipment number, type, make, and Contractor/Sub-Contractor name; and the emission control device make, model, and EPA verification number. Contractors shall also submit a receipt or other documentation from a manufacturer or installer that verifies that appropriate equipment has been installed. The Contractor shall also identify any vehicles that will use Clean Fuels. Equipment that has been retrofitted with an emission control device shall be stenciled or otherwise clearly marked as "Low Emission Equipment".

g.) The Contractor shall submit monthly reports, updating the same information stated in Paragraph f above, including the quantity of Clean Fuel utilized. The addition or deletion of non-road diesel equipment shall be indicated in the report.

h.) The Contractor shall use methods to control nuisance odors associated with diesel emissions from construction equipment including but not limited to the following: (1) turning off diesel combustion engines on construction equipment not in active use and on trucks that are idling for five minutes or more; and (2) locating diesel equipment away from the general public and sensitive receptors.

i.) All costs associated with implementation of the diesel equipment emissions control shall be borne by the respective Contractor or subcontractor and included in their cost for performing the work of the Contract.

## **2. Dust Control.**

**A.** The Contractor is placed on notice that blowing dust from un-stabilized earth areas of the work under his/her control will be considered a nuisance. He/she shall, by spraying with water or by other approved means, dampen the soil to hold down the dust. The use of calcium chloride as a wetting agent will not be permitted. During working hours and before leaving the work for the evening, for weekends, or for a more extended period, the Contractor shall assess the moisture content of the soil and dampen it to the extent necessary to hold down the dust. While work is suspended, he/she shall return to work, if so, directed by the DCR, to maintain the dust control.

## **17. Debris, Excavated Material and Chemical Waste.**

**A.** The Contractor shall not permit the accumulation of interior or exterior debris. The Contractor shall always keep the Work area clean. Without limitation, garbage shall be removed daily. Where no disposal area is shown on the Drawings, the Contractor shall remove and legally dispose of all materials off land owned by the Commonwealth to a location approved by the DCR. Documentation certifying proper disposal shall be submitted to the DCR.

**B.** The Contractor shall, at his/her own expense, and in accordance with all Laws, arrange for the waste of materials from excavations that are unacceptable for use in the refill or that are more than the refill materials required, in spoil banks off the lands owned by the Commonwealth of Massachusetts. Materials, if any, which cannot be placed at once in permanent positions may be deposited in storage piles at locations designated, but materials re-excavated from such storage piles shall not again be paid for as excavation.

**C.** The Contractor shall properly classify and remove debris and waste from the Site and transport and dispose of it, all in accordance with Laws, employing a qualified and properly licensed transporter, at any landfill, disposal or recycling facility licensed under applicable Laws, including without limitation, hazardous materials laws. The Contractor shall make all arrangements and give and obtain all notices, communications, documentation, permits, certificates, and approvals necessary for said disposal from the owner or officials in charge of such landfills, disposal, or recycling facilities. The Contractor shall bear all fees and costs in connection with such classification, removal, transportation, disposal, and storage, except as otherwise specifically provided or required by the Special Conditions or other Contract Document. The Contractor shall not permit any storage of debris or waste except in accordance with Laws.

**D.** The Contractor shall not permit any open fire on the Site.

**E. Chemical Waste:** Chemical waste shall be identified and labeled properly, stored in appropriate Department of Transportation approved containers in a secure location, removed from the Site, and disposed of not less frequently than monthly unless more frequently required by Laws, including without limitation hazardous materials laws, or by the Special Conditions or Specifications. Disposal of chemical waste shall be performed in accordance with requirements of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP). Stockpiles of contaminated soils will be placed on a protective surface and covered to prevent migration or erosive loss by wind or water. Fueling and lubricating of vehicles and equipment shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants shall be disposed of in accordance with procedures meeting all applicable Laws. The Contractor shall immediately notify the DCR of any hazardous materials release large enough to require reporting under applicable Laws. The Contractor shall be responsible for immediately containing and cleaning up in accordance with Laws any oil or hazardous materials releases resulting from his/her operations. Any costs incurred in cleaning up any such releases shall be borne by the Contractor.

## **18. Nuisances.**

The Contractor shall strictly prohibit and take all necessary measures to prevent the committing of nuisances on the land of the Commonwealth and adjacent properties.



**19. Weather Protection (M.G.L. c. 149, sec. 44G and 44F(1)).**

**A.** For all building projects, the Contractor shall furnish and install "weather protection," which means temporary protection of that Work adversely affected by moisture, wind and cold. Weather protection shall be achieved by covering, enclosing and/or heating working areas such that a minimum temperature of 40 degrees Fahrenheit is maintained at the working surface during the months of November through March to permit construction to be carried on during such period in accordance with the Progress Schedule. After the building or portion thereof is completely enclosed by either permanent construction or substantial temporary materials having a resistance comparable to the specified permanent construction, the Contractor shall provide heat therein of not less than 55 degrees Fahrenheit nor more than 75 degrees Fahrenheit. The foregoing provisions do not supersede any specific requirements for methods of construction, curing of materials and the like. Concrete, masonry, plaster, and all other materials that require special considerations in temperatures below 40 degrees Fahrenheit shall be installed, applied, and cured in accordance with the specific requirements for cold weather protection as defined in the project specifications.

**B.** The general contractor may, with the approval of the Engineer, elect to utilize the permanent heating system for temporary heat after the building is enclosed and after it has been tested and ready to operate. It shall, however, be his responsibility to thoroughly clean and restore to first-class condition any portion of the permanent heating system used for heating during construction to the satisfaction of the Engineer.

**C.** The Contractor shall furnish and install one thermometer for every 2,000 square feet of floor space or fraction thereof.

**D.** Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate fire protection devices. Approved methods of heating should also provide for adequate ventilation to prevent exposing people and materials to carbon monoxide, carbon dioxide and other noxious fumes.

**E.** Within 30 calendar days after the award of this contract, the general contractor shall submit in writing to the Engineer three (3) copies of his proposed methods for "Weather Protection" for approval.

**F.** The Contractor shall give adequate notification to the Engineer and all subcontractors prior to the erection and removal of temporary protective enclosures.

**G.** Such weather protection shall be consistent with the Progress Schedule, shall permit the continuous progress of the Work necessary to maintain an orderly and efficient sequence of construction operations and shall meet such additional requirements as may be specified by the Special Conditions or Specifications.

**20. Furnishings and Equipment.**

When, in the opinion of the DCR, any portion of the Work is in a reasonable condition to receive fittings, furniture, or other property of the Department of Conservation and Recreation not covered by this Contract, the Contractor shall allow the DCR to bring such fittings, furniture, and/or other property into such portions of the Work and shall provide all reasonable facilities and protection thereof. No such occupancy shall be construed as interfering with the provisions relating to time of completion, or as constituting an acceptance of the whole or any part of the Work. Any furniture or fittings so installed shall be placed in the Work at the risk of the DCR except that the Contractor shall be liable for damages or losses to such furniture or fittings to the extent such damages or losses arise in whole or in part from the negligence or intentional misconduct of Contractor, Subcontractors, their agents and/or employees, or anyone for whose acts the Contractor is responsible.

**21. Form for Sub-contract.**

The Contractor when subcontracting with sub-bidders filed pursuant to M.G.L. c. 149, sec. 44F shall use the form for sub-Contract in M.G.L. c. 149, sec. 44F(4)(c). The Contractor shall not interpret paragraph 3 of the statutory form of Subcontract to require such sub-bidders to provide insurance with limits higher than the limits that are required by the Contract Documents, assuming that the term "Contractor" refers to the sub-bidder and that the term "Contract Price" refers to the sub-bidder's price stated in paragraph 1 of the statutory form of Subcontract.

## **22. Sales Tax Exemption and Other Taxes.**

All building materials and supplies as well as the rental charges for construction vehicles, equipment and machinery rented exclusively for use on the Site, or while being used exclusively for the transportation of materials for the Work are entitled to an exemption from sales taxes under M.G.L. c. 64H, sec. 6(f). The Contractor shall take all action required to obtain the benefit of such sales tax exemption. The Contractor shall bear the cost of any sales taxes that the Contractor incurs in connection with the Work and the DCR shall not reimburse the Contractor for any such taxes. The exemption number assigned to the Contractor as an exempt purchaser shall be provided to the Contractor by the DCR upon the written request of the Contractor.

## **23. Final Cleaning.**

At the completion of the Work, the Contractor shall remove all waste materials, rubbish, tools, equipment, machinery, and surplus materials, and professionally clean all sight-exposed surfaces so that the Work is clean and ready for occupancy and/or use. Subsequent to installation of DCR furniture, telephones, and equipment, the Contractor shall provide such additional cleaning as may be necessary to remove any soil resulting from installation of such furniture, telephones, and equipment. The costs of the required cleaning are included in the Contract price.

All permanent drainage structures such as catch basins, permanent detention or retention basins, drainage conveyances, piping, sumps, and particle separators will be cleaned of sediments and debris prior to acceptance of the Work. Any sediments or debris accumulated during construction shall be removed and disposed in accordance with local and state requirements.

## **24. Maintenance Data.**

Subject to such additional requirements as may be provided in the Special Conditions or Specifications, the Contractor shall compile 3 complete and identical binders of operating and maintenance data for the entire Work. The Contractor shall submit record maintenance data to the DCR for approval and shall instruct and train the DCR's personnel in proper inspection and maintenance procedures.

## **25. Drainage Specifications.**

Subject to such additional requirements as may be provided in the Special Conditions or Specifications, where construction involves replacement or construction of new storm water drainage systems including but not limited to catch basins, roof drains, recharge to groundwater systems and outfall structures, the Contractor shall provide drawings and electronic records in a form acceptable to the DCR that provides specifications and a site plan that identifies locations of the drainage system components and cleanout, if applicable.

## **26. Closeout Procedures.**

The Contractor shall take all actions and submit all items required for Final Acceptance as specified in the Contract Documents.

## **27. Risk of Loss.**

The Contractor shall bear all risk of loss to the Work during the term of the Contract except for any portion of the Work as to which the DCR has given final acceptance. Nothing herein shall limit the Contractor's responsibilities under Article IX or XV of these General Conditions of the Contract.

## **28. Photographs.**

**A.** At the request of the DCR, the Contractor shall furnish the DCR suitable 4" X 6" color photographs and/or digital image files of the construction area, and any related work areas.

**B.** If the DCR requires the Contractor to provide photographs of the Work, the areas to be photographed and the locational reference point from which they are to be taken will be designated by the DCR, and shall be taken according to the following schedule:

- a. Before construction operations have been started.
- b. Each month during the performance of the Work.
- c. After construction has been completed.

**C.** Each photograph shall have permanently written on its face a legible description or title indicating date, location, direction from which taken, project title and item of work photographed.

**D.** Upon completion of all work under this contract, the Contractor shall deliver all negatives, clearly identified, to the DCR. Photographs will be placed in acetate sleeves and bound in three booklet form.

**E.** The cost of furnishing photographs shall be included in the prices bid for the various items scheduled in the Proposal.

## **ARTICLE V: MATERIALS AND EQUIPMENT**

### **1. Materials Generally.**

**A.** Unless otherwise specifically provided in the Contract Documents, the Contractor shall provide and pay for materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether incorporated or to be incorporated in the Work.

**B.** Materials and equipment to be installed as part of the Work (both or either of which are hereinafter referred to as "materials") shall be new, unused, of recent manufacture, assembled, and used in accordance with the best construction practices. The Contractor shall inform himself/herself as to, and shall comply with, the provisions of M.G.L. c. 7, sec. 23A, as amended, and shall abide by the same and all applicable rules, regulations, and orders made thereunder in relation to the purchase of supplies and materials in the execution of the Work, including the provisions of M.G.L. c. 7, sec. 22, paragraph 17, which provides that there be *"a preference in the purchase of supplies and materials, other considerations being equal, in favor, first, of supplies and materials manufactured and sold within the Commonwealth, and, second, of supplies and materials manufactured and sold elsewhere within the United States."*

**C.** All materials furnished by the DCR to the Contractor for installation in the work will be delivered by freight train, truck, or other means of common carrier to the nearest convenient public railroad siding, freight station, trucking terminal or such other designated delivery point of which he will receive due notification. The Contractor, at his/her own expense, shall do all handling and conveying of such materials at and from the noted deliver site. He shall unload and remove them promptly from the cars, trucks, or terminals upon notification of their arrival and he shall be responsible for any demurrage, delay charges, damage done or loss of materials from the time of delivery to the final acceptance of the work. Materials previously delivered shall be turned over to the Contractor as soon as possible after the date ordered to begin work. He shall make a complete inventory with the Resident Engineer as to content and condition; thereafter he shall be responsible for the care, custody, and handling until the final acceptance of the work.

### **2. Shop Drawings, Product Data, and Samples.**

**A.** The Contractor shall furnish to the Project Engineer all samples of the materials to be used in the execution of the Work as required by the Contract Documents. The Contractor shall furnish to the DCR in a timely manner all coordination Drawings, shop details, Shop Drawings, and setting diagrams which may be necessary for acquiring and installing materials. These shall be reviewed as required by the DCR. A minimum of six (6) copies shall be submitted for final approval, one of which shall be returned to the Contractor, one given to the Resident Engineer, and four maintained by the DCR. The inspection and approval by the DCR of Shop Drawings, etc. shall be general and shall in no way relieve the Contractor from responsibility for proper fitting, coordinating, construction, and construction sequencing. The Contractor shall furnish to the DCR such information and vouchers relative to the Work, the materials therefore, and the persons employed thereon, as the DCR shall from time-to-time request.

**B.** Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. The purpose of their submission is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

**C.** The Contractor shall review, approve, and submit to the DCR, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the DCR or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents, or which do not comply with the Contract Documents may be returned without action. The Contractor's attention is directed to the provisions of Section 4 of this Article V and to the Specifications.

**D.** The Contractor shall prepare and keep current for the DCR's approval a schedule of submittals which is coordinated with the Progress Schedule and allows the DCR reasonable time to review submittals.

**E.** The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples, or similar submittals until the respective submittal has been approved by the DCR. Such Work shall be in accordance with Approved submittals.

**F.** By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements, and field construction criteria related thereto and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

**G.** The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the DCR's approval of Shop Drawings, Product Data, Samples, or similar submittals unless the Contractor has specifically informed the DCR in writing of such deviation at the time of submittal and the DCR has given explicit written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the DCR's actions.

**H.** The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the DCR on previous submittals.

**I.** Informational submittals upon which the DCR is not expected to take responsive action may be so identified in the Contract Documents.

**J.** When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, such certification must be stamped by a registered Massachusetts professional in the discipline required. The DCR shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

**K.** Materials furnished or used or employed under the Contract must be equal in quality to the samples furnished and be satisfactory to the DCR.

### **3. Tests.**

**A.** Any material to be used in the Work may be tested or inspected at any time, on or off Site, by or under direction of the DCR, and may be rejected if it fails to comply with specified tests. The Contractor shall test all materials unless specified otherwise in the Special Conditions or Specifications. The Contractor shall also pay for all testing of specified material unless specified otherwise in the Special Conditions or Specifications. If the Contractor requests permission to use a material that was not specified, then the Contractor in all cases shall pay for such testing. The cost of testing of materials that fail the testing criteria shall be borne by the Contractor

**B.** The Contractor shall notify the DCR of the proposed sources of materials in time to permit all required testing and inspection before the material is needed for incorporation into the Work. The Contractor shall have no claim arising from the Contractor's failure to designate the proposed source or to order the material in time for adequate testing and inspection. Necessary arrangements shall be made to permit the DCR to make factory, shop or other inspection of materials or equipment ordered for the Work in the process of manufacture or fabrication, as required by the Contract Documents. The DCR will not assume any obligation for the sampling and testing of materials other than on the Site, unless so required by the Specifications.

**C.** Where tests of materials will be made by the DCR or under its direction, the Contractor or his/her suppliers shall furnish such facilities as the DCR may require for collecting and forwarding samples and shall not make use of, nor incorporate into the Work, any material represented by the samples until the required tests have been made and the material accepted, unless otherwise directed. The Contractor in all cases shall furnish the required samples without charge. In the event of failure of materials to meet the Contract Documents, any retesting of new materials or of the same materials after reworking, shall be paid for by the Contractor.

**D.** The testing of the Work shall not relieve the Contractor of any of his/her obligations to fulfill the terms of the Contract as herein prescribed by the Contract Documents. Failure to reject any defective work or materials shall in no way prevent later rejection when such defect is discovered, notwithstanding that such defective work or materials had been previously overlooked or misjudged by the DCR and accepted or estimated for payment, nor shall such obligate the DCR to make final acceptance thereof. If sampling and testing reveal that the material is unsatisfactory, it will then be the responsibility of the Contractor to remove it from the Work, replace it, or blend it with such other material so that an acceptable material will be produced. The removal, replacement and blending of such material shall be done by the Contractor without additional compensation.

#### **4. "Or Equal" Submissions.**

**A.** Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words "or Approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if in the opinion of the DCR (a) it is at least equal in quality, durability, appearance, strength, and design, (b) it performs at least equally the function imposed in the general design for the Work, and (c) it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the Specifications. Any structural or mechanical changes made necessary to accommodate products or materials substituted as an "or equal" shall be at the expense of the Contractor. If the cost of the material substituted as an "or equal" is less than the cost of the material specified, such savings in cost shall be credited to the DCR and deducted from the price. "Approved equal" shall mean an item with respect to which the DCR shall have issued a written statement to the Contractor to the effect that the item is, in the DCR's opinion, equal within the meaning of this paragraph to that prescribed in the Contract Documents.

**B.** The Contractor shall be responsible for providing the DCR with any information and test results that the DCR reasonably requires to determine whether a material is equal to a material named or described in the Contract Documents.

**C.** The Contractor shall make all requests for substitution of a material named or described in the Contract Documents in writing, and at least thirty (30) days prior to the date the materials will be used in the Work, or immediately upon becoming aware of the following exigencies: (1) the non-availability of the specified material, (2) delay of the delivery of the specified material that will preclude the completion of the Work or any part thereof within the time specified in the Contract or (3) unforeseen field conditions that necessitate the substitution of the specified material. In no event shall the Contractor maintain a claim for delays based upon the DCR's review of such substituted materials if the Contractor failed to submit a written request for such substitution in accordance with the provisions of this paragraph. A written request for a material substitution due to an exigency set forth above shall be accompanied with documentation of the exigency, including but not limited to, a photocopy of a letter from the supplier or manufacturer stating that he/she is unable to furnish the specified materials and the reasons that he/she is unable to furnish the materials, as required by the DCR. If the Contractor's proposed substitution due to an exigency is declined, the DCR shall, at its discretion, specify an "or equal" substitution.

**D.** The Contractor shall have the burden of proof with respect to any claimed increases in the Contract Price resulting from the improper rejection by the DCR of any material proposed by the Contractor as an equal. No increase in the Contract Price shall be permitted unless the Contractor submits documentary evidence sufficient to prove to the reasonable satisfaction of the DCR that the rejection increased the Contractor's costs over the costs provided for in the Bid pricing documents, net of all savings the Contractor obtained by substituting other "or equal" items. The Contractor shall submit copies of all pricing materials, calculations, plans, Specifications, Drawings, and other design documents that the DCR deems necessary or desirable to evidence such increased costs. In calculating the Contractor's increased costs, a deduction shall be made for the amount of all costs that the Contractor would have incurred making structural or mechanical changes to include within the Work the item later found to have been improperly rejected.

#### **5. Delivery and Storage of Materials: Inspection.**

**A.** Materials and equipment shall be progressively delivered to the Site so that there will be neither delay in the progress of the Work nor an undue accumulation of materials that are not to be used within a reasonable time, and stored so that their security, quality, and fitness of the materials for the Work is preserved.

##### **B. Vehicle Weight Limits**

1. The Contractor's attention is directed to Chapter 90, Section 19A of the General Laws as amended concerning the weight limits for construction type motor vehicles.
2. No materials supplied for the project shall be accepted in vehicles whose gross weight exceed the legal load limits as determined by the regulatory agencies of the Commonwealth and Federal Government
3. Weight slips that indicate the load exceeding the legal load limit will not be countersigned by the DCR.

**C.** If the Engineer so requests, the Contractor, at any time before final acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed, will be at the Contractor's expense.

**D.** Necessary arrangements shall be made to permit the DCR to perform all required inspection and testing of materials or equipment ordered for the Work at the factory or shop during the process of manufacture or fabrication, or in storage on or off Site. The Contractor shall have no claims because of his/her failure to designate the proposed source of the material in time for adequate testing and inspection.

**E.** Materials stored off Site shall be insured and stored at the expense of the Contractor so as to guarantee the preservation of their security, quality, and fitness for the Work. Without derogating from the Contractor's responsibilities in the previous sentence, when necessary to avoid deterioration or damage, material (on or off Site) shall be placed on wooden platforms or other hard clean surfaces and not on the ground and shall be properly protected.

**F.** Expenses for inspection of material by DCR personnel including travel, quarters, and subsistence shall be borne by the Contractor requesting the inspection of material stored outside the Commonwealth of Massachusetts as part of the Contract Price. The policy of the DCR precludes the payment for material stored outside the boundaries of Massachusetts except in extremely limited circumstances with the express written consent of the DCR. If the Contractor requests an inspection of material stored outside the Commonwealth of Massachusetts, the DCR will initially pay for all expenses of inspecting the material incurred by DCR's personnel including travel, quarters, and subsistence. The DCR will then give Contractor an invoice for those costs and the Contractor shall submit a credit Change Order for the amount of those expenses.

**G.** Stored materials either at the Site or at some other location agreed upon in writing shall be so located as to facilitate prompt inspection and even though approved before storage, may again be inspected prior to their use in the Work.

**H.** Where no inspection of materials is arranged by the DCR and before such materials are incorporated into the work, the Contractor shall be required to submit to the DCR for approval, three copies of the Manufacturer's or Supplier's statement for each kind of material furnished, which shall contain the following information:

1. Work for which the material is consigned.
2. Name of the Contractor to which the material is supplied.
3. Description of material supplied.
4. Quantity of material supplied.
5. Means of identifying the consignment, such as label, marking, seal number, etc.
6. Date and method of shipment.
7. Statement to the effect that the material has been tested and found in conformance with the Contract Documents.
8. Results of all required tests, or in lieu of said results, the Manufacturer's, or Supplier's guarantee that he/she shall maintain said results, and make them available to the DCR for a period of not less than three years from the date of final acceptance of final payment by the Commonwealth.
9. Signature of a person duly authorized to bind the Manufacturer or Supplier.

**I.** All storage sites shall be restored to their original condition by the Contractor at the Contractor's expense. This shall not apply to the stripping and storing of topsoil, or to other materials salvaged from the work.

**J.** The Contractor shall take charge of and be liable for any loss of or injury to the materials for his/her use delivered to or in the vicinity of the place where the Work is being done, whether furnished by the DCR or otherwise. The Contractor shall notify the DCR as soon as any such materials are so delivered, allow them to be examined by the DCR, and furnish workers to assist therewith.

**K.** Private property shall not be used for storage purpose without the written permission of the property owner, and if requested by the DCR copies of such written permission shall be furnished by the Contractor.

## **6. Defective, Damaged, or Deteriorated Materials and Rejection Thereof.**

The DCR may reject materials if the DCR reasonably determines that such materials do not conform to the Contract Documents in any manner, including but not limited to materials that have become damaged or deteriorated from improper storage whether or not such materials have previously been accepted. The Contractor at its own expense shall remove rejected materials from the Work. No rejected material, the defects of which have been subsequently corrected, shall be used except with the written permission of the DCR. Should the Contractor fail to remove rejected material within a reasonable time, the DCR may, in addition to any other available remedies, remove and/or replace the rejected material, and deduct the cost of such removal and/or replacement from any moneys due or to become due the Contractor. No extra time shall be allowed for completion of Work by reason of such rejection. The inspection of the Work shall not relieve the Contractor of any of its obligations herein prescribed, and any defective Work shall be corrected. Work not conforming to the Contract Documents may be rejected notwithstanding that such Work and materials have been previously overlooked or misjudged by the DCR and accepted for payment. If the Work or any part thereof shall be found defective at any time before Final Acceptance of the whole Work, the Contractor shall forthwith make good such defect in a manner satisfactory to the DCR. Nothing in the Contract shall be construed as vesting in the Contractor any property rights in the materials used after they have been attached or affixed to the Work or the Site; but all such materials shall upon being so attached or affixed become a property of the DCR.

## **7. Measurement**

**A.** The method of measurement for materials necessary for the proper execution of the Work is set forth at the end of each Section of these Specifications. The computations to be used in determination of quantities of material furnished and of work performed under the Contract shall be selected by the DCR.

**B.** For the estimating of quantities in which the computations or areas by analytic and geometric methods would be comparatively laborious, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such area.

**C.** To aid the Resident Engineer in determining the quantities and weights of cement and other materials to be paid for, the Contractor shall, whenever so required, give him access to the proper invoices, bills of lading, etc., and shall provide scales and assistance for weighing, or assistance for measuring, any of the materials.

**D.** All measurements shall be confirmed by the DCR as they are made to determine the quantities of the various items of work performed. All measurements shall be made according to the United States Standard Units of Measurement.

**E.** Unless otherwise specified, longitudinal measurements for area computations will be made horizontally. Unless otherwise specified transverse measures for area computations will be the dimensions shown on the Drawings or in writing by the DCR.

**F.** All items which are measured by the linear foot, including, but not limited to pipe, culverts, guardrail, curbing, will be measured parallel to the base or foundation upon which such structures are placed, unless otherwise shown on the Drawings.

**G.** In computing volumes of excavation, the average end area method, or other methods acceptable to the DCR will be used.

**H.** A sworn weigher shall weigh all materials required to be weighed. The weighing of such materials may be witnessed by the DCR.

**I.** If materials are shipped by rail or trucks, the car weights or quarry weights may be accepted. Weight slips shall be provided for each shipment of material weighed. Each weight slip shall be signed by the sworn weigher, and countersigned, on delivery, by the DCR. Material listed on weight slips that are not countersigned by the DCR shall not be included for payment under the Contract.

**J.** When requested by the Contractor and approved by the DCR in writing, material specified to be measured in weight may be weighed and converted to volume measurement for payment purposes.

## **ARTICLE VI: PROSECUTION AND PROGRESS**

### **1. Beginning, Progress Schedule, and Completion of Work.**

**A.** The Contract time shall commence the work upon the date specified in the Notice to Proceed. The Contractor shall begin Work at the Site within ten (10) days of said date unless otherwise ordered in writing by the DCR.

**B.** Within seven (7) days after the issuance of the Notice to Proceed, Saturdays, Sundays and legal holidays excluded, the Contractor shall submit to the DCR a progress schedule for the term of the Contract as required by the Contract Documents, showing in detail his/her proposed progress for the construction of the various parts of the Work and the proposed times for receiving required materials. Upon approval by the DCR, said schedule shall constitute the Progress Schedule. The Contractor shall at the end of each month, or more often if required, furnish to the DCR a schedule meeting the requirements of the Specifications showing the actual progress of the parts of the Work in comparison with the Progress Schedule.

**C.** Time is of the essence of this Contract. The Work shall be completed within the time specified in Article 2 of the Department of Conservation and Recreation - Contractor Agreement. Should the Contractor require additional time to complete the Work, the Contractor shall document the reasons therefor and submit a written request for an extension of time within 20 days of the occurrence of the event alleged to be the cause of the delay, as provided in this Article and in Article VII of these General Conditions of the Contract. Failure to submit said written request within the time required by the preceding sentence shall preclude the Contractor from subsequently claiming any time extension due to said delay.

**D.** If, in the opinion of the DCR, the Contractor fails to comply with the construction schedule as set forth in the Contractor's bid or the Project specifications, the DCR may give the Contractor a notice specifying the time limits and performance standards that the Contractor is failing to meet whereupon (1) the Contractor shall, if the notice requires, discontinue all or any portion of the Work (which discontinuance shall neither terminate the Contract nor give the Contractor any claim for an increase in the Contract Price, damages, or an extension of any completion deadlines); or (2) at Contractor's sole cost increase the work force, equipment and plant, or any of them, employed on the whole or any part of the Work, to the extent required by such notice, and employ the same from day to day until the completion of the Work or such part thereof, or until the failure regarding the rate of progress, in the opinion of the DCR, shall have been sufficiently corrected.

**E.** If, in the opinion of the DCR, the Contractor fails to comply with the construction schedule, and whether or not the DCR shall have given the Contractor a notice described in D above, the DCR may (but shall not be required to) give the Contractor notice of such failure and five (5) days to cure the same. Unless the Contractor shall within that five days take all necessary steps to do so (including, if the DCR requires, increasing its forces, equipment and plant) and continue to do so until in the opinion of the DCR the failure is corrected, the DCR may at the Contractor's expense and without terminating this Contract take exclusive or joint possession of all or a portion of the Site and employ and direct the labors of existing or such additional forces, equipment and plant as may in the DCR's opinion be necessary to insure the completion of the Work or such part thereof within the time specified in the Contract Documents or at the earliest possible date thereafter. The DCR may exercise its rights under this Article at any time and from time to time without waiving any of its rights under this Contract, at law or in equity, including, without limitation, the right to deem this Contract terminated or to order the Contractor to discontinue the Work at any time thereafter. The Contractor shall continue to perform the remaining Work under this Contract even if the DCR elects to have another contractor perform a portion of the Work under this Article.

**F.** The DCR shall deduct the cost of any actions the DCR takes under this Article from any amount then due or which might have become due to the Contractor under this Contract had the Contractor performed as required. On demand, the Contractor shall pay the DCR any amount by which the cost of completing all or any portion of the Work exceeds the amount attributable to that Work under the Contract Documents. The DCR's sole goal will be to complete the Work that it elects to complete within the time limits stated in the Contract or at the earliest possible date thereafter. Consequently, the DCR shall have no obligation to obtain competitive bids or the lowest cost for completing the Work or any part thereof, except when it is required by law. The DCR's election to complete all or part of the Work shall not release the Contractor from any liability for failure to complete the Work as the Contract Documents require and shall not entitle the Contractor to a claim for an increase in the Contract Price or an extension of the time for completing the Work. If the cost that the DCR incurs in completing all or any portion of the Work is less than the amount that the Contract Documents attribute to that Work, the DCR will pay or credit the difference to the Contractor, less any other costs and expenses that the DCR incurs, including the cost of supervision, and attorneys' fees and costs.



## **2. Failure to Complete Work on Time - Liquidated Damages.**

**A.** If liquidated damages are specified in the Department of Conservation and Recreation - Contractor Agreement, the DCR has determined that its damages as a result of Contractor's failure to complete the Work fully within the time specified will be difficult or impracticable to ascertain. Accordingly, if the Work is not completed to such point by the date specified in this Contract, the Contractor shall pay to the DCR the sum designated as liquidated damages in the Contract for each and every calendar day that the Contractor is in default in completing the Work to such point. Such moneys shall be paid as liquidated damages, not as a penalty, to cover losses and expenses to the DCR resulting solely from the fact that the Work is not completed on time.

**B.** Similarly, if the Contract states that by a specified date a designated portion of the Work shall be fully completed, and if such portion has not been prosecuted to such point by said date, the Contractor shall pay to the DCR the sum designated in the Contract for each calendar day that the Contractor is in default in completing such portion of the Work to such point. Such moneys shall also be paid as liquidated damages, not as a penalty, to cover losses and expenses to the Department of Conservation and Recreation resulting solely from the fact that the Work is not completed on time.

**C.** The DCR may recover such liquidated damages by deducting the amount thereof from any moneys due or that might become due the Contractor, and if such moneys shall be insufficient to cover the liquidated damages, then the Contractor or the Surety shall pay to the DCR the amount due.

**D.** Permitting the Contractor to continue and finish the Work or any portion of it after the time fixed in the Contract for its completion shall not be deemed as a waiver of any of the DCR's rights hereunder, at law or in equity.

**E.** Liquidated damages or a portion thereof may be waived by the DCR if the Contractor submits evidence satisfactory to the DCR that the delay was caused solely by conditions beyond the control of the Contractor and that the DCR has not suffered any damages as a result of said delay.

**F.** Failure by the DCR to specify a sum as liquidated damages in the Department of Conservation and Recreation - Contractor Agreement, or the insertion of "N/A" or "none" in the space provided therein for liquidated damages, shall not be deemed a waiver of the DCR's right to recover actual damages arising from the Contractor's failure to complete the Work on time.

## **3. Delays: Statutory Provisions (M.G.L. c. 30, sec. 39O).**

**A.** Notwithstanding any provision of this Contract to the contrary, except as otherwise provided by law as set forth in paragraph B below, the Contractor shall not be entitled to increase the Contract Price or to receive damages on account of any hindrances or delays, avoidable or unavoidable; but if any delay is caused in the opinion of the DCR, the Contractor shall be entitled to an extension of time. The length of the extension shall be sufficient in the opinion of the DCR for the Contractor to complete the Work. Although no delay shall increase the Contract Price, the DCR may require that any change in the date by which the Contractor must complete all or any part of the Work be processed on a Change Order form.

**B.** If a suspension, delay, interruption or failure to act of the DCR increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the Contractor with respect to such increase as the Contractor shall have against the DCR by virtue of (a) and (b) of M.G.L. c. 30, s. 39O set forth below, but nothing in provisions (a) and (b) shall alter any other rights which the Contractor or the subcontractor may have against each other. As used in the statutory language of (a) and (b) below, "contract" means this Contract, "general contractor" means the Contractor and "awarding authority" means the DCR:

*"(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided, however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.*

*(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim."*

#### **4. Occupancy and/or Use of Project Prior to Final Acceptance.**

**A.** The Contractor agrees to the occupancy and/or use of the Project or any portion thereof before Final Acceptance of the Work by the DCR.

**B.** The DCR will cooperate with the Contractor with respect to the completion of the Work by taking such reasonable steps as may be possible to avoid interference with the Contractor's Work provided that they do not interfere with the proper functioning of the facility.

**C.** The Contractor shall not be responsible for wear and tear or damage resulting solely from temporary occupancy.

**D.** Occupancy and/or use of any part of the Work prior to Final Acceptance by the DCR shall not relieve the Contractor from maintaining the required payment and performance bonds and insurance (to the extent that insurance is required to be maintained after Substantial Completion) required by this Contract.

#### **5. Substantial Completion – Punch List.**

**A.** When the Work, or portion thereof which the DCR agrees to accept separately has reached the state of Substantial Completion as shown on an Approved payment request, the Contractor shall develop, with the participation of the DCR, the Punch List identifying those items of unfinished or unacceptable Work that remain to be performed or corrected under the Contract.

**B.** Before the Work shall be deemed completed to the point where it is ready for the issuance of Final Acceptance, the Contractor shall:

- (1) Provide Contractor's proposed Punch List containing a statement of the reason for each item listed thereon.
- (2) Advise the DCR of proposed changes in insurance in accordance with the provisions of this Contract, and provide to the DCR evidence of the Contractor's Completed Operations insurance coverage to the extent required by the Contract Documents.
- (3) Execute and submit a notarized warranty on a form provided by the DCR meeting the requirements of Article IX of these General Conditions of the Contract, to commence upon the date of the Certificate of Final Acceptance, unless otherwise provided in the Certificate of Final Acceptance.
- (4) Submit signed special warranties and warranties of longer than one year as required by the Contract Documents.
- (5) Submit signed maintenance agreements for all portions of the Work specified to receive maintenance after the issuance of the Certificate of Final Acceptance.
- (6) Submit all preliminary record Drawings to the DCR and documents and framed data in the forms required by the Contract Documents.
- (7) Complete all items required to be completed by the Department of Public Safety and obtain a Certificate of Occupancy from the Department of Public Safety and similar releases which permit the full and unrestricted use of the areas claimed to be ready for occupancy.
- (8) Deliver specified maintenance stocks of materials, required spare parts, and all special tools furnished by manufacturers to persons designated by the DCR and obtain written receipts for same.
- (9) Make final changes of lock cylinders or cores and advise the DCR of the change of project security responsibility.
- (10) Complete start-up of systems, and instruct DCR personnel on proper operation and routine maintenance of all systems and equipment.
- (11) Remove all remaining temporary facilities that are no longer needed, surplus materials, and debris; (the Contractor shall not remove construction offices and trailers without the prior Approval of the DCR).
- (12) Submit final utility meter readings and similar information and advise the DCR of the change of responsibility for utility charges and payments upon occupancy and/or use,
- (13) Complete final clean-up of all Work, restoration of damaged land and property, including finishes, and replacement of all damaged and broken glass not listed on the Contractor's Punch List.
- (14) Complete such other items as may be called for in the Special Conditions, if any, or Specifications.

C. After completing the items specified in subsection A above, the Contractor shall make a written request for the DCR's inspection for a Certificate of Final Acceptance in accordance with the Contract Documents. The DCR shall review the submittals and the Work and shall either 1) sign a Certificate of Final Acceptance or 2) notify the Contractor of incomplete and/or incorrect Work that must be completed and corrected prior to the issuance of the Certificate of Final Acceptance. The DCR shall notify the Contractor of any additions to the Punch List. In connection with the execution of the Certificate of Final Acceptance, the DCR shall assign dollar values to each item on the Punch List. Failure to include any incomplete or defective item on the Punch List shall not relieve the Contractor of the obligation to complete all Work in accordance with the Contract Documents.

## **6. Final Acceptance of the Work.**

A. Prerequisites for Final Acceptance. After the Contractor has completed all of the Work required by this Contract, including Change Orders and Punch List Items, the Contractor shall submit the following completed items to the DCR together with such additional items as may be specified in the Contract Documents:

- (1) A final request for payment showing a final accounting of all changes in the Work.
- (2) Certification and satisfactory evidence that all taxes, fees, and similar obligations have been paid.
- (3) Consent of the Surety to Final Payment executed by applicable bonding companies.
- (4) Certified copy of the Punch List stating that the Contractor has completed or corrected every item listed.
- (5) Evidence of the Contractor's continuing Completed Operations Insurance coverage to the extent required by the Contract Documents.
- (6) All final record Drawings and documents in the forms specified by the Contract Documents.
- (7) A notarized certification that all purchases made under the tax exemption certificate were legitimate and entitled to exemption.
- (8) Written certifications from the Department of Public Safety and/or the DCR, where required, to the effect that: a) the Work has been inspected for compliance with the Contract Documents and has satisfied the Department of Public Safety; b) all equipment and systems included in the Work have been tested in the presence of the DCR and are operational and satisfactory; c) the Work is completed and ready for final inspection.
- (9) Such other items as may be required by the Contract Documents.

B. Reinspection; Final Acceptance. After notification from the Contractor that all remaining contract exceptions, omissions, and incompletions have been completed (with the exception of the Contractor's continuing warranty, insurance, indemnification, and such other obligations as are intended by the terms of the Contract Documents to extend beyond the date of Final Acceptance), the DCR shall inspect the Work to verify the completion of the same. If the Work is satisfactory, the DCR shall prepare a Certificate of Final Acceptance or shall notify Contractor of items which remain to be completed prior to Final Acceptance.

## **7. One-Year Warranty Repair List and Inspection.**

Approximately 30 days prior to the expiration of the comprehensive one-year warranty period, the Contractor shall schedule an appointment with the DCR for a re-inspection of the Work with the DCR and shall thereafter inspect the Work at the time scheduled. Based on this inspection and on prior inspections, the DCR shall issue a "Warranty Repair List" of items to be corrected by the Contractor. The Contractor shall make the repairs and/or replacements listed within 30 days of the issuance of the Warranty Repair List unless otherwise agreed by the DCR in writing.

## **ARTICLE VII: CHANGES IN THE WORK**

### **1. Change Orders Generally.**

**A.** The DCR may, pursuant to the provisions of M.G.L. c. 30, sec. 39K, authorize in writing, alterations in the line, grade, plans, form, dimensions or materials of the work, or any part thereof, either before, or after the commencement of construction. If such alterations diminish or increase the quantity included to be done and paid for at a unit price, or work substituted for the work specified is of a different cost and quality, the parties shall be governed by the aforesaid provisions of Law. No changes in the Work shall be made in absence of a Change Order defined in Article I of these General Conditions of the Contract, directing the Contractor to perform such changes. A request for a change in the provisions of this Contract may be submitted to the DCR by the Contractor, Project Engineer or Resident Engineer. The request must be made in writing and in accordance with the provisions of this Contract, Laws, and the procedures of the DCR. The DCR reserves the right to increase or decrease quantities, to eliminate portions of the work or add work of similar nature, and to direct the commencement and order of prosecution of various portions of the work.

**B.** A Change Order may be issued by the DCR for changes in the Work within the scope of the Contract, including but not limited to, changes in: (1) the Plans and Specifications; (2) the method or manner of performance of the Work; (3) the DCR-furnished facilities, equipment, materials, services, or Site; (4) the schedule for performance of the Work.

**C.** The Contractor shall immediately perform any Change Order work that is ordered by the DCR.

**D.** Whenever a Change Order is issued and said Change Order will cause a change in the Contractor's cost, the Contractor or the DCR may request an equitable adjustment in the Contract Price. A request for such an adjustment shall be in writing and shall be submitted by the party making such claim to the other party before commencement of the pertinent work or as soon thereafter as possible.

**E.** The DCR and the Contractor shall negotiate in good faith an agreement on an equitable adjustment in the Contract Price, and/or time if appropriate, before commencement of the pertinent work or as soon thereafter as is possible. In the absence of an agreement for an equitable adjustment, the DCR shall unilaterally determine the costs attributable to the change and provide the Contractor with a written notice to that effect. The determination of the DCR shall be final as to all questions of the amount and value of extra work, where the Contractor does not appeal said decision pursuant to the process set forth in this paragraph. The Contractor may appeal the decision of the DCR within thirty days of receipt of said notice, to the Commissioner of the DCR or his designee. The Contractor shall have the right to such further appeal as is provided in M.G.L. c. 30, sec. 39Q set forth in Section 4.D of this Article VII. However, if the Contractor shall exercise its rights to appeal the decision of the DCR as aforesaid, the Contractor shall be required to engage in the mediation procedures set forth in Section 5 of this Article VII, should the DCR require such mediation.

**F.** During the negotiation of an equitable adjustment in the Contract Price, the Contractor shall, if requested, provide the DCR with all cost and pricing data used by him in computing the amount of the equitable adjustment, and the Contractor shall certify that the pricing data used was accurate, complete, and current. If the DCR subsequently determines that the data submitted by the Contractor was incomplete, incorrect, or not current, the DCR may exclude such data from consideration under the equitable adjustment request.

### **2. Methods of Computing Equitable Adjustments.**

**A.** Equitable adjustments in the Contract Price shall be determined according to one of the following methods, or a combination thereof, as determined by the DCR: (1) fixed price basis, provided that the fixed price shall be inclusive of items (a) through (e) below and shall be computed in accordance with those provisions; (2) estimated lump sum basis to be adjusted in accordance with Contract unit prices or other agreed upon unit prices provided that the unit prices shall be inclusive of all costs related to such equitable adjustment; (3) time and materials basis to be subsequently adjusted on the basis of actual costs (but subject to a predetermined "not to exceed limit") calculated as follows:

(a) the direct cost (or credit) for labor at the minimum wage rates established for this Contract pursuant to M.G.L. c. 149, sections 26-27H, and the direct cost for material and use of equipment.

(b) plus (or minus) the cost of Workmen's Compensation Insurance, Liability Insurance, Federal Social Security and Massachusetts Unemployment Compensation, or as an alternative the Contractor may elect to use a flat 30% of the total labor rate computed in accordance with subparagraph (a) above.

(c) plus, an allowance equal to 20% of the amount of (a) above for overhead, superintendence, and profit; (In the case of Item 1 work, which is the work of the Contractor and all his non-filed Subcontractors, said 20% allowance shall be paid to the Contractor and the Contractor and said non-filed Subcontractors shall agree upon the distribution of this amount as a matter of contract between them. In the case of Item 2 work, which is work performed by a Subcontractor filed pursuant to M.G.L. c. 149, sec. 44F, said 20% allowance shall be paid to the filed Subcontractor, it being understood that this provision does not apply to other Subcontractors including sub-Subcontractors listed under paragraph E of the form for sub-Bid).

(d) plus, for work performed by a Subcontractor filed pursuant to M.G.L. c. 149, sec. 44F, an additional allowance equal to 7% of the sum of (a) through (c) above as full compensation to the Contractor for processing forms and assuming full responsibility for the faithful performance of such work by said filed Subcontractor(s).

(e) plus (or minus) the actual direct additional premium costs and expenses incurred as a result of collective bargaining agreements or other agreements between organized labor and employers, and plus (or minus) the actual direct premium cost of payment and performance bonds required of the Contractor and filed Subcontractors for this Contract.

**B.** If the net change is an addition to the Contract Price, it shall include the Contractor's overhead, superintendence, and profit. On any change that involves a net credit, no allowance for overhead, superintendence and profits shall be included. For any change that does not include labor performed or materials installed in the Project, there will be no markup for the Contractor's overhead, superintendence, and profit, even though there may be a net increase in the Contract Price. Charges for small tools known as "tools of the trade" are not to be computed in the amount of any change in the Contract Price.

**C.** Statutory Contract adjustments made under the provisions of M.G.L. c. 149, sec. 44F shall not be considered Change Orders and shall not entitle the Contractor to any adjustments for overhead, profit, and superintendence, although the DCR may require that such Contract adjustments be processed on standard Change Order and equitable adjustment forms.

### **3. Work Performed Under Protest.**

The Contractor agrees to perform all Work as directed by the DCR, and if the Project Engineer determines that certain Work that the Contractor believes to be or to warrant a Change Order under this Article does not represent a change in the Work, the Contractor shall perform said Work. The Contractor shall be deemed to have concurred with the Project Engineer's determination as aforesaid unless the Contractor shall perform Work under protest in compliance with the following sub-paragraphs (1) and (2) below:

(1) If the Contractor claims compensation for a change in the Work that is not deemed by the Project Engineer to be a change or to warrant additional compensation as claimed by the Contractor, the Contractor shall within one week after the commencement of any such work or the sustaining of any such damage submit to the Resident Engineer a written statement of the nature of such work or claim. The Contractor shall not be entitled to additional compensation for any work performed or damage sustained for which written notice is not given within the time limit specified in the preceding sentence, even though similar in character to work or damage with respect to which notice is timely given.

(2) On or before the fifteenth day of the month succeeding that in which any such extra work shall have been done or any such damage shall have been sustained, the Contractor shall file to the extent possible with the Resident Engineer, itemized statements of the details and costs of such work performed, or damage sustained. If the Contractor shall fail to make such statement to the extent possible, then the Contractor shall not be entitled to additional compensation for any such work or damages.

#### **4. False Claims. Statutory Provisions Regarding Changes.**

**A. Criminal Penalties:** The Contractor's attention is directed to M.G.L. c. 30, sec. 39I which provides criminal penalties for unauthorized deviations from the Plans and Specifications, and to M.G.L. c. 30, sec. 39J, and if performing work on a capital facility project, M.G.L. c. 7, sec. 42E-42I. The Contractor's attention is also directed to M.G.L. c. 266, sec. 67B which provides criminal penalties for false claims by Contractor under this Contract: *"Whoever makes or presents to any employee, department, agency or public instrumentality of the commonwealth, or of any political subdivision thereof, any claim upon or against any department, agency, or public instrumentality of the commonwealth, or any political subdivision thereof, knowing such claim to be false, fictitious, or fraudulent, shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not more than five years, or in the house of correction for not more than two and one-half years, or both."*

**B. Differing Site Conditions (M.G.L. c. 30, sec. 39N):** *"If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing Site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."*

**C. Timely Decision by Awarding Authority. (M.G.L. c. 30, sec. 39P):** *"Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made."*

**D. Change Order / Contract Interpretation Appeal Procedure (M.G.L. c. 30, sec. 39Q):** The following provisions apply to every contract awarded by any state agency as defined by M.G.L. c. 7, sec. 39A for the construction, reconstruction, alteration, remodeling, repair, or demolition of any capital facility as defined by the aforesaid section 39A:

*"(a) Disputes regarding changes in and interpretations of the terms or scope of the contract and denials of or failures to act upon claims for payment for extra work or materials shall be resolved according to the following procedures, which shall constitute the exclusive method for resolving such disputes. Written notice of the matter in dispute shall be submitted promptly by the claimant to the chief executive official of the state agency which awarded the contract or his designee. No person or business entity having a contract with a state agency shall delay, suspend, or curtail performance under that contract as a result of any dispute subject to this section. Any disputed order, decision or action by the agency or its authorized representative shall be fully performed or complied with pending resolution of the dispute.*

*"(b) Within thirty days of submission of the dispute to the chief executive official of the state agency or his designee, he shall issue a written decision stating the reasons therefore, and shall notify the parties of their right of appeal under this section. If the official or his designee is unable to issue a decision within thirty days, he shall notify the parties to the dispute in writing of the reasons why a decision cannot be issued within thirty days and of the date by which the decision shall issue. Failure to issue a decision within the thirty-day period or within the additional time period specified in such written notice shall be deemed to constitute a denial of the claim and shall authorize resort to the appeal procedure described below. The decision of the chief executive official or his/her designee shall be final and conclusive unless an appeal is taken as provided below.*

*"(c) Within twenty-one calendar days of the receipt of a written decision or of the failure to issue a decision as stated in the preceding subparagraph, any aggrieved party may file a notice of claim for an adjudicatory hearing with the division of hearing officers or the aggrieved party may file an action directly in a court of competent jurisdiction and shall serve copies thereof upon all other parties in the form and manner prescribed by the rules governing the conduct of adjudicatory proceedings of the division of hearing officers. In the event an aggrieved party exercises his option to file an action directly in court as provided in the previous sentence, the twenty-one-day period shall not apply to such filing and the period of filing such action shall be the same period otherwise applicable for filing a civil action in superior court. The appeal shall be referred to a hearing officer experienced in construction law and shall be prosecuted in accordance with the formal rules of procedure for the conduct of adjudicatory hearings of the division of hearing officers, except as provided below. The hearing officer shall issue a final decision as expeditiously as possible, but in no event more than one hundred and twenty calendar days after conclusion of the adjudicatory hearing, unless the decision is delayed by a request for extension of time for filing post-hearing briefs or other submissions assented to by all parties. Whenever, because an extension of time has been granted, the hearing officer is unable to issue a decision within one hundred and twenty days, he shall notify all parties of the reasons for the delay and the date when the decision will issue. Failure to issue a decision within the one-hundred-and-twenty-day period or within the additional period specified in such written notice shall give the petitioner the right to pursue any legal remedies available to him without further delay.*

*"(d) When the amount in dispute is less than ten thousand dollars, a contractor who is party to the dispute may elect to submit the appeal to a hearing officer experienced in construction law for expedited hearing in accordance with the informal rules of practice and procedure of the division of hearing officers. An expedited hearing under this subparagraph shall be available at the sole option of the contractor. The hearing officer shall issue a decision no later than sixty days following the conclusion of any hearing conducted pursuant to this subparagraph. The hearing officer's decision shall be final and conclusive and shall not be set aside except in cases of fraud."*

## **5. Mediation.**

In the case of every dispute where the dollar amount in dispute (or the estimated dollar value of the extension of time in dispute) is \$50,000 or more and the Contractor appeals the decision of the DCR or his designee described in Section 4.B above, the DCR shall retain the option at its sole discretion of initiating a process whereby the DCR and the Contractor shall engage in good faith in a non-binding mediation process, which process shall be concluded within sixty days from the date that the Contractor files an appeal from said decision as provided in Section 4.B above.

## **ARTICLE VIII: PAYMENT PROVISIONS**

### **1. Schedule of Values.**

Before the first application for payment the Contractor shall submit to the DCR a schedule of values allocated to various portions of the Work in sufficient detail to reflect the various major components of each trade (with filed Subcontractors as well as MBE/WBE noted), including quantities when requested, aggregating the total Contract Price, and divided so as to facilitate payments for work under each section of the Specifications. The schedule shall be prepared in such form and supported by such data to substantiate its accuracy as the DCR may require. Each item in the schedule shall include its proper share of overhead and profit. When approved by the DCR, it shall constitute the Schedule of Values and shall be used only as a basis for the Contractor's requests for payments.

### **2. Payment Liabilities of Contractor.**

**A.** The Contractor shall pay to the DCR all expenses, losses, and damages, as determined by the DCR, incurred in consequence of any default, defect, omission or mistake of the Contractor or his/her employees or Subcontractors or the making good thereof.

**B.** If the Work (or a portion thereof) is not completed to Substantial Completion and the Contractor has not fully completed the Work by the date specified in Article 2 of the Department of Conservation and Recreation - Contractor Agreement, the Contractor shall pay to the DCR liquidated damages as provided in Article VI, Section 2 of these General Conditions of the Contract.

### **3. Retention of Moneys by the DCR.**

**A.** The DCR may keep any moneys which would otherwise be payable at any time hereunder, and apply the same, or so much as may be necessary therefor, to (1) the DCR's expenditures for the Contractor's account, (2) to secure the DCR's remedies against the Contractor for the Contractor's breach of its obligations under this Contract or the breach of any person performing any part of the Work and (3) the payment of any expenses, losses or damages incurred by the DCR as a result of the failure of the Contractor to perform its obligations hereunder. The DCR may retain, until all claims are settled, such moneys as the DCR estimates to be the fair value of the DCR's claims against the Contractor, and of all claims for labor performed or furnished and for materials used or employed in or in connection with the Work and for the rental of vehicles, appliances and equipment employed and for the employment of substitute contractors and labor in connection with the Work, in accordance with M.G.L. c. 30, sections 39A and 39F. The DCR may make such settlements and apply thereto any moneys retained under this Contract.

**B.** The Contractor shall each week examine all claims so filed, and if the same are in any respect incorrect or do not correctly show the amount due from the Contractor to the claimant for such labor and materials, the Contractor shall forthwith file with the DCR a separate written statement of all inaccuracies in each claim and of the correct amount due from the Contractor to each claimant therefor, and shall immediately file a statement of all payments thereafter made to such claimants. Each such statement shall be sworn to and contain a detailed breakdown as required by M.G.L. c. 30 s. 39F(d). Unless such statements are so filed by the Contractor the amount shown by the claims filed shall at the option of the DCR be conclusively deemed to be the accurate amount due from the Contractor therefor in all accounting with the DCR. If the moneys retained under this Contract are insufficient to pay the sums found by the DCR to be due under the claims for labor and materials filed as aforesaid, the DCR may, at its discretion, pay the same, and the Contractor shall repay to the DCR all sums paid out. The DCR may also at its discretion use any moneys retained, due or to become due under this Contract, for the purpose of paying for both labor and materials used or employed in the Work for which claims have not been filed with the DCR.

**C.** No moneys retained under the provisions of this Article shall be held to be statutory security for the payment of claims filed in accordance with the provisions of M.G.L. c. 149, sec. 29, as amended, for which security is provided by bond.

### **4. Applications for Payment.**

**A.** The Contractor shall, once in each month on the day of the month corresponding to the day of the month specified in the Notice to Proceed referenced in Article 2 of the Department of Conservation and Recreation - Contractor Agreement, in writing and in the manner prescribed by the DCR, submit to the Resident Engineer a statement showing the total amount of Work done to the time of such estimate and the value thereof as approved by the Resident Engineer and the Project Engineer. It shall be the sole responsibility of the Contractor to deliver or cause to be delivered to the Resident Engineer said periodic estimate in proper form, approved as provided above and arithmetically correct. All periodic estimates shall contain such certifications and other evidence supporting the Contractor's right to payment as the DCR may require, including without limitation, lien waivers and other evidence, on such forms as the DCR may require, establishing that title to the equipment or materials is unencumbered and has been transferred to the Department of Conservation and Recreation. If there is no Resident Engineer assigned to the Contract, the DCR shall designate a person at the project field office or alternatively the home office of the DCR. The Contractor shall include in such periodic estimate only such materials as are incorporated in the Work, except as provided in paragraph C below. The DCR shall retain no more than five percent of such estimated value as part security for the completion of the Work and shall pay to the Contractor while carrying on the Work the balance not retained as aforesaid, subject to the approval of the DCR after deducting therefrom all previous payments and all sums to be kept under the provisions of this Contract.

**B.** Each periodic estimate shall constitute the Contractor's representation that (1) the payment then requested to be disbursed has been incurred by the Contractor on account of the Work and is justly due to Subcontractors or, to the Contractor in the case of other Work performed by the Contractor on account thereof, (2) the materials, supplies and equipment for which Application for Payment is being submitted have been installed or incorporated into the Work or have been stored at the Site or at such off Site storage locations as the DCR shall have Approved, (3) the materials, supplies and equipment are insured in accordance with the provisions of this Contract, (4) the materials, supplies and equipment are owned by the Department of Conservation and Recreation and are not subject to any liens or encumbrances, (5) the Work which is the subject of such periodic estimate has been performed in accordance with the Contract Documents and (6) that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of such periodic estimate. The Contractor's attention is directed to the criminal penalties for false claims referenced in paragraph A above.



C. The Contractor may include in a periodic estimate the value of materials or equipment delivered at the Site (or at some location agreed to in writing) only upon delivery to the DCR of: (1) an acceptable transfer of title on the form provided by the DCR; (2) written certification by the Contractor (or applicable subcontractor) on the form provided by the DCR that the Contractor (or the Subcontractor which executed the transfer of title) is the lawful owner and that the materials or equipment are free from all encumbrances, accompanied by receipted invoices or other acceptable proof of encumbrance-free ownership if such proof is deemed necessary by the DCR; (3) a stored materials insurance binder that covers the materials for which payment is requested, that names the Department of Conservation and Recreation as an insured party should the stored materials be subjected to any casualty, loss, or theft prior to their inclusion in the Work. The material(s) or equipment must, in the judgment of the DCR (1) meet the requirements of the Contract, including prior drawing, product data, and sample approval, (2) be ready for use, and (3) be properly stored by the Contractor and be adequately protected until incorporated into the Work. See also Article V.5.C of these General Conditions of the Contract concerning the cost of inspections.

D. The DCR may make changes in any periodic estimate submitted by the Contractor in accordance with M.G.L. c. 30, sec. 39K for building projects (see below), and in accordance with M.G.L. c. 30, sec. 39G for public works projects (see below), and the payment due shall be computed in accordance with the changes so made. The provisions of said section 39K shall govern payments for building projects on which the DCR has made changes, and the provisions of said section 39G shall govern payments for public works projects on which the DCR has made changes.

E. No certificate for payment and no progress payment shall constitute acceptance of Work that is not in accordance with the Contract Documents.

F. The Contractor and all Subcontractors furnishing labor on this Contract agree to furnish certified payroll reports if requested to do so, at no additional expense to the DCR. The DCR may at all reasonable times audit such reports.

#### **5. Periodic Payments (M.G. L. c. 30, sec. 39K) for Building Projects.**

For building contracts, the DCR shall make payment to the Contractor in accordance with M.G.L. c. 30, sec. 39K, which provides as follows:

*" Within fifteen days (30 days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority upon certification by the contractor that he is the lawful awarding authority and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the Contract less (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days (twenty-four days in the case of the commonwealth) after receipt of such period estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.*

*The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the change so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair, or demolition of any public building to which this section applies.*

*All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed sub-trade and each sub-sub-trade listed in sub-bid form as required by specifications and column listing the amount paid to each filed subcontractor as of the date of the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date of receipt marked on the estimate.*

*A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.*

*Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149."*

## **6. Payment of Subcontractors (M.G.L. c. 30, sec. 39F).**

The Contractor shall make payments to Subcontractors in accordance with the provisions of M.G.L. c. 30, sec. 39F, which is quoted in this section below, where applicable. (M.G.L. c. 30, sec. 39F requires that subparagraphs (a) through (h) be set forth in contracts awarded under M.G.L. c. 30, sec. 39M and M.G.L. c. 149, sections 44A-44H; said statute requires that subparagraph (i) be set forth in contracts awarded under M.G.L. c. 149, sections 44A-44H).

*"1(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general Contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.*

*(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the Plans and Specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.*

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (1) and (2) the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deduction from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (5) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demand for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (6) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the General contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a General contractor amounts which, together with the deposits in interest bearing accounts pursuant to subparagraph (6) are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

*(i) If the subcontractor does not receive payment as provided in subparagraph (1) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (1), the subcontractor may demand direct payment by following the procedure in subparagraph (4) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).*

*(2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority, or which are on deposit pursuant to subparagraph (6) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.*

*(3) "subcontractor" as used in this section (l) for contracts awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and received a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (1) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars.*

*(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposit as provided in subparagraph (6) by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (6) by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general Contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (5) and in subparagraph (6).*

*(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (5) and in subparagraph (6) any amount held under a trustee writ or pursuant to a restraining order or injunction."*

## **7. Contracts for Public Works Governed by M.G.L. c. 30, sec. 39G:**

The following statutory provision applies only to contracts for public works governed by M.G.L. c. 30, sec. 39G: *"Upon substantial completion of the work required by a Contract with the Owner, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges, and other highway structures, sewers and water mains, airports and other public works, the contractor shall present in writing to the awarding authority its certification that the work has been substantially completed. Within twenty-one days thereafter, the awarding authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the Contract sufficient to demonstrate that the work has not been substantially completed. The awarding authority may include with such a list a notice setting forth a reasonable time, which shall not in any event be prior to the Contract completion date, within which the contractor must achieve substantial completion of the work. In the event that the awarding authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the contractor's certification within the twenty-one-day period, the contractor's certification shall take effect as the awarding authority's declaration that the work has been substantially completed.*

*Within sixty-five days after the effective date of a declaration of a substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one percent retainage of that undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payments filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section thirty-nine F, but no Contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the Contract by subcontractors, material suppliers or others.*

*If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by this section on or before the date herein above set forth, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such substantial completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the awarding authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefor, whichever occurs first. The awarding authority shall include the amount of such interest in the substantial completion estimate.*

*Within fifteen days after the effective date of the declaration of substantial completion, the awarding authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond his control, the contractor shall complete all such work items within forty-five days after the receipt of such list or before the then Contract completion date, whichever is later. If the contractor fails to complete such work within such time, the awarding authority may, subsequent to seven days' written notice to the contractor by certified mail, return receipt requested, terminate the Contract, and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.*

*Within thirty days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the Contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage on that work less all payments made to date, unless the awarding authority's inspection shows that work items required by the Contract remain incomplete or unsatisfactory, or that documentation required by the Contract has not been completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefore, whichever occurs first, provided that the awarding authority's inspection shows that no work items required by the Contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.*

*The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth day to the date of payment. Within 15 days, 30 days in the case of the commonwealth, after receipt from the contractor, at the place designated by the awarding authority, if such place is designated, of a periodic estimate requesting payment of the amount due for the preceding periodic estimate period, the awarding authority shall make a periodic payment to the contractor for the work performed during the preceding periodic estimate period and for the materials not incorporated in the work but delivered and suitably stored at the Site, or at some location agreed upon in writing, to which the contractor has title or to which a subcontractor has title and authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances. The awarding authority shall include with each such payment interest on the amount due pursuant to such periodic estimate at the rate herein above provided from the due date. In the case of periodic payments, the contracting authority may deduct from its payment a retention based on the estimate of the fair value of its claims against the contractor, a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and a retention to secure satisfactory performance of the contractual work not exceeding five per cent of the approved amount of any periodic payment, and the same right to retention shall apply to bonded subcontractors entitled to direct payment under section thirty-nine F of chapter thirty; provided that a five per cent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.*

*No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a contractor from reserving all rights to dispute the quantity and amount of, or the failure of the awarding authority to approve a quantity and amount of, all or part of any work item or extra work item.*

*Substantial completion, for the purposes of this section, shall mean either that the work required by the Contract has been completed except for work having a Contract Price of less than one percent of the then adjusted total Contract Price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract”*

#### **8. Liens**

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, delivers to the DCR a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he/she has knowledge or information, the releases and receipts include all labor and material for which a lien could be filed; but the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the DCR, to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the DCR, all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

#### **9. Final Payment: Release of Claims by Contractor.**

Upon Final Acceptance of the Work the Contractor shall be entitled to payment of the balance of the Contract Price. Final payment shall be as provided in this Article above and in accordance with any process set forth in the Special Conditions. The Contractor agrees to execute a Certificate of Final Inspection, Release (with Contractor's own exceptions listed thereon) and Acceptance as a condition precedent to Final Payment. The acceptance by the Contractor of the Final Payment made as aforesaid, or the execution of the Certificate of Final Acceptance by the Contractor, shall constitute a release of the Department of Conservation and Recreation, and every member and agent of it, from all claims of and liability to the Contractor for anything done or furnished for or relating to the Work, or for any act or neglect of the Department of Conservation and Recreation, or of any person relating to or affecting the Work, except the claim against the Department of Conservation and Recreation for the remainder, if any there be, of the amounts set forth by the Contractor in the Certificate of Final Inspection, Release and Acceptance. Final Acceptance shall not relieve the Contractor of the requirements of Articles IX, XIV, and XV of these General Conditions of the Contract, or of other provisions of this Contract, to the extent that the same are intended to survive Final Acceptance.

## ARTICLE IX. GUARANTEES AND WARRANTIES

### **1. General Warranty.**

If at any time during the period of one (1) year from the date of Final Acceptance, any part of such Work shall in the reasonable opinion of the DCR be defective or require replacing or repairing, or damage to other property of the DCR is caused by any defect in the Work, the DCR shall notify the Contractor in writing to make the required repairs or replacements and repair such damage. If the Contractor shall neglect to commence such repairs or replacements to the satisfaction of the DCR within ten (10) days from the date of the giving of such notice, then the DCR may employ other persons to make the same. The Contractor agrees, upon demand, to pay to the DCR all amounts which it expends for such repairs, replacements, and/or damages. During this one-year guarantee period any corrective work shall be performed under all the applicable terms of this Contract, and if Change Orders are issued in accordance with the terms of this Contract, the Contractor shall be entitled to compensation for special insurance, as required. This one-year guarantee shall not limit any express guaranty or warranty provided elsewhere in the Contract.

### **2. Special Guarantees and Warrantees.**

**A.** The Contractor's obligation to correct Work as set forth in paragraph 1 above is in addition to, and not in substitution of, such guarantees or warranties as may be required in the various sections of the Specifications.

**B.** Guarantees and warranties required in the various sections of the Specifications must be delivered to the DCR before final payment to the Contractor may be made, or in the case of guarantees and warranties which originate with a subcontractor's section of the Work, before final payment for the amount of that sub-trade or for the phase of Work to which the guarantee or warranty relates.

**C.** The failure to deliver a required guarantee or warranty shall constitute a failure to fully complete the Work in accordance with the Contract Documents.

## ARTICLE X: MISCELLANEOUS LEGAL REQUIREMENTS.

### **1. Contractor to be Informed.**

The Contractor shall inform itself of all existing and future Laws in any manner affecting those engaged or employed in the Work, or the materials used or employed in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any applicable jurisdiction or authority over the Work.

### **2. Compliance with all Laws.**

The Contractor shall cause all persons employed in the performance of the Work to comply with all existing and future Laws, including but not limited to those set forth below:

**A. Corporate Disclosures.** The Contractor if a foreign corporation, shall comply with M.G.L. c. 30, sec. 39L.

**B. Veterans Preference.** In the employment of mechanics and apprentices, teamsters, chauffeurs, and laborers in the performance of Work in the Commonwealth, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment and who are veterans as defined M.G.L. c. 4, sec. 7(43), and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States.

**C. Prevailing Wages.** The Contractor shall comply with M.G.L. c. 149, sections 26- 27H. The prevailing wage schedule is found in Exhibit A to the Instructions to Bidders, listing the prevailing minimum wage rates that must be paid to all workers employed in the Work. The DCR is not responsible for any errors, omissions, or misprints in said schedule. Such Schedule shall continue to be the minimum rate of wages payable to workers employed in the Work throughout the term of this Contract, subject to the exceptions provided in M.G.L. c. 149, sections 26-27H. The Contractor shall not have any claim for extra compensation from the Department of Conservation and Recreation if the actual wages paid to workers employed in the Work exceeds the rates listed on the schedule or as otherwise provided by law. The Contractor shall cause a copy of said Schedule to be kept in a conspicuous place at the Site during the term of the Contract. If reserve police officers are employed by the Contractor, they shall be paid the prevailing wage of regular police officers. (See M.G.L. c.149, sec. 34B).

**D. Payroll Records and Statement of Compliance.** The Contractor shall comply and shall cause its Subcontractors to comply with Massachusetts General Law c. 149, sec. 27B, which requires that a true and accurate record be kept of all persons employed on a project for which the prevailing wage rates have been provided. The Contractor and all Subcontractors shall keep these records and preserve them for a period of three years from the date of completion of the Contract. Such records shall be open to inspection by any authorized representative of the Department of Conservation and Recreation at any reasonable time, and as often as may be necessary. The Contractor shall, and shall cause its subcontractors to, submit weekly copies of their weekly payroll records to the DCR. In addition, the Contractor and each Subcontractor shall furnish to the Executive Department of Labor within fifteen days after completion of its portion of the Work a signed statement in the form required by the DCR.

**E. Vehicle operators.** If the Director of the Department of Labor and Workforce Development has established a Schedule of wage rates to be paid to the operators of trucks, vehicles or equipment for the Work, the Contractor shall be obligated to pay such operators at least the minimum wage rate contained on such Schedule. (See M.G.L. c.149, sections 26-27H).

**F. Eight Hour Day.** The Contractor shall comply with M.G.L. c. 149, sections 30 and 34, which provide that no laborer, workman, mechanic, foreman or inspector working within the Commonwealth in the employ of the Contractor, subcontractor or other person doing or contracting to do the whole or part of the Work shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of extraordinary emergency.

**G. Timely Payment of Wages.** The Contractor shall comply with and shall cause its Subcontractors to comply with M.G.L. c. 149, sec. 148 which requires the weekly or biweekly payment of employees within six days of the end of the pay period during which wages were earned if employed for five or six days of a calendar week, and within other periods of time under certain circumstances as set forth therein.

**H. Lodging, etc.** The Contractor shall comply with, and shall cause its Subcontractors to comply with, M.G.L. c. 149, sec. 25 which provides that every employee under this Contract shall lodge, board, and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board, or trade at a particular place or with a particular person.

**I. Truck Rates.** The use by the Contractor of trucks or other motor vehicles hired from either common or contract motor carriers in the course of performance of this Contract is subject to such minimum rates and charges, and rules and regulations as may from time to time be promulgated by the Department of Public Utilities of the Commonwealth of Massachusetts or other agency of the State or Federal government which may be authorized by law to set rates or otherwise regulate the use of such vehicles. The Contractor expressly assumes the risk of any additional expense that may arise by reason of any change in such minimum rates and charges, and rules and regulations, and shall be entitled to no additional compensation or reimbursement by reason thereof.

**J. Anti-Boycott Covenant (Executive Order #130).** The Contractor warrants, represents and agrees that during the time this Contract is in effect, neither it nor any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b) (3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by M.G.L. c. 151E, sec. 2. If there shall be a breach in the warranty, representation or agreement contained in this paragraph, then without limiting such other rights as it may have the DCR shall be entitled to rescind this contract. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the Contractor or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the Contractor; or which directly or indirectly owns at least 51% of the ownership interests of the Contractor.



**K. Contractor's Agreements with Suppliers--Anti-Boycott and Anti-Discrimination Provisions.**

(1) The Contractor shall not purchase or rent any materials, equipment, machinery, vehicles or supplies for or in connection with the Work from any person or entity who does not sign, under pains and penalties of perjury, a certificate that recites: "the undersigned warrants, represents and agrees that during the time its agreement with (insert contractor's name) is in effect for materials, supplies or equipment to be used in connection with the Department of Conservation and Recreation Contract No. (insert contract number), neither the undersigned or any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the undersigned or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the undersigned; or which directly or indirectly owns at least 51% of the ownership interests of the undersigned."

(2) The DCR shall not be obligated to pay the Contractor for the cost of any materials, supplies, or equipment purchased or rented from any individual or entity from whom the Contractor has not previously obtained and delivered to the DCR the certificate that the previous paragraph requires. The Contractor will immediately terminate its contract with any supplier who breaches the warranty, representation and agreement contained in the previous paragraph.

(3) The Contractor shall include in the Contractor's agreement with any person or entity from whom the Contractor intends to purchase or rent any materials, equipment, machinery, vehicles or supplies for or in connection with the Work, (a) a notice that this Contract obligates the Contractor to terminate the supply contract upon discovery of such breach of the sworn certificate delivered under subparagraph (1) and such termination shall be without liability to the Contractor or the DCR and (b) a provision which states: "The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of the undersigned vendor which pertain to the performance and requirements of this agreement to provide materials of any nature to the undersigned contractor in connection with DCR Contract No. (insert contract number)."

**L. Access to Contractor's Records (Executive Order #195).** The Governor or his/her designee, the secretary of administration and finance, and the state auditor or his/her designee shall have the right at reasonable times and upon reasonable notice to examine the books, records, and other compilations of data of the Contractor which pertain to the performance and requirements of this Contract.

**ARTICLE XI: CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS (M.G.L. c. 30, sec. 39R)**

**1. Definitions.**

The words defined herein shall have the meaning stated below whenever they appear in this Article XI:

--"Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a Contract pursuant to M.G.L. c. 30, sec. 39M, and M.G.L. c. 149, sections 44A-H.

--"Contract" means any Contract awarded or executed pursuant to M.G.L. c. 30, sec. 39M, M.G.L. c. 149, sections 44A-H.

--"Independent Certified Public Account" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

--"Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

--"Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

## **2. Record Keeping.**

**A.** The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.

**B.** Until the expiration of six years after final payment, the Inspector General and the DCR shall have the right to examine any books, documents, papers or records of the Contractor and Subcontractors that directly pertain to, and involve transactions relating to the Contractor and Subcontractors.

**C.** The Contractor shall describe any change in the method of maintaining records or recording transactions which materially affects any statements filed with the DCR including the date of the change and reasons therefor and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.

**D.** The Contractor represents that it has, prior to the execution of the Contract, filed a statement of management on internal accounting controls as set forth in Section 3 below.

**E.** The Contractor represents that it has, prior to the execution of the Contract, filed an audited financial statement for the most recent completed fiscal year as set forth in section 4 below and will continue to file such statement annually during the term of the Contract.

## **3. Statement of Management Controls.**

**A.** The Contractor shall file with the DCR a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:

(1) transactions are executed in accordance with management's general and specific authorization.

(2) transactions are recorded as necessary: (a) to permit preparation of financial statements in conformity with generally accepted accounting principles, and (b) to maintain accountability for assets.

(3) access to assets is permitted only in accordance with management's general or specific authorization; and

(4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

**B.** The Contractor shall file with the DCR a statement prepared and signed by an independent certified public accountant, stating that the accountant has examined the statement of management on internal accounting controls, and expressing an opinion as to:

(1) whether the representations of management in response to subparagraph 3 above are consistent with the results of management's evaluation of the system of internal accounting controls; and

(2) whether such representations of management are reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statement.

## **4. Annual Financial Statement.**

**A.** Every Contractor awarded a contract under M.G.L. c. 30, sec. 39M or M.G.L. c. 149, sections 44A-44H shall annually file with the Commissioner of the Division of Capital Asset Management and Maintenance during the term of the Contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the DCR upon request.

**B.** The office of Inspector General and the DCR shall have the right to enforce the provisions of this Article. A Contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to M.G.L. c. 149, sec. 44C.

## **5. Bid Pricing Materials.**

The Contractor shall save the written calculations, pricing information, and other data that the Contractor used to calculate the bid that induced the DCR to enter into this Contract (the "Bid Pricing Materials") for at least six years after the DCR makes final payment under this Contract.

## **ARTICLE XII: EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION, AND AFFIRMATIVE ACTION PROGRAM.**

This Contract includes the provisions of the DCR's "Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program," attached as Appendix A to these General Conditions of the Contract and incorporated herein by reference.

## **ARTICLE XIII: GOALS FOR PARTICIPATION BY MINORITY BUSINESS ENTERPRISES AND WOMEN BUSINESS ENTERPRISES**

This Contract includes the provisions of the DCR's "Goals for Participation by Minority Business Enterprises and Women Business Enterprises (Executive Order 390), attached as Appendix B to these General Conditions, and as set forth in Section 8 of the Instructions to Bidders, and incorporates same herein by reference.

## **ARTICLE XIV: INSURANCE REQUIREMENTS**

The Contractor shall carry insurance, in the amounts and types specified in Section 7 of the Instructions for Bidders for this Contract and shall comply with all provisions relating to insurance set forth in said Section 7.

## **ARTICLE XV: INDEMNIFICATION**

### **1. Generally.**

To the fullest extent permitted by law, the Contractor shall indemnify, defend (with counsel subject to the supervision of the Attorney General of the Commonwealth of Massachusetts as required by M.G.L. c. 12, sec. 3) and hold harmless the Commonwealth of Massachusetts, its Department of Conservation and Recreation, and its officers, agents, divisions, employees, representatives, successors and assigns from and against all claims, damages, losses and expenses, including but not limited to court costs and attorneys' fees, arising out of or resulting from the performance of the Work, including but not limited to those arising or resulting from:

- labor performed or furnished and/or materials used or employed in the performance of the Work.
- violations by the Contractor, any subcontractor, or by any person directly or indirectly employed or used by any of them in the performance of the Work or anyone for whose acts any of them may be liable (Contractor, subcontractor and all such persons herein collectively called "Contractor's Personnel") of any Laws.
- violations of any provision of this Contract by any of Contractor's Personnel.
- injuries to any persons or damage to any property in connection with the Work.
- any act, omission, or neglect of Contractor's Personnel.

The Contractor shall be obligated as provided above, regardless of whether or not such claims, damages, losses and/or expenses are caused in whole or in part by the actions or inactions of a party indemnified hereunder. In any and all claims by Contractor's Personnel against parties indemnified hereunder, the Contractor's indemnification obligation set forth above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Article XV.

### **2. DCR's Actions.**

The obligations of the Contractor under Section 1 above shall not extend to the liability of the DCR, its agents or employees, arising out of (i) the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications by the DCR, or (ii) the giving of or the failure to give directions or instructions by the DCR, its agents or employees provided such giving or failure to give is the primary cause of the injury or damage.

### **3. Survival.**

The provisions of this Article XV are intended to survive Final Acceptance and/or any termination of this Contract.

## **ARTICLE XVI: PERFORMANCE AND PAYMENT BONDS**

### **1. Contractor Bonds.**

**A.** The Contractor shall provide performance and payment (labor and materials) bonds in the form provided by the DCR, executed by a surety licensed by the Commonwealth of Massachusetts Division of Insurance. Each such bond shall be in the amount of the Contract Price.

**B.** If at any time prior to final payment to the Contractor, the Surety:

- is adjudged bankrupt or has made a general assignment for the benefit of its creditors.
- has liquidated all assets and/or has made a general assignment for the benefit of its creditors.
- is placed in receivership.
- otherwise petitions a state or federal court for protection from its creditors; or
- allows its license to do business in Massachusetts to lapse or be revoked.

then the Contractor shall, within 21 days of any such action listed above, provide the DCR with new performance and payment bonds as described in Paragraph A above. Such bonds shall be provided solely at the Contractor's expense.

### **2. Subcontractor Bonds.**

The Contractor is responsible for the costs of the payment and performance bonds of the sub-contractors for the full amount of their respective Subcontracts.

## **ARTICLE XVII: TERMINATION OF CONTRACT**

### **1. Termination for Cause.**

**A.** The DCR may without prejudice to any other right or remedy deem this Contract terminated for cause if any of the following defaults shall occur and not be cured within five days (5) days after the giving of notice thereof by the DCR to the Contractor and any surety that has given bonds in connection with this Contract:

- (1) The Contractor has filed a petition, or a petition has been filed against the Contractor with its consent, under any federal or state law concerning bankruptcy, reorganization, insolvency or relief from creditors, or if such a petition is filed against the Contractor without its consent and is not dismissed within sixty (60) days; or if the Contractor is generally not paying its debts as they become due; or if the Contractor becomes insolvent; or if the Contractor consents to the appointment of a receiver, trustee, liquidate, custodian or the like of the Contractor or of all or any substantial portion of its assets and such appointment or possession is not terminated within sixty (60) days; or if the Contractor makes an assignment for the benefit of creditors;
- (2) The Contractor refuses or fails, except in cases for which extension of time is provided under this Contract's express terms, to supply enough properly skilled workers or proper materials to perform its obligations under this Contract, or the DCR has determined that the rate of progress required for the timely completion of the Work is not being met.
- (3) The Contractor fails to make prompt payment to Subcontractors or for materials, equipment, or labor.
- (4) All or a part of the Work has been abandoned.
- (5) The Contractor has sublet or assigned all or any portion of the Work, the Contract, or claims thereunder, without the prior written consent of the Department of Conservation and Recreation, except as expressly permitted in this Contract.
- (6) The Contractor has failed to comply with Laws.
- (7) The Contractor fails to maintain, or provide to the DCR evidence of the insurance or bonds required by this Contract, or
- (8) The Contractor has failed to prosecute the Work or any portion thereof to the standards required under this Contract or has otherwise breached any material provision of this Contract.

**B.** The DCR shall give the Contractor and any surety notice of such termination for cause, but the giving of notice of such termination shall not be a condition precedent or subsequent to the termination's effectiveness. In the event of such termination, and without limiting any other available remedies, the DCR may, at its option:

- (1) hold the Contractor and its sureties liable in damages for a breach of Contract.
- (2) notify the Contractor to discontinue all work, or any part thereof, and the Contractor shall discontinue all work, or any part thereof, as the Department of Conservation and Recreation may designate.
- (3) complete the Work, or any part thereof, and charge the expense of completing the Work or part thereof, to the Contractor.

(4) require the surety or sureties to complete the Work and perform all of the Contractor's obligations under this Contract.

If the DCR elects to complete all or any portion of the Work as specified in (3) above, it may take possession of all materials, equipment, tools, machinery, implements owned by the Contractor at or near the Site and finish the Work at the Contractor's expense by whatever means the DCR may deem expedient; and the Contractor shall cooperate at its expense in the orderly transfer of the same to a new contractor or to the DCR as directed by the DCR. In such case the DCR shall not make any further payments to the Contractor until the Work is completely finished. The Department of Conservation and Recreation shall not be liable for any depreciation, loss, or damage to said materials, machinery, implements or tools during said use and the Contractor shall be solely responsible for their removal from the Site after the Department of Conservation and Recreation has no further use for them. Unless so removed within fifteen days after notice to the Contractor to do so, they may be sold at public auction, after publication of notice thereof at least twice in any newspaper published in the county where the Work is being performed, and the proceeds credited to the Contractor's account; or they may, at the option of the DCR, be stored at the Contractor's expense subject to a lien for the storage charges.

**C.** Damages and expenses incurred under paragraph B above shall include, but not be limited to, costs for the DCR's extra services and Project representative services required, in the opinion of the DCR, to successfully inspect and administer the construction contract through final completion of the Work.

**D.** Expenses charged under paragraph B above may be deducted and paid by the DCR out of any moneys then due or to become due the Contractor under this Contract.

**E.** All sums, damages, and expenses incurred by the Department of Conservation and Recreation to complete the Work shall be charged to the Contractor. In case the damages and expenses charged are less than the sum that would have been payable under this Contract if the same had been completed by the Contractor, the Contractor shall be entitled to receive the difference. In case such expenses shall exceed the said sum, the Contractor shall pay the amount of the excess to the Department of Conservation and Recreation.

## **2. Termination For Convenience.**

**A.** The DCR may terminate this Contract for convenience even though the Contractor is not in default by giving notice to the Contractor specifying in said notice the date of termination.

**B.** In case of such termination without cause, the Contractor shall be paid:  
(1) all sums due and owing under this Contract through the date of termination, including any retainage withheld to the date of termination, less any amount which the DCR determines is necessary to correct or complete the Work performed to the date of termination; plus (2) a reasonable sum to cover the expenses which the Contractor would not have incurred but for the early termination of the Contract, such as demobilization of the work force, restocking charges, and termination fees payable to Subcontractors.

**C.** The payment provided in paragraph B above shall be considered to fully compensate the Contractor, and any consultants, Subcontractors, and suppliers, for all claims and expenses directly or indirectly attributable to the termination, including any claims for lost profits.

## **3. Contractor's Duties Upon Termination for Convenience.**

Upon termination of this Contract for convenience as provided in Section 2 of this Article, the Contractor shall: (1) stop the Work; (2) stop placing orders and Subcontracts in connection with this Contract; (3) cancel all existing orders and Subcontracts; (4) surrender the Site to the DCR in a safe condition; (5) transfer to the DCR all materials, supplies, work in process, appliances, facilities, equipment and machinery of this Contract, and all plans, Drawings, Specifications and other information and documents used in connection with this Contract.

## **ARTICLE XVIII: MISCELLANEOUS PROVISIONS**

### **1. No Assignment by Contractor.**

The Contractor shall not assign by power of attorney or otherwise, or sublet or subcontract, the Work, or any part thereof, without the previous written consent of the DCR and shall not, either legally or equitably, assign any of the moneys payable under this Contract, or Contractor's claims hereunder, unless with the like consent of the DCR, whether said assignment is made before, at the time of, or after the execution of the Contract. The Contractor shall remain responsible for satisfactory performance of all Work sublet or assigned. Consent of the DCR shall not be deemed to constitute a representation or waiver of any right hereunder by the DCR as to the qualifications or the responsibility of the Contractor or Subcontractor(s).

**2. Non-Appropriation.**

The Commonwealth certifies that at the time of the execution of this Contract, sufficient appropriations exist and shall be encumbered to fund the Contract Price. Payments are subject to appropriation and shall be made only for work performed in accordance with the terms of this Contract. The Contractor shall not be obligated to perform, and shall not perform, work outside the scope of this Contract without an appropriate amendment to this Contract, and a sufficient appropriation(s) to support such additional work. The Commonwealth may immediately terminate or suspend this Contract in the event that the appropriation(s) funding this Contract is eliminated or reduced to an amount which will be insufficient to support anticipated future obligations under this Contract. Such termination shall be deemed a termination for convenience subject to the provisions of paragraph 2 of Article XVII of this Contract.

**3. Claims by Others Not Valid.**

No person other than the Contractor and the surety on any bond given pursuant to the terms of this Contract shall acquire any interest in this Contract or any claim against the DCR hereunder, and no claim by any other person shall be valid except as provided in M.G.L. c. 30, sec. 39F of the General Laws.

**4. No Personal Liability of Public Officials.**

No public official, employee, or agent of the DCR shall have any personal liability for the obligations of the DCR set forth in this Contract.

**5. Severability.**

The provisions of this Contract are severable, and if any of these provisions shall be held unconstitutional or unenforceable by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the other provisions of this Contract.

**6. Choice of Laws.**

This Contract shall be governed by the laws of the Commonwealth of Massachusetts for all purposes, without regard to its laws on choice of law. All proceedings under this Contract or related to the Project shall be brought in the courts of the Commonwealth of Massachusetts.

**7. Standard Forms.**

Unless directed otherwise in writing by the DCR, the Contractor shall use the standard forms in use by the Department of Conservation and Recreation.

**8. No Waiver of Subsequent Breach.**

No waiver of any breach or obligation of this Contract shall constitute a waiver of any other or subsequent breach or obligation.

**9. Remedies Cumulative.**

All remedies of the DCR provided in this Contract shall be construed as cumulative and may be exercised simultaneously or in any order as determined by the DCR in its sole discretion. The DCR shall also be entitled as of right to specific performance and equitable relief including the right to an injunction against any breach of any of the provisions of this Contract

**10. Notices.**

Notices to the Contractor shall be deemed given when hand delivered to the Contractor's temporary field office at or near the Site, or when deposited in the U.S. mail addressed to the Contractor at the Contractor's address specified in the Department of Conservation and Recreation - Contractor Agreement, or when delivered by courier to either location. Unless otherwise specified in writing by the DCR, notices and deliveries to the DCR shall be effective only when delivered to the DCR at the address specified in the Department of Conservation and Recreation - Contractor Agreement and date-stamped at the reception desk or for which a receipt has been signed by the agent or employee designated by the DCR to receive official notices.

## **APPENDIX A to General Conditions of the Contract**

**The following provisions from Article XII of the General Conditions of the Contract where DCR is the Awarding Authority.**

### **EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION, AND AFFIRMATIVE ACTION PROGRAM.**

#### **1. Compliance Generally.**

For purpose of this Article, “minority” refers to Asians, Blacks, Western Hemisphere Hispanics, Native Americans, and Cape Verdeans; “Commission” refers to the Massachusetts Commission Against Discrimination. During the performance of this Contract, the Contractor and all of its Subcontractors (hereinafter collectively referred to as the Contractor) shall comply with all applicable equal employment opportunity, non-discrimination and affirmative action requirements, including but not limited to the following:

#### **2. Non-Discrimination and Affirmative Action.**

**A.** The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, handicap, sexual orientation, or sex. The aforesaid provision shall include, but not be limited to, the following: employment rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The Contractor shall comply with the provisions of MGL, c. 151B and all other applicable anti-discrimination and equal opportunity laws.

**B.** The Contractor shall comply with the provisions of Executive Order No. 478 entitled Revoking and Superseding Executive Orders Numbers 253 and 452, with respect to affirmative action programs for handicapped individuals, which is herein incorporated by reference and made a part of this Contract.

**C.** In connection with the performance of the Work, the Contractor shall undertake in good faith affirmative action measures designed to eliminate any discriminatory religious creed, national origin, age, sexual orientation, or sex and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age, sexual orientation, or sex. A purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for future public construction projects.

**D.** If the Contractor shall use any subcontractor on any work performed under this Contract, the Contractor shall take affirmative steps to negotiate with qualified minority and women subcontractors. These affirmative steps shall cover both pre-bid and post-bid periods. It shall include notification to the State Office of Minority and Women Business Assistance or its designee, while bids are in preparation, of all products, work, or services for which the Contractor intends to negotiate bids. In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor’s obligations under this Contract relative to non-discrimination and affirmative action.

**E.** As part of its obligation of remedial action under this Article, the Contractor shall maintain on this project not less than the percent ratio set forth in the Owner – Contractor Agreement of minority employee worker hours to total worker hours in each job category including but not limited to bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers, and those “classes of work” enumerated in MGL, c. 149, Sec. 44F.

**F.** In the hiring of minority journeypersons, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the Commission, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the Liaison Committee or the Awarding Authority.

### **3. Liaison Committee, Reports and Records.**

**A.** At the option of the Awarding Authority, there may be established for the term of this Contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the Awarding Authority, the Commission and such other representatives as may be designated by the Commission in conjunction with the Awarding Authority. The Contractor (or his agent, if any, designated by him as the on-site equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.

**B.** The Contractor shall prepare projected staffing tables on a quarterly basis. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and also when updated, to the Awarding Authority and Liaison Committee. The Contractor shall prepare weekly reports in a form approved by the Awarding Authority of hours worked in each trade by each employee, identified as minority or non-minority. Copies of these shall be provided at the end of each such week to the Awarding Authority and to the Liaison Committee.

**C.** Records of employment referral orders, prepared by the Contractor, shall be made available to the Awarding Authority and to the Liaison Committee on request.

**D.** A designee of the Awarding Authority and a designee of the Liaison Committee shall each have right to access to the Site.

**E.** The Contractor shall comply with the provisions of MGL, c. 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made a part of this Contract.

**F.** The Contractor shall provide all information and reports required by the Awarding Authority or the Commission on forms and in accordance with instructions issued by either of them and will permit access to its facilities and any books, records, accounts, and other sources of information which may be determined by the Awarding Authority or the Commission to affect the employment of personnel. This provision shall apply only to information pertinent to the Owner's supplementary affirmative action Contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Awarding Authority or the Commission as appropriate and shall set forth what efforts he has made to obtain the information.

### **4. Sanctions.**

**A.** Whenever the Awarding Authority, the Commission, or the Liaison Committee believes the Contractor, or any Subcontractor may not be operating in compliance with the terms of this Article, the Commission shall directly, or through its designated agent, conduct an appropriate investigation, and may confer with the parties to determine if such Contractor is operating in compliance with the terms of this Article. If the Commission or its agent finds the Contractor or any Subcontractor not in compliance, it may make a preliminary report on non-compliance, and notify such Contractor in writing of such steps as will in the judgment of the Commission or its agent bring such Contractor into compliance. In the event that such Contractor fails or refuses to fully perform such steps, the Commission may make a final report of non-compliance, and recommend to the Awarding Authority the imposition of one or more of the sanctions listed below. If, however, the Commission believes the Contractor or any Subcontractor has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance. Within fourteen days of the receipt of the recommendations of the Commission, the Awarding Authority shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:

**(I)** The recovery by the Awarding Authority from the Contractor of 1/100 of 1% of the Contract award price or \$1,000 whichever sum is greater, in the nature of liquidated damages or, if a Subcontractor is in non-compliance, the recovery by the Awarding Authority from the Contractor, to be assessed by the Contractor as a back charge against the subcontractor, of 1/10 of 1% of the sub-contract price, or \$400 whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply.



(2) The suspension of any payment or part thereof due under the Contract until such time as the Contractor or any subcontractor is able to demonstrate his compliance with the terms of the Contract.

(3) The termination, or cancellation, of the Contract, in whole or in part, unless the Contractor or any Subcontractor is able to demonstrate within a specified times his compliance with the terms of the contract.

(4) The denial to the Contractor or any subcontractor of the right to participate in any future contracts awarded by the Awarding Authority for a period of up to three years.

**B.** If any time after the imposition of one or more of the above sanctions a Contractor is able to demonstrate that it is in compliance with this Article, the Contractor may request the Awarding Authority, in consultation with the Commission, to suspend the sanctions conditionally, pending a final determination by the Commission as to whether the Contractor is in compliance. Upon final determination of the Commission, the Awarding Authority, based on the recommendation of the Commission, shall either lift the sanctions or reimpose them.

**C.** Sanctions recommended by the Commission and enumerated under Section 4 above shall not be imposed by the Awarding Authority except after an adjudicatory proceeding, as that term is used in MGL, c. 30A, has been conducted. No investigation by the Commission or its agent shall be initiated without prior notice to the Contractor.

**D.** Notwithstanding the provisions of 4A-4C above, if the Awarding Authority determines after investigation that the Contractor or any Subcontractor is not in compliance with the terms of this Article, it may suspend any payment or portion thereof due under the Contract until the contractor demonstrates to the satisfaction of the Awarding Authority compliance with the terms of this Article. This temporary suspension of payments by the Awarding Authority is separate from the sanctions set forth in Section 4A-4C of this Article above, which are determined by MCAD and recommend to the Awarding Authority. Payment may be suspended only after the Contractor and any other interested party shall have been given the opportunity to present evidence in support of its position at an informal hearing held by the Awarding Authority, and the Awarding Authority has concluded upon review of all the evidence that such penalty is justified. Payment shall not be suspended if the Awarding Authority finds that the Contractor made its best efforts to comply with this Article, or that some other justifiable reason exists for waiving the provisions of this Article in whole or in part.

## **APPENDIX B to General Conditions of the Contract**

**The following provisions from Article XIII of the General Conditions of the Contract where DCR is the Awarding Authority.**

### **GOALS FOR PARTICIPATION BY MINORITY BUSINESS ENTERPRISES AND WOMEN BUSINESS ENTERPRISES (EXECUTIVE ORDER 390, MGL, c. 7, s. 40N)**

#### **1. Goals.**

**A.** The goals for minority business enterprise and women business enterprise participation established for this Contracts are as set forth in the Owner – Contractor Agreement.

**B.** The Contractor and all Subcontractors, sub-subcontractors, and materials suppliers shall comply with all of the terms and conditions of this Article, which include the provisions pertaining to M/WBE participation set forth in the Owner – Contractor Agreement in order to meet the M/WBE participation goals established for this Contract.

#### **2. M/WBE Participation Credit.**

**A.** If the Contractor is itself an MBE or WBE, M/WBE participation credit will be given in an amount equal to the entire Contract Price. If the Contractor is not an MBE or WBE then M/WBE participation credit will be given for the value of the Work that is actually performed by each MBE or WBE subcontractor or subcontractor.

**B.** If the Contractor is a joint venture with one or more M/WBE joint venturers, M/WBE participation credit shall be given to the joint venture as follows:

**(1)** If the joint venture is certified by SOMBWA as an MBE or WBE, M/WBE participation credit shall be given in an amount equal to the Contract Price.

**(2)** If the joint venture is not certified as an MBE or WBE by SOMWBA, M/WBE participation credit shall be given to the joint venture for the value of the Work that is performed by the M/WBE joint ventures(s), and for the value of the Work that is actually performed by each MBE or WBE subcontractor or sub-subcontractor.

**C.** MBE participation credit shall be given for the work performed by MBEs only, and WBE participation credit shall be given for the work performed by WBEs only. MBE participation may not be substituted for WBE participation, nor may WBE participation be substituted for MBE participation.

#### **3. Establishing M/WBE Status.**

**A.** A minority-owned business shall be considered an MBE only if it has been certified as a minority business enterprise by the State Office of Minority and Women Business Assistance (“SOMWBE”).

**B.** A woman-owned business shall be considered a WBE only if it has been certified as a woman business enterprise by SOMWBA.

**C.** Certification as a disadvantaged business enterprise (“DBE”), certification as an M/WBE by any agency other than SOMWBA, or submission of an application to SOMWBA for certification as an M/WBE shall not confer M/WBE status on a firm for the purposes of this Contract.

#### **4. Subcontracts with M/WBEs.**

Within thirty (30) days after the award of this Contract, the Contractor shall (i) execute a subcontract with each M/WBE Subcontractor which has executed a Letter of Intent approved by the Awarding Authority, (ii) cause its Subcontractors to execute a sub-subcontract with each M/WBE sub-subcontractor, and (iii) furnish the Awarding Authority with a signed copy of each such subcontract and sub-subcontract.

## **5. Performance of Contract Work by M/WBEs.**

**A.** The Contractor shall not perform with its own organization or subcontract or assign to any other firm work designated to be performed by any W/MBE in the Letters of Intent or Schedule of M/WBE Participation without the prior Approval of the Awarding Authority, nor shall any M/WBE assign or subcontract to any other firm, or permit any other firm to perform any of its M/WBE Work without the prior Approval of the Awarding Authority. Any such unapproved assignment, subcontracting, sub-subcontracting, or performances of M/WBE Work by others shall be a change in the M/WBE Work for the purposes of this Contract. The Awarding Authority WILL NOT APPLY TO THE M/WBE PARTICIPATION GOALS(S) ANY SUMS ATTRIBUTABLE TO SUCH UNAPPROVED ASSIGNMENTS, SUB-CONTRACTS, SUB-SUBCONTRACTS, OR PERFORMANCE OF M/WBE WORK BY OTHERS.

**B.** The Contractor shall be responsible for monitoring the performance of M/WBE Work to ensure that each scheduled M/WBE performs its own M/WBE Work with its own workforce.

**C.** The Contractor and each M/WBE shall provide the Awarding Authority with all information and documentation that the Awarding Authority determines is necessary to ascertain whether or not an M/WBE has performed its own M/WBE Work. At the discretion of the Awarding Authority, failure to submit such documentation to the Awarding Authority shall establish conclusively for the purpose of giving M/WBE participation credit under this Contract that such M/WBE did not perform such work.

## **6. Notification of Changes in M/WBE Work.**

**A.** If any time during the performance of the Contract the Contractor determines or has reason to believe that a scheduled M/WMBE is unable to unwilling to perform its M/WBE Work, or that there has been or will be a change in any M/WMBE Work, or that the Contractor will be unable to meet the M/WBE participation goal(s) for this Contract for any reason, the Contractor shall immediately notify the Awarding Authority Contract Compliance Office in writing of such circumstances.

**B.** Any notice of a change in M/WBE Work pursuant to subparagraph "A: above shall include a revised Schedule of M/WBE Participation, and additional or amended Letters of Intent and subcontracts, as the case may be.

## **7. Actions Required if there is a Reduction in M/WBE Participation.**

**A.** In the event there is a change or reduction in any M/WBE Work which will result in the Contractor failing to meet the M/WBE participation goal(s) for this Contract, other than a reduction in M/WBE Work resulting from a Change Order initiated by the Awarding Authority, then the Contractor shall immediately undertake a diligent, good faith effort to make up the shortfall in M/WBE participation as follows:

**(1)** The Contractor shall identify all items of the Work remaining to be performed under the Contract that may be made available for subcontracting to W/MBEs. The Contractor shall send a list of such items of work to the Awarding Authority, together with a list of the remaining items of the Work that was not made available to M/WBEs and the reason for not making such work available for subcontracting to M/WBEs.

**(2)** The Contractor shall send written notices soliciting proposals to perform the items of the Work that may be made available for subcontracting to W/MBEs to all W/MBEs qualified to perform such work. The Contractor shall advise the Awarding Authority of (i) each W/MBE solicited, and (ii) each W/MBE listed in the SOMWBA directory under the applicable trade category who was not solicited and the reasons, therefore. The Contractor shall also advise the Awarding Authority of the dates notices were mailed and provide a copy of the written notice(s) sent.

**(3)** The Contractor shall make reasonable efforts to follow up the written notices sent to M/WBEs with telephone calls or personal visits in order to determine with certainty whether the M/WBEs were interested in performing the work. Phone logs or other documentation must be submitted to the Awarding Authority evidencing this effort.

**(4)** The Contractor shall make reasonable efforts to assist M/WBEs that need assistance in obtaining insurance, bonds, or lines of credit in order to perform work under the Contract and shall provide the Awarding Authority with evidence that such efforts were made.

(5) The Contractor shall provide the Awarding Authority with a statement of the response received from each M/WBE solicited, including the reason for rejecting any M/WBE who submitted a proposal.

(6) The Contractor shall take any additional measures reasonably requested by the Awarding Authority to meet the M/WBE participation goal(s) established for this Contract, including, without limitation, placing advertisements in appropriate media and trade association publications announcing the Contractor's interest in obtaining proposals from M/WBEs, and/or sending written notification to M/WBE economic development assistance agencies, trade groups and other organizations notifying them of the project and of the work available to be subcontracted by the Contractor to M/WBEs.

**B.** If the Contractor is unable to meet the M/WBE participation goals for this Contract after complying fully with each of the requirements of paragraph "A" above, and the Contractor is otherwise in full compliance with the terms of this Article, the Awarding Authority may reduce the M/WBE participation goals for this Contract to the extent that such goals cannot be achieved.

## **8. Suspension of Payment and/or Performance for Noncompliance.**

**A.** If at any time during the performance of this Contract, the Awarding Authority determines or has reason to believe that (1) there has been a change or reduction in any M/WBE Work which will result in the Contractor failing to meet the M/WBE participation goal(s) for this Contract, other than a reduction in M/WBE Work resulting from a change in the Contract work ordered by the Awarding Authority, and (2) the Contractor has failed to comply fully with all of the terms and conditions of paragraphs 1 through 7 above, the Awarding Authority may:

(1) suspend payment to the Contractor of an amount equal to the value of the work which was to have been performed by an M/WBE pursuant to the Contractor's Schedule of M/WBE Participation, but which was not

so performed, in order to ensure that sufficient Contract funds will be available if liquidated damages are assessed pursuant to paragraph 9 and/or

(2) suspend the Contractor's performance of this Contract in whole or in part.

**B.** The Awarding Authority shall give the Contractor prompt written notice of any action taken pursuant to paragraph A above and shall give the Contractor and any other interested party, including any M/WBEs, an opportunity to present evidence to the Awarding Authority that the Contractor is in compliance with the requirements of this Article, or that there is some justifiable reason for waiving the requirements of this Article in whole, or in part. The Awarding Authority may invite SOMWBA and the Massachusetts Commission Against Discrimination to participate in any proceedings undertaken pursuant to this paragraph.

**C.** Upon a showing that the Contractor is in full compliance with the requirements of this Article, or that the Contractor has met or will meet the M/WBE participation goals for this Contract, the Awarding Authority shall release any funds withheld pursuant to clause A(1) above and lift any suspension of the Contractor's performance under clause A(2) above.

## **9. Liquidated Damages; Termination.**

**A.** If payment by the Awarding Authority or performance by the Contractor is suspended by the Awarding Authority as provided in paragraph 8 above, the Awarding Authority shall have the following rights and remedies if the Contractor thereafter fails to take all action necessary to bring the Contractor into full compliance with the requirements of this Article, or if full compliance is no longer possible because the default of the Contractor is no longer susceptible to cure, if the Contractor fails to take such other action as may be required by the Awarding Authority to meet the M/WBE participation goals set forth in this Contract:

(1) the Awarding Authority may terminate this Contract, and/or

(2) the Awarding Authority may retain from final payment to the Contractor, as liquidated damages, an amount equal to the difference between (x) the total of the M/WBE participation goals set forth in this Contract, and (y) the amount of M/WBE participation credit earned by the Contractor for M/WBE Work performed under this Contract as determined by the Awarding Authority, the parties agreeing that the damages for failure to meet the M/WBE participation goals are difficult to determine and that the foregoing amount to be retained by the Awarding Authority represents the parties' best estimate of such damages. Any liquidated damages will be assessed separately for MBE and WBE participation.

**B.** Before exercising its rights and remedies hereunder, the Awarding Authority may, but the Awarding Authority shall not be obligated to, give the Contractor and any other interested party another opportunity to present evidence to the Awarding Authority that the Contractor is in compliance with the requirements of this Article or that there is some justifiable reason for waiving the requirements of this Article in whole or in part. The Awarding Authority may invite SOMWBA and the Massachusetts Commission Against Discrimination to participate in any proceedings undertaken hereunder.

**10. Reporting Requirements.**

The Contractor shall submit to the Awarding Authority all information or documentation that is necessary in the judgment of the Awarding Authority to ascertain whether or not the Contractor has complied with any of the provisions of this Article.

**11. Awarding Authority's Right to Waive Provisions of this Article in Whole or in Part.**

The Awarding Authority reserves the right to waive any provision or requirement of this Article if the Awarding Authority determines that such waiver is justified and in the public interest. No such waiver shall be effective unless in writing and signed by a representative of the Awarding Authority's Compliance Office or the office of its General Counsel. No other action or inaction by the Awarding Authority shall be construed as a waiver of any provision of this Article.

**COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION AND RECREATION**

**SPECIAL GOOD FAITH REQUIREMENTS FOR PARTICIPATION BY VETERAN OWNED  
BUSINESS ENTERPRISES  
(Implementing Executive Order No. 546, Establishing the Veteran Owned Business  
Enterprise Program).  
BIDDER'S INSTRUCTIONS**

THE APPARENT LOW BIDDER'S COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION IS A PREREQUISITE FOR RECEIVING THE AWARD OF THE CONTRACT.

1) Participation Goals and Program Operation

In order to be an eligible VOB for the participation goals of this Contract, the business enterprise must be listed as a veteran-owned business within the VetBiz database, located at [www.VetBiz.gov](http://www.VetBiz.gov), at the time of the bid submission deadline. Only a VOB identified as a veteran-owned small business via the VetBiz database shall count towards meeting the Program participation goal.

The Contractor must demonstrate that VOBs are eligible for the following participation goals via its listing as a veteran-owned small business within the VetBiz database, located at [www.VetBiz.gov](http://www.VetBiz.gov), at the time said VOB seeks to participate in business provided under this Contract; provided, that it shall also be the responsibility of the Awarding Authority to verify the status of the SDVOB via said VetBiz database prior to the awarding of the Contract.

a) Design Services Contracts – In furtherance of the goals and objectives of the program, commencing July 1, 2013 until such time as the Secretary for Administration and Finance has adopted a new participation goal, the participation goal, which shall be expressed in the form of a benchmark for each design services contract, shall be three (3) percent; provided, that said participation goal may be met by the veteran-owned business enterprise performing as either a general or prime contractor, a subcontractor, or both; provided further, that the awarding agency shall verify the status of business enterprise participation on a design services contract.

b) Public Construction Contracts – In furtherance of the goals and objectives of the Program, commencing July 1, 2013 until such time as the Secretary of Administration and Finance has adopted a new participation goal, the participation goal, which shall be expressed in the form of a benchmark for each public construction contract, shall be three (3) percent; provided, that said participation goal may be met by the veteran-owned business enterprise performing as either a general or prime contractor, a subcontractor, or both; provided further, that the awarding agency shall verify the status of a service veteran-owned business enterprise prior to said business enterprise participation on a public construction contract.

2) Goal Reduction/Waiver

- A) The Awarding Authority reserves the right to reduce or waive the SDVOBE participation goals established for this Contract upon written request made by a Bidder using the VOB E Waiver Request Form provided by the Awarding Authority.
- B) If filed Sub-Bids are solicited for this Contract, requests from prospective general Bidders to reduce or waive the VOB E participation goals for this Contract should be received by the Awarding Authority no later than four (4) working days after the list of filed Sub- Bidders is mailed by the Awarding Authority to persons who have taken out plans for the Contract, using the VOB E Waiver Request Form provided by the Awarding Authority.
- C) If there are no filed sub-Bids solicited for this Contract, requests to reduce or waive the SDVOBE participation goals for this Contract should be received by the Awarding Authority no later than five (5) working days before the date set for the receipt of general Bids. **THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY REQUEST TO REDUCE OR WAIVE THE VOB E PARTICIPATION GOALS FOR THIS CONTRACT THAT IS RECEIVED AFTER THESE DEADLINES.** Such written request must demonstrate to the satisfaction of the Awarding Authority that it is not feasible for a non- VOB E or non- VOB E general Bidder to meet the goals established for this Contract based upon any or all of the following:
- a) actual VOB E availability.
  - b) the geographic location of the project to the extent related to SDVOBE availability.
  - c) the scope of the work.
  - d) the percentage of work available for subcontracting to VOB Es; and/or
  - e) other relevant factors, including a **documented** inability by the prospective Bidder to obtain commitments from VOB E subcontractors sufficient to meet the VOB E goals after having made a diligent, good faith effort to do so. All of the foregoing documentation shall accompany the completed Waiver Request Form. Such documentation shall include, at a minimum, the following:
    - A list of all items of work under the Contract that the Bidder made available for subcontracting to VOB Es. The Bidder shall identify all items of work, other than work to be performed by filed sub-Bidders, that the Bidder did not make so available and shall state the reasons for not making such work available for subcontracting to VOB Es. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into units capable of being performed by VOB Es.
    - Evidence that the Bidder sent written notices soliciting Bids or proposals to perform the items of work made available by the Bidder for subcontracting to all available VOB Es qualified to perform such work. The Bidder shall identify each VOB E solicited, state the dates that notices were mailed, provide a copy of the written notice(s) sent, and provide a copy of any statement or response received from each VOB E solicited, including the reason for rejecting and VOB E who submitted a bid or proposal.
    - Evidence that the Bidder made reasonable efforts to follow up on the written notices sent to VOB Es with telephone calls or personal visits in order to determine with certainty whether the VOB Es were interested in performing the work. Phone logs or other documentation must be submitted.

- Evidence of efforts made to assist VOBES that needed assistance in obtaining bonding or insurance, or lines of credit with suppliers if the inability of SDVOBE to obtain bonding, insurance, or lines of credit is the reason given for the Bidder's inability to meet the VOBES goals.
- D) The Bidder may also submit any other information supporting its request for a waiver or reduction in the VOBES participation goals, including without limitation evidence that the Bidder placed advertisements in appropriate media and trade association publications announcing the Bidder's interest in obtaining bids or proposals from VOBES, and/or sent written notification to VOBES economic development assistance agencies, trade groups and other organizations notifying them of the Contract and the work to be subcontracted by the Bidder to VOBES. The Bidder shall also submit any other information reasonably requested by the Awarding Authority to show that the Bidder has taken all actions that could reasonably be expected to achieve the VOBES participation goals.
- 3) No later than five (5) working days after the opening of general Bids, the apparent low Bidder shall submit the following documents to the Awarding Authority's Contract Officer:
    - (i) a completed Schedule for Participation by VOBES ("Schedule for Participation") in the form provided by the Awarding Authority showing VOBES participation in amounts equal to or exceeding the VOBES participation goals for this Contract; and
    - (ii) a completed Letter of Intent in the form provided by the Awarding Authority for each SDVOBE listed in the Schedule for Participation.
  - 4) Each Letter of Intent shall identify and describe the work to be performed by the named VOBES (the "VOBES Work") with enough specificity to permit the Awarding Authority to identify the particular items of contract work that the VOBES will perform for VOBES participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the VOBES Work does not bear a reasonable relationship to the value of such work under the Contract as determined by the Awarding Authority.
  - 5) Within five (5) working days after receipt of the Schedule for VOBES Participation and Letters of Intent, the Awarding Authority shall review and either approve or disapprove the apparent low Bidder's submissions. If the apparent low Bidder has not submitted an appropriate Schedule for VOBES Participation and appropriate Letters of Intent establishing that the VOBES participation goal for the project will be met, the apparent low Bidder will be considered ineligible for Award of the Contract and the Awarding Authority will Award the Contract to the second lowest Bidder, subject to said Bidder's compliance with these conditions.
  - 6) The Contractor is required to submit to the Awarding Authority signed subcontracts with all subcontractors prior to the commencement of work to be performed under these contracts, and/or a purchase order or invoice from each material supplier and/or manufacturer listed on the Schedule for VOBES Participation within thirty (30) days of the issuance of the Notice to Proceed by the Awarding Authority.
  - 7) A filed Sub-Bidder is not required to submit a Schedule for VOBES Participation with its Bid. A filed Sub-Bidder may, at its option, submit a Letter of Intent with its Bid if it is a VOBES. If a filed sub-Bidder intends to sub-subcontract work to a VOBES, and the filed sub-Bidder wishes that sub-subcontract to be credited toward the participation goals for this Contract, the filed sub-Bidder should submit a Letter of Intent from that VOBES with its Bid. A filed sub-Bidder can subcontract out up to 20% of its work to VOBES, unless such work is designated as sub-subcontract Paragraph E work in the Bid Documents, in which case the 20% cap does not apply.



**This is a:**

- Design Contract**
- Construction contract**

**The goal for this contract is Three ( 3 %) percent of the value of the contract unless waived in part or whole by DCR in writing.**

## **APPENDIX C to the General Conditions of the Contract**

### **INDEX OF THE COMMONLY USED FORMS**

**(Forms used during bidding are located in Attachment B to the Instructions to Bidders)**

**Contractor's Weekly Workforce Report**

**Minorities/Women in Contractor's Weekly Workforce Report**

**Weekly Payroll Report Form and Statement of Compliance**

**Certification of Payment by Contractor to MBE/WBE and Instructions**

**Certificate of Completion by Minority/Women Business Enterprise**

**Certificate of Final Inspection, Release and Acceptance – E-2**





**WEEKLY PAYROLL REPORT FORM**  
 THE COMMONWEALTH OF MASSACHUSETTS  
 DEPARTMENT OF CONSERVATION AND RECREATION

DCR Project No. \_\_\_\_\_ Project Name \_\_\_\_\_

Project Location \_\_\_\_\_

Name of General Contractor \_\_\_\_\_

Name of Contractor Filing Report \_\_\_\_\_

Address \_\_\_\_\_

Week Ending \_\_\_\_\_ Date Work Began \_\_\_\_\_ Date work completed \_\_\_\_\_

Report No. \_\_\_\_\_  Check here if this is a final report

Employee Name & Address	Work Classification	Hours Worked							(A) Total Hours	(B) Hourly Base Wage	Employer Contributions			(F) [B+C+D+E] Hourly Total Wage (prev.)	(G) [A*F] Weekly Total Amount
		S	M	T	W	T	F	S			(C) Health & Welfare	(D) Pension	(E) Supp. unemplo yed		

NOTE: Every contractor and subcontractor are required to submit a copy of their weekly payroll records to DCR. The undersigned states under the pains & penalties of perjury that the above provided and attached information is a true and accurate record of each person employed on the project and the hours worked and wages paid to each such employee, including payments to the referenced benefits. M.G.L. c. 149 §27B.

Authorized signature \_\_\_\_\_ Print Name \_\_\_\_\_

Print Title \_\_\_\_\_

Mail to: Department of Conservation and Recreation  
 Project Manager Name  
 251 Causeway Street - Suite 600  
 Boston, MA 02114

## WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works construction project for which the enclosed rates have been provided. The **Weekly Payroll Report Form** includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the project.

In addition, every contractor and subcontractor are required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor, or public body shall furnish **to the Executive Office of Labor**, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

### STATEMENT OF COMPLIANCE

Date: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

I, \_\_\_\_\_, \_\_\_\_\_  
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by

\_\_\_\_\_ on the \_\_\_\_\_  
(Contractor, subcontractor, or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs, and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty-nine of the General Laws.

Signature \_\_\_\_\_

Title \_\_\_\_\_

**CERTIFICATE OF PAYMENT**  
 BY CONTRACTOR/DESIGNER TO MINORITY, WOMEN BUSINESS  
 & VETERAN OWNED BUSINESS ENTERPRISES

**TO:** Supplier Diversity Reports  
 Department of Conservation and Recreation  
 251 Causeway Street – 6<sup>th</sup> Floor  
 Boston, MA 02114

Reporting Period: Fiscal Year 20\_\_

**RE:** Project:  
 Project Number:

Contract Start Date:

The undersigned hereby certifies under the pains and penalties of perjury that the vendor named below has made the following payments to the named Minority, Women Business and Veteran Owned Enterprises for work performed on the above project:

Firm Name of General Contractor:

Authorized Signature

Date

Print Name

Print Title

Phone Number

Email address

Work performed/payments made (use additional pages if needed):

	Firm Name	Work Performed	Subcontract Amount	Payments This Quarter	FY Payments to date (This fiscal year)	Cumulative Payments (Total payments over the life of the contract)
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOBE			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOBE			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOBE			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOBE			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOBE			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOBE			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOBE			\$	\$	\$	\$

\* MBE, WBE and VOBE payment reports are required for each quarter of the fiscal year for each of your DCR projects. Reports are to cover the following three-month periods: 1<sup>st</sup> quarter, July 1st – September 30th; 2<sup>nd</sup> quarter, October 1st – December 31st; 3<sup>rd</sup> quarter, January 1st – March 31st; 4<sup>th</sup> quarter, April 1st – June 30th. Reports must be submitted within 10 business days of your receipt of this form.

**NOTICE:** Intentionally submitting false information in this document may subject the contractor/ designer to criminal prosecution and/ or debarment from public contracting.

## INSTRUCTIONS FOR COMPLETING CERTIFICATE OF PAYMENT

As part of its effort to ensure reliable, up-to-date information concerning the actual payments made to certified MBE, WBE and VOB subcontractors on all DCR projects, we have prepared these instructions to assist you in completing the enclosed form. **PLEASE READ THESE INSTRUCTIONS CAREFULLY. DCR WILL RETURN ANY CERTIFICATION OF PAYMENT THAT IS INCOMPLETE OR INACCURATE.**

**PLEASE NOTE:** IF THIS PROJECT IS COMPLETE, ON HOLD, OR YOUR FIRM PREVIOUSLY SUBMITTED A **FINAL** CERTIFICATION OF M/WBE/VOBE PAYMENT FOR THIS PROJECT, PLEASE SO, INDICATE ON THE FORM AND RETURN IT TO: SUPPLIER DIVERSITY REPORTS, DEPARTMENT OF CONSERVATION AND RECREATION, 251 CAUSEWAY STREET – 6TH FLOOR, BOSTON, MA 02114

### **PLEASE INCLUDE THE FOLLOWING INFORMATION IN THE DESIGNATED SECTIONS OF THE FORM:**

**FIRM NAME:** Include the M/WBE/VOBEs listed on the project's approved Schedule for Participation and any additional M/WBE/VOBEs that worked on the project. Be sure to check M/WBE/VOBE category for which they are certified. Note that any change in M/WBE/VOBEs participation used to meet the project goals must be pre-approved by the Project Manager or Engineer responsible for this project and a revised M/WBE/VOBE Schedule of Participation will be required. Contact the DCR Supplier Diversity coordinator immediately if you anticipate or have any changes in M/WBE/VOBE participation on this project.

**WORK PERFORMED:** Include a brief description of the work performed by each subcontractor listed. The description should match the M/WBE/VOBE Letter of Intent and approved Schedule of Participation. M/WBE/VOBEs must be certified in the category of work performed on this project for firms used to meet the project M/WBE/VOBE goals.

**SUBCONTRACT AMOUNT:** Include the contract or subcontract amounts listed on the M/WBE/VOBE Letters of Intent and approved Schedule of Participation. If the value of an MBE/WBE/VOBE contract or subcontract has decreased or increased for any reason, you must contact the Project Manager or Engineer responsible for this project immediately. If additional M/WBE/VOBE firms not listed on the Schedule for Participation worked on this project list the amount of their subcontracts.

**PAYMENTS THIS QUARTER:** Include the amount you paid the M/WBE/VOBE subcontractor, either directly or indirectly, for work performed on this project during the three-month period covered by this Certification of Payment. If the amount paid was zero, please indicate that. Do not include payments from previous periods or estimated future payments in this column. Please note that you may be required to submit copies of cancelled checks to verify the amounts reported for firms used to meet the project's M/WBE/VOBE goals.

**FY PAYMENTS TO DATE:** Include the total amount you paid the M/WBE/VOBE subcontractor, either directly or indirectly, for work performed on this project for all quarters in **this fiscal year.** To ensure accurate reporting, please review the prior Certifications of Payments previously submitted for this project. Where necessary, correct any earlier mathematical or reporting errors and submit revised Certifications of Payment.

**CUMULATIVE PAYMENTS:** Include the total amount you paid the M/WBE/VOBE subcontractor, either directly or indirectly, for work performed over the entire life of this project (all quarters).

IF YOU HAVE ANY QUESTIONS CONTACT DCR Supplier Diversity coordinator at 617.626.4925



**CERTIFICATE OF COMPLETION**  
**BY MINORITY/WOMEN BUSINESS/VETERAN OWNED BUSINESS ENTERPRISE**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

**TO:** Supplier Diversity Reports  
 Department of Conservation and Recreation  
 251 Causeway Street – Suite 600  
 Boston, MA 02114

**Reporting Period: Fiscal Year**

**RE:** Project:  
 Project Number:  
 General Contractor:

**Contract Start Date:**

The undersigned hereby certifies under the pains and penalties of perjury that the vendor named below has received the payments to the named Minority, Women Business and Veteran Owned Enterprises for work performed on the above project:

Firm Name of Subcontractor:

Print Name	Print Title
Phone Number	Email address

**DESCRIPTION OF WORK (AS SHOWN IN LETTER OF INTENT)**

BRIEF DESCRIPTION OF ACTIVITY: (Note "Labor Only," "Material Only," "Material and Labor," "Complete")

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Original Subcontract Amount	\$ _____
Adjusted Subcontract Amount (Change Orders, etc.)	\$ _____
Total Payments Received to Date from Prime Contractor	\$ _____
Balance Due from Prime Contractor	\$ _____

If the completed activity is different from that listed on the Letter of Intent, please explain: \_\_\_\_\_

(If more space is needed, continue on back of sheet)

The individuals signing below hereby certify under the pains and penalties of perjury that all work listed on the Contract Letter of Intent (or approved changes thereto as explained above) was completed by the MBE/WBE/VOBE firm on \_\_\_\_\_, 20\_\_\_\_ and the above amounts listed for these services are true and accurate.

**FOR CONTRACTOR**

**FOR MBE/WBE/VOBE FIRM**

\_\_\_\_\_  
 Authorized Signature

\_\_\_\_\_  
 Authorized Signature

\_\_\_\_\_  
 Print Name

\_\_\_\_\_  
 Print Name

**NOTE:** To be submitted to the DCR Compliance Office within ten (10) days after completion of work by MBE/WBE/VOBE.

**E-2 Final Acceptance  
Certificate of Final Inspection, Release and Acceptance**

Title: \_\_\_\_\_

Location: \_\_\_\_\_

Contractor: \_\_\_\_\_

This is to certify that a complete inspection of the above-referenced project was made on \_\_\_\_\_ by the undersigned, and that the entire work was completed in accordance with the plans and specifications. The undersigned recommends acceptance of the project.

\_\_\_\_\_ by: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_  
 \_\_\_\_\_ Designer Authorized  
 Signature

\_\_\_\_\_  
 Resident Engineer Date Project Manager Date

\_\_\_\_\_  
 Project Engineer Date

**CERTIFICATE OF RELEASE**

1.) The undersigned hereby certifies that all work has been completed in accordance with the plans, specifications, and contract documents and that all change orders have been supported pursuant to Article VII of the General Conditions of the Contract.

2.) Contract Award Price: \$	Adjusted Contract Price: \$
Authorized Additions: \$	Paid to Date: \$
Authorized Deductions: \$	Balance Due: \$

3.) The undersigned further certifies that in addition to the amount set forth above, there are outstanding and unsettled the following change orders as submitted to the DCR.

Request No.	Date:	Amount:
Request No.	Date:	Amount:
Request No.	Date:	Amount:

Subject to satisfactory disposition of change orders listed in Item 3 above, the undersigned releases the Commonwealth of Massachusetts from all further claims for wages or payments to subcontractors or suppliers except: (list on attached sheet).

\_\_\_\_\_ by: \_\_\_\_\_  
 Contractor Authorized Signature

The above-referenced project is accepted as of \_\_\_\_\_  
 Date

Deputy Commissioner, Engineering  
 Deputy Director  
 Project Manager  
 Resident Engineer  
 Office of Contract Administration  
 Contractor



## **BID PACKAGE**

### **PART IV**

## **SPECIAL CONDITIONS OF THE CONTRACT**

**SPECIAL PROVISIONS  
BLACKSTONE RIVER GREENWAY PHASE I SEGMENT II  
AND BRIDGES NO. B-13-031, AND B-13-027**

**SCOPE OF WORK**

The work to be done under this contract involves the construction of approximately 2,300 linear feet of a 10-foot to 14-foot wide hot mix asphalt Greenway from the St. Paul Street Bridge to Massachusetts/ Rhode Island state line in the Town of Blackstone, Massachusetts. The Greenway is proposed in a former railroad right-of-way owned by the Department of Conservation and Recreation (DCR) and along the Blackstone River on property currently owned by DCR and the Town of Blackstone. The work also involves the rehabilitation and modification of two existing viaducts; Bridge No. B-13-027 which is a seven-span concrete stone masonry viaduct and Bridge No. B-13-031 a single-span concrete and stone masonry arch viaduct. There is an existing steel-framed railroad bridge No. B-13-008 over Canal Street within the project limits which will be rehabilitated under a separate contract.

The work for the Greenway includes, but is not limited to clearing and grubbing, unclassified excavation, hot mix asphalt Greenway, installation of timber railing, rip rap slope, loam and seed, drainage, pavement markings, signs, landscaping and other incidental work.

The work to be done for the bridges includes, but is not limited to: removal of the deteriorated concrete, cleaning of embedded reinforcing steel, providing new epoxy coated reinforcing steel, and replacement with new concrete, removing the tops of the existing concrete and stone spandrel walls and replacing with new reinforced concrete parapet, installing a new reinforced concrete slab over the stone arches, installing new railings.

The location and character of the work are shown on the Contract Drawings.

The work is to be constructed in accordance with said plans as such further working detailed plans and/or sketches as may be furnished from time to time by the Engineer and Designer. Details shown on said plans are indicative of the types of structures required and are subject to revision, alteration, modification, and variation. Such revisions, alterations, modifications, and variations in said plans as desirable in the opinion of the Engineer and Designer, on account of conditions encountered or for other reasons, shall not be considered a variation of term of this contract, and the assent of the surety on the bond accompanying this contract to such revisions, alterations, modifications, or variations shall not be required.

All said plans, general and detail, and the specifications are to be considered together so that any work shown on the plans, though not mentioned in the specifications, and any work mentioned in the specifications, though not shown on the plans, is to be executed by the Contractor as part of the performance of this contract. Figured dimensions are to prevail over scale.

## **STANDARD SPECIFICATIONS**

All work under this contract shall be done in conformance with the *Standard Specifications for Highways and Bridges* dated 2022, the *Supplemental Specifications* dated March 31, 2022 ; the *2017 Construction Standard Details*, the *1990 Standard Drawings for Signs and Supports*; the *2009 Manual on Uniform Traffic Control Devices (MUTCD) with Massachusetts Amendments*, the latest edition of *American Standard for Nursery Stock*; *MassDOT LRFD Bridge Manual – 2013 Edition*; the Plans and these Special Provisions.

The General Conditions, Supplementary Conditions and Special Provisions shall take precedence over the General Requirements of Division I of the Standard Specifications.

The words “Standard Specifications” as used in these Specifications refer to the “Commonwealth of Massachusetts Department Transportation Standard Specifications for Highways and Bridges, 2022 Edition,” including all supplemental specifications and addenda thereto. These Standard Specifications are herein incorporated by reference for materials and/or procedures, unless superseded, altered, or amended by these Specifications. Also incorporated by reference herein are the “Construction and Traffic Standard Details” of the same state agency.

The Standard Specifications, and/or other referenced standards, are referenced for materials, testing, and/or procedures only. Payments will be as specified under “Basis of Payment” as determined under “Method of Measurement” of the appropriate items included in these Specifications.

All said Plans, general and detail, and the Specifications shall be considered together so that any work shown on the Plans, though not mentioned in the Specifications, and any work mentioned in the Specifications, though not shown on the Plans, is to be executed by the Contractor as part of the performance of this Contract. Figured dimensions shall prevail over scale. All things, which in the opinion of the Engineer and Designer inferred from the Plans, shall be executed by the Contractor as part of the Contract, and the Engineer and Designer shall be the sole judge as to whether the detail plans conform to the general plans.

## **ACCESS MASSDOT HIGHWAY INFORMATION ON WEBSITE**

Access MassDOT Highway Information related to Construction, Design/Engineering, Contractor/Vendor Information, Approved Materials and Fabricators, Manuals, Publications and Forms at:

<http://www.mass.gov/massdot/highway>

Select Doing business with us

## **VISITS TO THE SITE**

The Contractor shall visit the site and examine the parts of the structures to be repaired before submitting a proposal. For this purpose, a day and time will be established by the Engineer during the bidding period when an inspection can be made by all bidders at one time.

## **PLANS OF EXISTING STRUCTURES**

The Contractor is advised that there are no original design drawings available of the existing structures. The Contractor is responsible for verifying information shown on the Contract Drawings in the field. As part of this effort, the Contractor shall perform a survey of the site and a detail survey of the existing structures. No additional compensation will be made for performing this work, which shall be considered to be incidental to the various work items.

## **QUANTITIES OF WORK**

The quantities of the various classes of work to be done and materials to be furnished under this Contract, as shown on the Plans or as given on the bid sheets, are approximate and only for the purpose of comparing on a uniform basis the bids for this Contract; and the Department is not to be held responsible if any of the said estimated quantities shall be found to be not even approximately correct; and the Contractor shall make no claim for damages or for anticipated profits or for loss of profits because of a difference between the estimated quantities and the materials actually delivered or used.

The Contractor agrees that the Contractor has made the Contractor's own examination and shall make no claim for damages on account of any errors, inaccuracies, or omissions found. The Contractor shall not take any advantage or have any claim for damages on account of any discrepancy, error, or omission in any Plans, calculations, estimates of quantities, or any statements

made in the bid sheets or otherwise as to the conditions under which the work is to be performed, and he/she shall report such discrepancy, error, or omission to the Engineer and Designer in writing as soon as it comes to the Contractor's knowledge, and before proceeding with work relating to such discrepancy, error, or omission.

The Department reserves the right to delete any item, portion, or phase of the work. The contract bid price for all other work items shall remain unchanged.

### **CONTINGENCY CONSTRUCTION SCOPE**

(Supplementing Subsection 4.06)

The Contract Items described below shall be treated as contingency construction scope based on the availability of stone buried on site.

Item 144. Class B Rock Excavation: Description - existing buried stone masonry spandrel walls on the viaducts to be removed and reused for Item 693. Stacked Boulder Block Wall – Salvaged Class B Rock and Item 986.5 Cut Slope Stone Embankment – Salvaged Class B Rock.

The quantities contained in the Contract are set forth as a basis for the comparison of bids only and may not reflect the actual quantity of work to be performed. The Department reserves the right to increase, decrease or eliminate the quantity of any particular contingency item of work.

No allowances or payment will be made to the Contractor for losses or profits suffered or claimed by the Contractor that result directly or indirectly from increased, decreased or eliminated quantities or from unbalanced allocation among the contract items based on these contingency items of work or from any other related causes. It is the intention of this provision to preserve the basis of design of the project, limit the Contractor's risk related to unforeseen conditions and to control unforeseen costs incurred by the Commonwealth.

Where the actual quantity of Item 144 is insufficient to complete the work of both Item 693 and Item 986.5 the following contingencies shall be applied to the Contract Price for each of the Contract Items listed below.

Item 693. Stacked Boulder Block Wall – Salvage Class B Rock shall be considered a priority over Item 986.5. Excavate, transport, stockpile and evaluate the quantity and volume of Item 144 Class B Rock required for Item 693. Determine the quantity and volume of remaining Item 144 Class B Rock available for construction of Item 986.5. Report findings to the Engineer. Do not commence construction of Item 693 or Item 986.5 until authorized to do so by the Engineer.

#### **Construction Contingency Plan**

When insufficient quantities of Item 144 are available to complete both the arched headstone course and vertically stacked sloped granite stone contained in detail "Cut Slope Stone Embankment – Base Bid" the following contingency shall be applied to the work of this Contract.

1. Contingency 1 - Cut Slope Stone Embankment –When the Contractor determines there is sufficient salvaged Item 144 Class B Rock to complete construction of all arched headstone courses of the seven embankments but there is not enough Item 144 Class B Rock to complete all of the stacked sloped granite stone surfaces then the following work shall be deleted and installed:
  - a. Delete:
    - i. Installation of Item 986.5 Cut Slope Stone Embankment – Salvaged Class B Rock complete and in place including,
    - ii. Compacted aggregate base from under the stacked slope granite stone surface
    - iii. Peastone swept into the stone joints
    - iv. Filter fabric under aggregate
  - b. Provide and Install:
    - i. 18-inches of planting soil,
    - ii. Coir mat,
    - iii. Coir staples, and
    - iv. Ornamental grass planting.
2. Contingency 2 – Cut Slope Stone Embankment –When the Contractor determines there is not sufficient salvaged Item 144 Class B Rock to complete construction of all arched headstone courses of the seven embankments and there is not enough salvaged Item 144 Class B Rock to complete all of the stacked sloped granite stone surfaces then the following work shall be deleted and installed:
  - a. Delete:
    - i. Installation of Item 986.5 Cut Slope Stone Embankment – Salvaged Class B Rock complete and in place including,
    - ii. Compacted aggregate base from under the stacked slope granite stone surface
    - iii. Peastone swept into the stone joints
    - iv. Filter fabric under aggregate
  - b. Provide and Install:
    - i. 18-inches of planting soil,
    - ii. Coil logs
    - iii. Wood stakes
    - iv. Coir mat,
    - v. Coir staples, and
    - vi. Ornamental grass planting.

## **SCHEDULE**

The work under this Contract shall be planned and organized in such a manner that the work can be completed within 36 months from the Notice-to-Proceed (NTP).

The Contractor is to prosecute construction during Daytime hours as defined below. Daytime refers to the period from 7:00 a.m. to 6:00 p.m. local time daily, except Sundays and legal holidays. No work outside the above listed hours will be permitted except upon express written permission



by the Engineer. All work shall be coordinated with other Department projects, and/or other projects, in the vicinity.

The Contractor shall be required to submit to the Engineer, for approval, a schedule of operations by means of the Critical Path Method, or other approved method, of the proposed construction schedule within ten calendar days after Notice-to-Proceed. Approval of the Contractor's schedule of operations by the Engineer does not relieve the Contractor from the responsibility of completing the work within the time specified. It is assumed that the Contractor has the required means to perform the specified work within the specified time frame.

No work shall be allowed on holidays or on dates of special events, including, but not limited to, the following:

- Memorial Day
- 4 July, Independence Day
- Labor Day
- Day before Thanksgiving Day
- Thanksgiving Day
- Day before Christmas Day
- Christmas Day
- Day before New Year's Day
- New Year's Day

Written requests to work on any State Holiday shall be submitted fifteen days in advance to the Engineer for approval.

The Contractor shall prioritize completing the proposed viaduct and retaining wall repairs adjacent to 3 Farnum Street, 7 Farnum Street, and 10 Mill Street. The repairs at these properties shall be performed and completed during the first season of Construction to minimize impacts to the property owners. The Contractor shall limit work adjacent to these properties to occur between 8 a.m. and 3 p.m.

#### **TRAFFIC LIMITATIONS – GENERAL**

The Contractor shall be responsible for maintenance and coordination of traffic. The Contractor shall take all precautions for preventing injuries to persons or damage to property in or about the work area. Contractor shall coordinate any work that will impact the travel way with the Town of Blackstone, MA and North Smithfield, RI.

## **ENGINEER'S FIELD OFFICE, LAYDOWN AREAS, AND PARKING**

The Contractor shall submit a plan indicating the location of laydown and storage areas, worker parking, the Resident Engineer's field office, and all such areas to the Department for review and approval.

### **PLANS**

(Supplementing Subsection 5.02)

The Contractor shall furnish Mylar "AS BUILT" plans of the completed project to the Engineer. These "AS BUILT" plans shall be furnished prior to the date of final acceptance. Full compensation for these plans shall be included in the prices bid for the various Contract items of work and no additional compensation will be allowed therefor.

The Engineer will make the original drawings available to the Contractor for the making of reproducible duplicates for use in preparing the as-built drawings. However, the Contractor may request a CADD version of the contract drawings as an alternative method for preparing the "AS BUILT" plans. In either case, final "AS BUILT" plans shall contain all information shown on the contract drawings and shall clearly indicate areas where changes were made during construction.

The "AS BUILT" plans shall be titled "AS BUILT" and stamped and dated by a Professional Engineer registered in the Commonwealth of Massachusetts. The Professional Engineer's stamp is required to certify any changes made to the contract drawings and shall not dictate responsibility for the original design drawings.

The "AS BUILT" plans will provide a record of constructed improvements that include, but are not limited to, signal system layout, utility infrastructure, aerial utilities, and walls. The "AS BUILT" plans are for future reference, therefore partial plan sets will not be accepted. The Contractor may elect to use a combination of reproducible duplicates of the design drawings and revised CAD drawings to provide a complete set of "AS BUILT" plans.

The Contractor shall also provide a copy of the electronic copy of the "AS BUILT" plans to the Town of Blackstone.

### **CONSTRUCTION STAKING**

(Supplementing Subsection 5.07)

The Contractor will be furnished information and ties for the survey baseline and benchmarks. The Contractor shall perform all surveys required for the work. This work shall be considered incidental and no separate payment will be made.

The Contractor shall be responsible for establishing baselines from traverse and benchmark control data provided in the Plans. The Contractor shall re-establish any bench marks and traverse

points disrupted by construction activities, and provide updated information to the Designer and the Engineer prior to construction completion. All work associated with the establishment of baselines and re-establishment of bench mark controls shall be incidental to the Contract, and as such no additional payment will be paid for the work.

### **INSPECTION ASSISTANCE**

The Contractor shall provide ready and convenient access for the Engineer, Designer, and Inspection Agencies to all parts of the structure, including furnishing, erecting, moving, operating scaffolding, platforms, ladders, and other facilities reasonably required for such access.

The Contractor's charges for such assistance to the Inspectors shall be included in the unit price of the various items of work.

The examinations, measurements, and inspections to be accomplished with the Contractor's assistance include, but are not limited to, the following services:

1. Detailed visual examination of all parts of the structure to be repaired
2. Testing of bolts
3. Inspection of size and quality of welds
4. Detailed visual examination of all parts of the structure to be cleaned and painted

### **WEATHER CONDITIONS**

In the event of temporary suspension of work or during inclement weather, or as the Engineer or Designer requires, the Contractor shall be responsible for the protection of the work and all subcontractors and their work and materials against damage or injury from the weather. If, in the opinion of the Engineer or Designer, any work or materials have been damaged or injured by reason of failure on the part of the Contractor or any of the subcontractors to protect the work, such work and materials shall be removed and replaced at the expense of the Contractor.

### **PERMITS AND FEES**

All necessary permits and permit fees from the Town of Blackstone are the responsibility of the Contractor.

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)**  
**FILE NUMBER SIGN**

(Supplementing Subsection 7.01)

This project is subject to Massachusetts General Laws, Chapter 131, Section 40, as amended.

No separate payment shall be made for the signs, but all costs for the manufacture, erection, maintenance, moving, and removal of the signs shall be included in the prices bid for the various contract items.

For this project the Massachusetts Department of Environmental Protection File Number is 110-375 in Blackstone.

The Contractor is advised that the Order of Conditions (MassDEP File No. 110-375) issued by the Town of Blackstone on April 9, 2019 is part of this contract. A copy of this order is included within these special provisions.

The Contractor shall be responsible for meeting the orders for conditions attached. No separate payment shall be made for complying with the Order of Conditions, except as noted in the Special Provisions, but all costs in connection therewith shall be included in the unit prices bid for the various contract items.

**CORRESPONDENCE**

All correspondence shall be delivered to the Resident Engineer for distribution and addressed to the Chief Engineer with copies to the Resident Engineer, Project Engineer, District Supervisor, and Designer.

**SOURCES OF MATERIALS**

All sources of materials shall be submitted at least thirty days before anticipated use to allow for testing by the Department. A schedule of anticipated use for each material shall also be submitted. The Department reserves the right to reject any source which it believes is incapable of meeting the Contract Specifications.

## **RESTRICTED MATERIALS**

All new construction materials shall be asbestos-free including any roofing felt, adhesives, waterproofing materials, grout, or sealer that may be used in project construction.

All yellow and white temporary and permanent pavement markings, including all pavement marking tape, placed as part of this project shall be lead-free.

## **SITE MAINTENANCE**

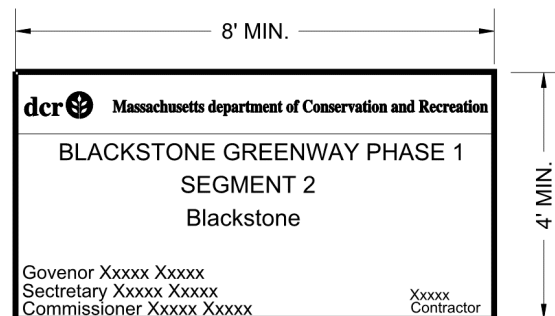
The Contractor shall conduct his/her work in a neat, orderly manner and shall cooperate with maintenance forces of the Department of Conservation and Recreation by keeping the site of the work and adjoining area(s) usable and in a neat condition. Debris from construction operations shall be removed on a daily basis. Compensation for this service, unless otherwise stipulated in these specifications, will not be made as a separate item in the contract but will be considered as operating overhead included in the total contract bid price.

## **PROTECTION OF THE SITE**

The Contractor shall protect the site and prevent unauthorized access to the site both during and between construction shifts by installing temporary construction fencing to sufficient limits to completely enclose each work area. Laydown and storage of materials and equipment, which is interpreted as a hazard to the public, shall be similarly protected. The cost for protecting the work site is considered incidental to the various items of work.

## **PROJECT SIGNS**

The Contractor shall furnish and erect at a suitable location, approved by the Project Engineer, at the start of the work, a sign having dimensions of at least eight (8) feet long by four (4) feet high, bearing the words: Massachusetts Department of Conservation and Recreation. Also included may be the project title, expected completion date, and facility name.



"DCR PROJECT SIGN EXAMPLE"

The Contractor shall submit the design of the sign to the Project Engineer for review and approval prior to posting.

No separate payment shall be made for the signs, but all costs for the manufacture, erection, maintenance, moving, and removal of the signs shall be included in the prices bid for the various contract items.

### **PUBLIC SAFETY AND CONVENIENCE**

(Supplementing Subsection 7.09)

The Contractor shall provide access for fire apparatus and other emergency vehicles through the work zones to abutting properties at all times.

The Contractor shall conduct the required work in a neat, orderly manner and shall cooperate with maintenance forces of the Department of Conservation and Recreation by keeping the site of the work and adjoining area(s) usable and in a neat condition. Debris from construction operations shall be removed from the project area on a daily basis. Compensation for this service will not be made as a separate item in the contract, but will be considered as operating overhead included in the total contract bid price.

Sweeping and cleaning of surfaces beyond the limits of the project required to clean up material caused by spillage or vehicular tracking during the various phases of the work shall be considered as incidental to the work being performed under the Contract and there will be no additional compensation.

### **PROVISIONS FOR TRAVEL AND PROSECUTION OF THE WORK**

(Supplementing Subsection 8.03)

The Contractor is responsible for providing temporary traffic controls. Before starting any work under this Contract, the Contractor shall prepare, and submit to the Engineer for approval, a plan (based on the Contract traffic management plans) that indicates the traffic routing proposed by the Contractor during the various stages and time periods of the work and the temporary barricades, signs, drums and other traffic control devices to be employed during each stage and time period of the work to maintain traffic and access to abutting properties. Night work shall not be allowed.

Care shall be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Traffic control devices required only during working hour operations shall be removed at the end of each working day.

The Contractor shall notify the Engineer in writing two (2) weeks in advance of any proposed temporary roadway closures necessary to complete the work. Work on roadways shall proceed only on such sections and widths thereof as will be approved by the Engineer.

The Contractor shall serve written notice to all abutters 24 hours in advance of any reconstruction work adjacent to their property, and during such time that construction is in progress, provide safe access to the abutting properties. The Contractor shall always schedule his operations to minimize interruption to the normal flow of traffic.

The Contractor shall provide safe and ready means of ingress and egress to all stores and shops, public and private and professional offices, and any other businesses or residences within the project limits, both day and night, for the duration of the project. Any temporary access disruption during business hours shall be coordinated with the owner prior to scheduling the work.

Traffic control devices required only during working hour operations shall be removed at the end of each working day.

Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.

### **TEMPORARY ACCESS TO AREA MERCHANTS, BUSINESSES AND RESIDENTS**

(Supplementing Subsections 8.02 and 8.06)

The work is in a mixed-use area with residential, retail and commercial businesses and access to all properties must be maintained at all times.

The Contractor shall provide safe and ready means of ingress and egress to all residences, stores and shops, public and private and professional offices and any other businesses or residences in the project area, both day and night, for the duration of the project.

### **PRESERVATION OF ROADSIDE GROWTH**

(Supplementing Subsection 8.08)

The Contractor shall take all necessary care when excavating or working in the vicinity of existing trees so that the root systems, trunks, and branches are not damaged. All precautions shall be taken to insure that heavy equipment does not damage any roots, including those that lie below the limits of excavation.

Do not store equipment or stockpile materials within drip line of trees or in areas enclosed by tree protection fencing.

Avoid any direct soil contamination in root zone area by petroleum, petroleum products or solvents, salts or any other pollutant during construction.

All cutting or trimming of trees to be preserved shall be performed by a Massachusetts Certified Arborist. The Contractor shall provide the Engineer with a copy of the certification prior to any work on trees.

Existing plants adjacent to construction may be protected as a group using temporary tree protection fence as specified under Item 102.521. Individual trees close to construction may be protected using individual tree protection as specified under Item 102.511.

Prior to any construction activities, the Contractor shall walk the site with the Engineer and DCR to identify which trees will require protection and to determine approved measures.

The replacement cost of trees that, in the judgment of the Engineer, have been irreparably damaged by the Contractor shall be paid for in full by the Contractor. If acceptable to the Owner, replacement may be made with an equivalent number of small diameter plants. Cost of replacement trees shall be paid by the Contractor.

Cost of removal of destroyed tree, including roots and stump, as well as the cost of replacement trees, shall be paid for by the Contractor.



**NOTICE TO OWNERS OF UTILITIES**

(Supplementing Subsection 7.13)

Written notice shall be given by the Contractor to all public service corporations or municipal and State officials owning or having charge of publicly or privately owned utilities at least one week in advance of the commencement of operations that will affect the utilities. The Contractor shall, at the same time, file a copy of such notice with the Engineer.

Before commencing work on service connections, the Contractor shall be responsible for contacting the Electric Company servicing the area to obtain construction requirements, standards, and to give notice of commencement of work.

The following are the names of owners and representatives of the principal utilities affected, but completeness of this list is not guaranteed by the Department:

**BLACKSTONE:**

Blackstone DPW

Jimmy Sullivan  
53 Elm Street  
Blackstone, MA 01504  
Phone:(508) 883-9331

TELEPHONE-VERIZON

Karen Mealey  
385 Myles Standish Blvd.  
Taunton, MA 02780  
Phone: (774) 409-3160

Blackstone Fire Department

Chief Michael Sweeney  
15 St. Paul Street  
Blackstone, MA 01504  
Phone:(508) 883-1030

VERIZON RHODE ISLAND

Pete DeCosta  
85 High Street  
Pawtucket, RI 02860  
Phone: (401) 727-9543

Blackstone Police Department

Chief Ross A. Atstupenas  
15 St. Paul Street  
Blackstone, MA 01504  
Phone:(508) 883-1212

GAS- BLACKSTONE GAS CO.

Steve Jolocoour  
61 Main Street - P.O. Box 162  
Blackstone, MA 01504  
Phone: (508) 883-9516

ELECTRIC-NATIONAL GRID

Jack Saraiva  
1250 Brayton Point Rd  
Somerset, MA 02725  
Phone: (508) 962-6298

TENNESSEE GAS PIPELINE COMPANY

David Wood  
8 Anngina Drive  
Enfield, CT 06082  
Phone: (860) 763-6005

ENBRIDGE GAS

Kathy M. Aruda  
8 Wilson Way  
Westwood, MA 02090  
Phone : (508) 938-7728

CABLE CROWN CASTLE

Mark Bonanno  
80 Central Street  
Boxborough, MA 01719  
Phone: (508) 616-7818

**NORTH SMITHFIELD, RI:**

North Smithfield DPW  
Mr. Raymond J. Pendergast Jr.  
281 Quaker Highway  
North Smithfield, RI 02896  
401-767-2200

North Smithfield DPW  
Mr. Raymond J. Pendergast Jr.  
281 Quaker Highway  
North Smithfield, RI 02896  
401-767-2200

North Smithfield Fire Department  
Chief Joel D. Jillson  
1470 Providence Pike  
North Smithfield, RI 02896  
401-769-2788

North Smithfield Police Department  
Chief Steven E. Reynolds  
575 Smithfield Road  
North Smithfield, RI 02896  
401-762-1212

CABLE COMCAST

Wendy Brown  
676 Island Pond Road  
Manchester, NH 03109  
Phone: (603) 541-1082

RAILROAD PROVIDENCE &  
WORCESTER R.R.

David Cuthbertson  
75 Hammond St.  
Worcester, MA. 01610  
Phone: (508)-755-4000

Cox Communications  
Mr. David Velilla  
9 J P Murphy Highway  
West Warwick, RI 02893  
401-615-1284

National Grid  
Thomas Capobianco  
280 Melrose Street  
North Smithfield, RI 02907  
401-784-7248

National Grid Gas  
May Y. Zhen  
40 Sylvan Road  
Waltham, MA 02451  
781-907-2845

Verizon  
Mr. Peter DeCosta  
85 High Street  
Pawtucket, RI 02860  
401-727-9543

The Contractor shall make the Contractor's own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, and other utilities will occur as a result of construction operations.

The Contractor shall notify "Mass. DIG SAFE" and procure a DIG SAFE number of each location prior to disturbing ground in any way.

"DIG-SAFE" Call Center: 811 or 1-888-344-7233.

### **PROTECTION OF UTILITIES AND PROPERTY**

(Supplementing Subsection 7.13)

The Contractor shall be responsible for existing fences, walls, utilities, structures, light poles, pipes, and conduits within the area of the work, and shall be liable for damages done by or as a result of the Contractor's operation. The cost of repair for damages shall be paid for by the Contractor.

It shall be the Contractor's responsibility to verify the location of all existing utilities. Prior to the start of the work, the Contractor shall verify that existing utilities will not interfere with demolition or any other essential activities. Detected conflicts between existing structures, utilities, and facilities and the new work shall be called to the Engineer's attention for investigation and direction.

The Contractor, in constructing or installing facilities alongside or near sewers, drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls, vaults or other structures shall sustain them in place.

The Contractor shall coordinate with the officers and agents of the various utility companies and municipal departments to assure that the services of these structures are maintained. The Contractor shall also be responsible for the repair or replacement, at no additional cost to the Owner (DCR), of any damage to such structures caused by construction operations. The Contractor is responsible to leave them in the same condition as they existed prior to commencement of the work.

In case of damage to utilities, the Contractor shall promptly notify the utility owner and shall, if requested by the Engineer, furnish labor and equipment to work temporarily under the utility owner's direction. Pipes or other structures damaged by the operation of the Contractor will be

repaired by DCR or by the utility owner which suffers the loss. The cost of such repairs shall be paid by the Contractor, without compensation from the Department.

If during construction there is an existing utility and/ or structure found to be in conflict with the proposed work under this Contract, the Contractor shall protect and maintain the services to the utilities and structures. The Engineer will, as soon as possible identify the utilities to be relocated or other such activities deemed suitable for resolution.

If live service connections are interrupted by excavations of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall be plugged off or otherwise made secure.

In the case of damage to any utility due to his/her operation, the Contractor shall promptly notify the utility owner. Such damages may be repaired by the municipality, agency, department, or utility company that suffers the loss, and the cost of repairs shall be borne by the Contractor without additional compensation.

Scheduling of construction activities shall be coordinated with all relevant public and private agencies and organizations.

No work on any private-utility-owned facilities shall be performed by the Contractor until he has obtained the approval from the utility company in writing.

The Contractor shall be responsible for notifying all utility companies and the Engineer when he intends to perform work affecting the various utilities.

Any required temporary support of utilities for the Contractor's own convenience shall be done by the Contractor at his/her own expense and shall have prior written approval of the Engineer.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in protecting or repairing property as specified in this Section, shall be considered included in the prices paid for the various Contract items of work and no additional compensation will be allowed therefor.

## **WORK IN THE IMMEDIATE VICINITY OF CERTAIN UNDERGROUND STRUCTURES AND UTILITY POLES**

The Contractor, in constructing or installing new or temporary work in the vicinity of cables, drains, electric or telephone conduits, or other similar utilities shall protect and support them securely as necessary, cooperating with the Department and officers and agents of the various utility companies, the Town of Blackstone, any state agencies or municipal departments which control the facilities, and as directed by the Engineer, so that the services of these structures shall be maintained. The Contractor shall also be responsible for the repair or replacement of any damage to such structures caused by his/her acts or negligence, and shall leave them in the same condition as they existed prior to the commencement of work. Support systems shall be approved by the Engineer and the utility agency prior to installation.

In the case of damage to any utility due to his/her operation, the Contractor shall promptly notify the utility owner. Such damages may be repaired by the municipality, agency, department, or utility company that suffers the loss, and the cost of repairs shall be borne by the Contractor without additional compensation from the Department.

Scheduling of construction activities shall be coordinated with all relevant public and private agencies and organizations.

No work on any private-utility-owned facilities shall be performed by the Contractor until he has obtained the approval from the utility company in writing.

The Contractor shall be responsible for notifying all utility companies and the Engineer when he intends to perform work affecting the various utilities.

Any required temporary support of utilities for the Contractor's own convenience shall be done by the Contractor at his/her own expense and shall have prior written approval of the Engineer.

## **SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS**

(Supplementing Subsection 850.21)

Safety controls for construction operations shall be done in accordance with the relevant provisions of Section 850 of the Standard Specifications, the Manual on Uniform Traffic Control Devices, the Traffic Management Plan and the following:

Positioning, adjusting and re-positioning of all devices such as traffic cones, high level warning devices, etc., not otherwise classified and paid for under other Items in this Contract, is considered incidental and no separate payment shall be made.

## **WORK DONE BY OTHERS**

Relocation and/or resetting to new grades of all private utilities, including utility poles, made necessary by the construction of this project, will be accomplished by the respective utility companies.

## **MATERIAL REMOVED AND STACKED**

The Contractor shall carefully remove, transport and stack all material that, in the opinion of the DCR or the Town of Blackstone, is salvageable. The material shall be stacked on site. The Contractor shall coordinate with the Engineer to schedule drop-off time and location.

## **DISPOSAL OF SURPLUS MATERIALS**

Surplus materials obtained from any type of excavation, and not needed for further use as determined by the Engineer shall become the property of the Contractor and shall be removed from the site during the construction period and legally disposed of. The removal and disposal of surplus material shall adhere to the regulations and requirements of the Commonwealth of Massachusetts and local authorities governing the disposal of such materials, at no additional compensation. The Contractor shall restore site to original conditions, subject to the requirements of the Engineer.

## **FINE GRADING AND COMPACTING**

The work shall conform to the provisions of Sections 150 and 170 of the standard Specifications and the following:

Compaction shall not be less than 95 percent of the maximum dry density of the material. Compaction testing shall be required every 800 feet and shall be conducted by an independent lab that is paid for by the Contractor. The payment for fine grading and compacting shall be

included in the unit price bid for the respective items, unless otherwise specified in the item provisions below.

### **ARCHITECTURAL ACCESS BOARD TOLERANCES**

The Contractor is hereby notified that he/she is ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB).

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope nor for dimensions less than the minimum dimensions.

### **EMERALD ASH BORER ADVISORY**

To the extent possible, all trees and brush shall be disposed on site, typically chipped and spread in place. When trees or brush must be removed, such as in urban, or otherwise populated areas, Contractor shall identify proposed location for disposal, and provide written notification to the Engineer for approval. Disposal shall be in city or town of project of construction operations.

### **NEW INTRODUCTIONS OF INVASIVE PLANTS INTO OR AROUND THE SITE**

(Supplementing Subsections 7.01(D) Plant Pest Control and 7.13 Protection and Restoration of Property)

The Contractor shall ensure that no invasive plant species, as defined and listed by the Massachusetts Invasive Plant Advisory Group, are introduced or moved around the site by construction activities either by improperly cleaned construction equipment or importation of infected materials such as borrow, compost, nursery stock, seed, or hay bales. Corrective measures, if necessary, shall be made by the Contractor as directed by the Engineer. The Contractor shall be solely responsible for all costs associated with ensuring that invasive species are not introduced or moved around the site by construction activities and for all corrective measures required for as long as necessary to eliminate the introduced invasive plant species and prevent re-establishment of same. Item 102.31 includes compensation for site assessment to determine pre-construction presence of invasive plants as well as methods of control.

## **PROPERTY BOUNDS**

The Contractor shall exercise care when working around property bounds which are to remain. Should any damage to a bound result from the actions of the Contractor, the bound shall be replaced and/or realigned by the Contractor as required by the Engineer at no cost to the Owner.

## **DAMAGES**

All structures, property, and areas, whether within or beyond the site of the work, that are damaged by the Contractor shall be restored to their original condition at no cost to the Owner.

## **FINAL INSPECTION**

When, in the opinion of the Contractor, the work is complete and ready for final inspection, he/she shall notify the Engineer and Designer in writing, and the Engineer and Designer will arrange to give the entire work a thorough inspection. Before final payment will be made, any defects or omissions noted by this inspection shall be completed by the Contractor without additional compensation.

## **PROGRESS CHART AND PHOTOGRAPHS**

The Contractor shall prepare and maintain a Progress Chart, drawn to a suitable scale, to indicate with symbols the percentage of the work completed. The Contractor shall update the Progress Chart weekly and shall submit copies of the same to the Engineer and Designer.

Photographs shall be taken documenting the construction. A minimum of 20 pictures of each work zone shall be taken every week. The photographs shall be submitted electronically to the Engineer and Designer.

## **SAFETY AND FIRST-AID REQUIREMENTS**

The Contractor shall have a full-time on-site experienced Safety Supervisor or Representative, who is charged with the sole responsibility of on-site safety management. The Contractor shall submit, within five working days after receipt of Notice-to-Proceed (NTP), to the Engineer a detailed site-specific Safety Program, along with the name, experience, and qualifications of the Contractor's full-time, on-site Safety Supervisor or Representative. This submittal shall be approved by the Engineer prior to the start of construction. No work at the job site shall begin until the Engineer has reviewed and approved the Contractor's Safety Program and Safety



Representative. Implementation and enforcement of the Safety Program for the forces of the Contractor and all subcontractors shall be the sole responsibility of the Contractor.

The Contractor's full-time Safety Supervisor or Representative shall have a thorough knowledge of construction safety and Department of Labor Occupational Safety and Health Administration (OSHA) regulations. If, in the opinion of the Engineer, the Contractor's Safety Representative is not effective in carrying out the duties assigned and as described below, the Engineer has the option to request, in writing, that the Contractor replace the Safety Representative.

The duties of the Safety Supervisor or Representative shall include maintenance of the Contractor's Safety Program, enforcement of safe practices, and the use of safety equipment and personal protection equipment, and other such activities as required by OSHA and the Engineer to maintain job safety and accident prevention. The Safety Representative shall not be changed, terminated, or reassigned without the written approval of the Engineer.

Compliance with OSHA and all other safety laws and regulations is the exclusive responsibility of the Contractor, subcontractors, suppliers, and consultants.

The Contractor and any subcontractor shall not require any laborer or mechanic employed in performance of the Contract to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to safety or health, as determined under Construction Safety and Health Standards (Title 29), Code of Federal Regulations, Part 1518, published in the Federal Register on 17 April 1971) promulgated by the United States Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (83 Stat. 96).

The Engineer has the option to stop any work that he/she considers to be unsafe.

The Contractor shall notify the Engineer 48 hours prior to bringing in hoisting equipment (cranes, etc.) on the Department or Town's property. Equipment shall be inspected by the Department before being used on the work site.

The Contractor shall assume full responsibility for the safety of the work. The Contractor shall perform work in a manner that will ensure the safety of personnel and the work, and shall not expose personnel and equipment to hazardous or potentially hazardous conditions. Work in the construction of the project shall comply with the requirements of the OSHA provisions, as well as those of State and local regulations. Safe breathing levels shall conform to the Massachusetts Department of Environmental Protection (DEP) standards. In the case of conflict of regulations, the most stringent regulations shall apply.

The Contractor shall provide at the site such equipment and medical facilities required to supply first-aid service to any person who is injured in the progress of the work. At least one individual member of the Contractor's staff, properly qualified with current certification (Red Cross or equivalent) in basic first aid and cardiopulmonary resuscitation (CPR), shall be continuously present, on the site at all times when work is in progress. This individual shall also have a general knowledge regarding blood-borne pathogens. First-aid equipment shall be complete in all respects.

The Contractor shall also have standing arrangements for the removal and hospital treatment of any employee who is injured or becomes ill.

The Contractor shall promptly report in writing to the Department all accidents whatsoever arising out of or in connection with the performance of the work, whether on or adjacent to the site, which cause death, personal injury or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone to the Department.

If any claim is made by any third person against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the fact in writing to the Department, giving full details of the claim.

The Contractor shall be required to comply with the applicable requirements of the Environmental Protection Agency's National Emission Standards for Hazardous Air Pollutants, Part 51, Chapter 1, Title 40, Code of Federal Regulations, Subpart B, effective 6 April 1973, and as amended 5 October 1975 (published 14 October 1975, in the Federal Register), and also Subpart M published in June 1984.

The Department shall not compensate the Contractor for delays or denials to work when the Contractor is in violation of the above regulations.

### **PERSONAL PROTECTIVE SAFETY EQUIPMENT FOR CONTRACTOR PERSONNEL**

The Contractor is responsible to ensure that all personnel, including all subcontractors, working on the project are issued and are wearing required personal protective safety equipment while working within the project limits. This equipment shall include, as a minimum, a hardhat and a safety vest, regardless of the type of work being performed. Other safety equipment shall be added as required to perform the work in which he/she is engaged and in accordance with all local, State and Federal requirements in effect. Safety equipment shall be provided by the Contractor at no additional cost to the Department.

## **ADDITIONALLY INSURED PARTIES**

Any non-DCR property which the Contractor is required to enter upon to perform the work pursuant to the Right of Entry Licenses (see unsigned Right of Entry Licenses) and as shown on the Plans, shall name the property owner as additionally insured on the Contractor's Public Liability Insurance Policy, and a full original copy of the certificates of insurance shall be delivered to each property owner prior to beginning work and entering onto the property.

## **RIGHT OF ENTRY AGREEMENT**

Property Address: 10 Mill Street, Blackstone MA

Date:

I, **Leo M. Coutu**, with an address of 10 Mill Street, Blackstone, MA 01504 (“Licensor”), for good and valuable consideration but no monetary consideration, the receipt and sufficiency of which are hereby acknowledged, hereby grant to the **Commonwealth of Massachusetts**, acting by and through its **Department of Conservation and Recreation**, with an address of 251 Causeway Street, Suite 600, Boston, MA 02114 (the “Department”), and in accordance with and under the authority of section 38 of Chapter 132 and sections 2 through 3 of Chapter 132A of the Massachusetts General Laws, as amended, and all other statutory authority so enabling, and its successors, assigns and authorized employees, permittees, invitees and contractors, a temporary and irrevocable Right of Entry (the “Right of Entry”), subject in all respects to the following terms and conditions, to enter upon the Entry Area (as hereinafter defined) and to pass and re-pass, as stated herein, to access adjacent property of the Department (collectively, the “Access”):

1. Entry Area. That portion of the Licensor’s property, situated in the Town of Blackstone, show as Assessor’s Map 8 Lot 112 on 10 Mill Street and described in a deed to Leo M Coutu and Elaine J. Coutu in Book 9673 Page 378 in the Worcester County South Registry of Deeds (the entire parcel described in said deed hereinafter the “Locus”), with the Entry Area also shown on the attached sketch plan attached hereto and incorporated herein as Exhibit A.
2. Purpose. Licensor acknowledges that the purpose of the Right of Entry is to allow the Department, its employees, agents, authorized permittees, invitees, consultants, and contractors to pass and repass through the Entry Area to access adjacent property of the Department associated with the planned design, layout and construction of a public multi-purpose recreational corridor on the adjacent land (the “Project”). Access shall include on foot, by vehicle, truck, trailer, construction equipment, delivery equipment, and all other modes of travel or machinery necessary in the Department’s determination for the design, layout and construction of the recreational corridor on adjacent Department land.
3. Required Notice and Term. The Department shall provide the Licensor fourteen (14) days prior written notice (the “Commencement Notice”) of the date on which the Department and other parties listed in paragraph 2 will first enter the Entry Area (the “Commencement Date”). The Right of Entry shall be effective for two years following the Commencement Date (the “Term”), after which Term the Right of Entry shall terminate and no longer be of any force or effect. The Department may terminate the Right of Entry at an earlier date by written notice to the Licensor.

4. Conditions and Limitations on Right of Entry.
  - A. Notwithstanding any other provision hereof, the Right of Entry is limited to the Entry Area specifically shown on Exhibit A. The Department shall have no right to enter upon, use or occupy any other portion of the Locus unless Licensor approves such deviation in writing at least forty-eight (48) hours in advance. The Department may use the Entry Area for passage across the Locus and for temporary storage of materials and equipment and temporary improvements such as fencing and staging as the Department determines necessary to complete the Project in a safe and efficient manner.
  - B. Prior to the expiration of the Right of Entry, the Department shall require that its contractors repair and restore any waste or damage resulting from the Access upon the Entry Area to substantially the same or better condition as exists at the Commencement Date.
  - C. Access shall be limited to work hours as set by the Department, but in no circumstances (except in the case of an emergency) shall access occur earlier than 8 am or later than one hour after sunset.
5. No Interest in Real Property. The Right of Entry is a temporary license only. This Right of Entry Agreement shall not be construed as creating an easement, lease or any other interest in real property, or as affecting in any way any other rights the parties hereto may have.
6. Risk of Loss. The Department agrees that the Department and its contractors shall enter upon the Entry Area at their risk. Licensor shall not be liable to the Department or any third-party contractors or any employees, agents, representatives, permittees or invitees of the same, or any person or entity claiming by or through any of them, for any claim whatsoever for any injury, loss or damage to any persons or property that occurs on the Locus unless caused by negligence, reckless or intentional conduct of the Licensor.
7. Insurance. Licensors understand that any claims against the Commonwealth of Massachusetts, including the Department, concerning personal injury, including death, and property damage are governed by Chapter 258 of the General Laws.

The Department shall require that third-party contractor's entering the Locus to procure and maintain, in full force and effect general public liability insurance against claims for personal injury, death or property damage, such insurance to afford protection to the limit of customary and reasonable amounts in accordance with the Department's standard construction specifications, and to provide that the same may not be canceled during the term of the Right of Entry. Any such policy insuring a third-party contractor shall also name the Licensor as an additional insured. The Department shall require that its contractors provide Licensor with certificates of such insurance for before such party may enter the Entry Area.

8. Governing Law. This Right of Entry Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

IN WITNESS WHEREOF, the undersigned Licensor and the Department have executed this Right of Entry Agreement in one or more counterparts as a sealed instrument as of the date first written above.

Licensor:

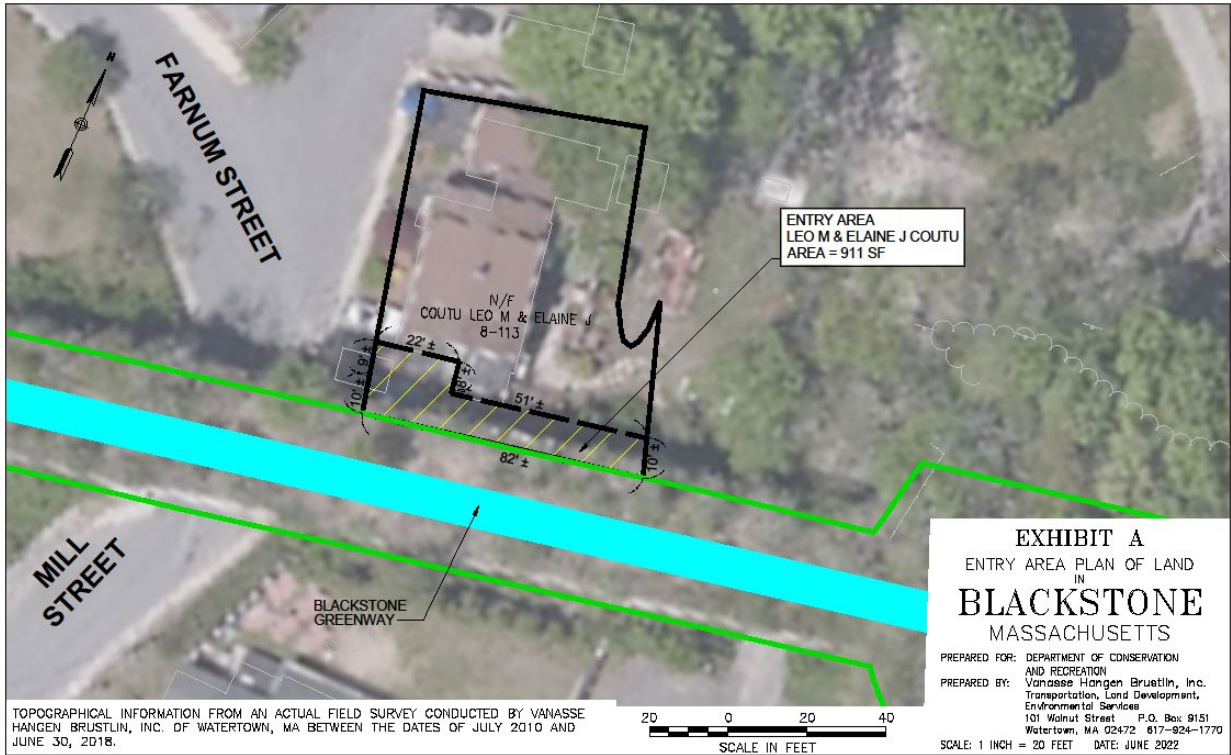
By:   
Name: Leo M. Coutu

THE DEPARTMENT:

DEPARTMENT OF CONSERVATION AND RECREATION

By: \_\_\_\_\_  
Name: Douglas J. Rice  
Title: Commissioner

# EXHIBIT A



## **RIGHT OF ENTRY AGREEMENT**

Property Address: Mill Street, Blackstone MA

Date:

**We, Richard Marchand and Shirley A. Marchand**, with an address of 137 Mendon Street, Blackstone, MA 01504 (“Licensor”), for good and valuable consideration but no monetary consideration, the receipt and sufficiency of which are hereby acknowledged, hereby grant to the **Commonwealth of Massachusetts**, acting by and through its **Department of Conservation and Recreation**, with an address of 251 Causeway Street, Suite 600, Boston, MA 02114 (the “Department”), and in accordance with and under the authority of section 38 of Chapter 132 and sections 2 through 3 of Chapter 132A of the Massachusetts General Laws, as amended, and all other statutory authority so enabling, and its successors, assigns and authorized employees, permittees, invitees and contractors, a temporary and irrevocable Right of Entry (the “Right of Entry”), subject in all respects to the following terms and conditions, to enter upon the Entry Area (as hereinafter defined) and to pass and re-pass, as stated herein, to access adjacent property of the Department (collectively, the “Access”):

1. Entry Area. That portion of the Licensor’s property, situated in the Town of Blackstone, show as Assessor’s Map 8 Lot 99 on Mill Street and described in a deed to Richard Marchand and Shirley A. Marchand in Book 31658 Page 159 in the Worcester County South Registry of Deeds (the entire parcel described in said deed hereinafter the “Locus”), with the Entry Area also shown on the attached sketch plan attached hereto and incorporated herein as Exhibit A.
2. Purpose. Licensor acknowledges that the purpose of the Right of Entry is to allow the Department, its employees, agents, authorized permittees, invitees, consultants, and contractors to pass and repass through the Entry Area to access adjacent property of the Department associated with the planned design, layout and construction of a public multi-purpose recreational corridor on the adjacent land (the “Project”). Access shall include on foot, by vehicle, truck, trailer, construction equipment, delivery equipment, and all other modes of travel or machinery necessary in the Department’s determination for the design, layout and construction of the recreational corridor on adjacent Department land.
3. Required Notice and Term. The Department shall provide the Licensor fourteen (14) days prior written notice (the “Commencement Notice”) of the date on which the Department and other parties listed in paragraph 2 will first enter the Entry Area (the “Commencement Date”). The Right of Entry shall be effective for two years following the Commencement Date (the “Term”), after which Term the Right of Entry shall terminate and no longer be of any force or effect. The Department may terminate the Right of Entry at an earlier date by written notice to the Licensor.



4. Conditions and Limitations on Right of Entry.
  - A. Notwithstanding any other provision hereof, the Right of Entry is limited to the Entry Area specifically shown on Exhibit A. The Department shall have no right to enter upon, use or occupy any other portion of the Locus unless Licensor approves such deviation in writing at least forty-eight (48) hours in advance. The Department may use the Entry Area for passage across the Locus and for temporary storage of materials and equipment and temporary improvements such as fencing and staging as the Department determines necessary to complete the Project in a safe and efficient manner.
  - B. Prior to the expiration of the Right of Entry, the Department shall require that its contractors repair and restore any waste or damage resulting from the Access upon the Entry Area to substantially the same or better condition as exists at the Commencement Date.
  - C. Access shall be limited to work hours as set by the Department, but in no circumstances (except in the case of an emergency) shall access occur earlier than 8 am or later than one hour after sunset.
5. No Interest in Real Property. The Right of Entry is a temporary license only. This Right of Entry Agreement shall not be construed as creating an easement, lease or any other interest in real property, or as affecting in any way any other rights the parties hereto may have.
6. Risk of Loss. The Department agrees that the Department and its contractors shall enter upon the Entry Area at their risk. Licensor shall not be liable to the Department or any third-party contractors or any employees, agents, representatives, permittees or invitees of the same, or any person or entity claiming by or through any of them, for any claim whatsoever for any injury, loss or damage to any persons or property that occurs on the Locus unless caused by negligence, reckless or intentional conduct of the Licensor.
7. Insurance. Licensors understand that any claims against the Commonwealth of Massachusetts, including the Department, concerning personal injury, including death, and property damage are governed by Chapter 258 of the General Laws.


The Department shall require that third-party contractor's entering the Locus to procure and maintain, in full force and effect general public liability insurance against claims for personal injury, death or property damage, such insurance to afford protection to the limit of customary and reasonable amounts in accordance with the Department's standard construction specifications, and to provide that the same may not be canceled during the term of the Right of Entry. Any such policy insuring a third-party contractor shall also name the Licensor as an additional insured. The Department shall require that its contractors provide Licensor with certificates of such insurance for before such party may enter the Entry Area.

8. Governing Law. This Right of Entry Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

IN WITNESS WHEREOF, the undersigned Licensor and the Department have executed this Right of Entry Agreement in one or more counterparts as a sealed instrument as of the date first written above.

Licensor:

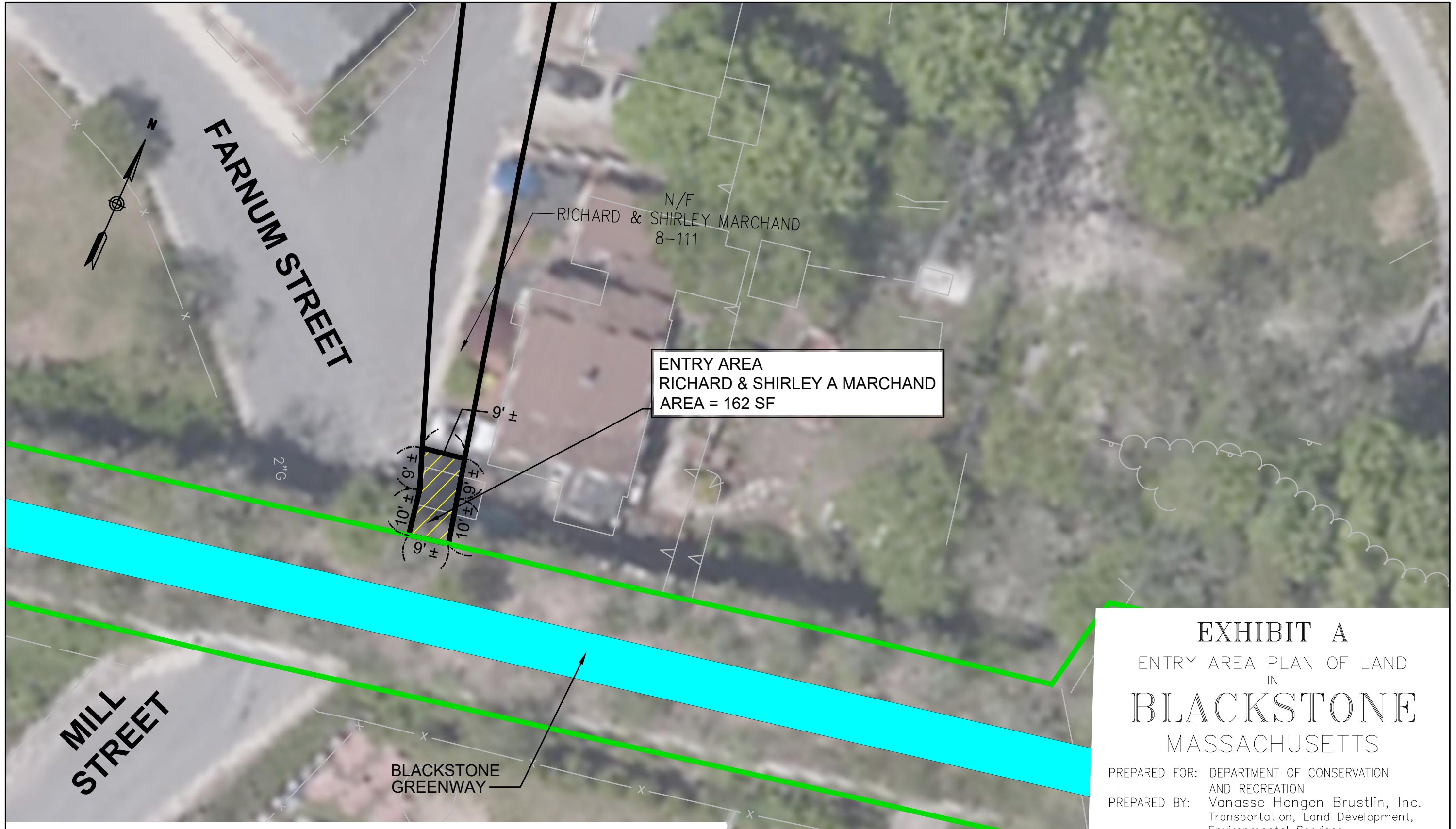
By:   
Name: Richard Marchand

By:   
Name: Shirley A. Marchand

THE DEPARTMENT:

DEPARTMENT OF CONSERVATION AND RECREATION

By: \_\_\_\_\_  
Name: Douglas J. Rice  
Title: Commissioner



TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY VANASSE HANGEN BRUSTLIN, INC. OF WATERTOWN, MA BETWEEN THE DATES OF JULY 2010 AND JUNE 30, 2018.



**EXHIBIT A**  
 ENTRY AREA PLAN OF LAND  
 IN  
**BLACKSTONE**  
 MASSACHUSETTS

PREPARED FOR: DEPARTMENT OF CONSERVATION AND RECREATION  
 PREPARED BY: Vanasse Hangen Brustlin, Inc.  
 Transportation, Land Development, Environmental Services  
 101 Walnut Street P.O. Box 9151  
 Watertown, MA 02472 617-924-1770

SCALE: 1 INCH = 20 FEET DATE: JUNE 2022

## RIGHT OF ENTRY AGREEMENT

Property Address: 3-5 Farnum Street, Blackstone MA

Date:

**I, Samuel S. Torrey III**, with an address of 62 Main Street, Medway MA 02053 (“Licensor”), for good and valuable consideration but no monetary consideration, the receipt and sufficiency of which are hereby acknowledged, hereby grant to the **Commonwealth of Massachusetts**, acting by and through its **Department of Conservation and Recreation**, with an address of 251 Causeway Street, Suite 600, Boston, MA 02114 (the “Department”), and in accordance with and under the authority of section 38 of Chapter 132 and sections 2 through 3 of Chapter 132A of the Massachusetts General Laws, as amended, and all other statutory authority so enabling, and its successors, assigns and authorized employees, permittees, invitees and contractors, a temporary and irrevocable Right of Entry (the “Right of Entry”), subject in all respects to the following terms and conditions, to enter upon the Entry Area (as hereinafter defined) and to pass and re-pass, as stated herein, to access adjacent property of the Department (collectively, the “Access”):

1. Entry Area. That portion of the Licensor’s property, situated in the Town of Blackstone, known as 3-5 Farnum Street and described in a deed to Samuel S. Torrey III in Book 21713 Page 114 in the Worcester County South Registry of Deeds (the entire parcel described in said deed hereinafter the “Locus”), with the Entry Area also shown on the attached sketch plan attached hereto and incorporated herein as Exhibit A.
2. Purpose. Licensor acknowledges that the purpose of the Right of Entry is to allow the Department, its employees, agents, authorized permittees, invitees, consultants, and contractors to pass and repass through the Entry Area to access adjacent property of the Department associated with the planned design, layout and construction of a public multi-purpose recreational corridor on the adjacent land (the “Project”). Access shall include on foot, by vehicle, truck, trailer, construction equipment, delivery equipment, and all other modes of travel or machinery necessary in the Department’s determination for the design, layout and construction of the recreational corridor on adjacent Department land.
3. Required Notice and Term. The Department shall provide the Licensor fourteen (14) days prior written notice (the “Commencement Notice”) of the date on which the Department and other parties listed in paragraph 2 will first enter the Entry Area (the “Commencement Date”). The Right of Entry shall be effective for two years following the Commencement Date (the “Term”), after which Term the Right of Entry shall terminate and no longer be of any force or effect. The Department may terminate the Right of Entry at an earlier date by written notice to the Licensor.
4. Conditions and Limitations on Right of Entry.
  - A. Notwithstanding any other provision hereof, the Right of Entry is limited to the Entry Area specifically shown on Exhibit A. The Department shall have no right

to enter upon, use or occupy any other portion of the Locus unless Licensor approves such deviation in writing at least forty-eight (48) hours in advance. The Department may use the Entry Area for passage across the Locus and for temporary storage of materials and equipment and temporary improvements such as fencing and staging as the Department determines necessary to complete the Project in a safe and efficient manner.

- B. Prior to the expiration of the Right of Entry, the Department shall require that its contractors repair and restore any waste or damage resulting from the Access upon the Entry Area to substantially the same or better condition as exists at the Commencement Date.
  - C. Access shall be limited to work hours as set by the Department, but in no circumstances (except in the case of an emergency) shall access occur earlier than 8 am or later than one hour after sunset.
5. No Interest in Real Property. The Right of Entry is a temporary license only. This Right of Entry Agreement shall not be construed as creating an easement, lease or any other interest in real property, or as affecting in any way any other rights the parties hereto may have.
  6. Risk of Loss. The Department agrees that the Department and its contractors shall enter upon the Entry Area at their risk. Licensor shall not be liable to the Department or any third-party contractors or any employees, agents, representatives, permittees or invitees of the same, or any person or entity claiming by or through any of them, for any claim whatsoever for any injury, loss or damage to any persons or property that occurs on the Locus unless caused by negligence, reckless or intentional conduct of the Licensor.
  7. Insurance. Licensors understand that any claims against the Commonwealth of Massachusetts, including the Department, concerning personal injury, including death, and property damage are governed by Chapter 258 of the General Laws.

The Department shall require that third-party contractor's entering the Locus to procure and maintain, in full force and effect general public liability insurance against claims for personal injury, death or property damage, such insurance to afford protection to the limit of customary and reasonable amounts in accordance with the Department's standard construction specifications, and to provide that the same may not be canceled during the term of the Right of Entry. Any such policy insuring a third-party contractor shall also name the Licensor as an additional insured. The Department shall require that its contractors provide Licensor with certificates of such insurance for before such party may enter the Entry Area.

8. Governing Law. This Right of Entry Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

Licensors:

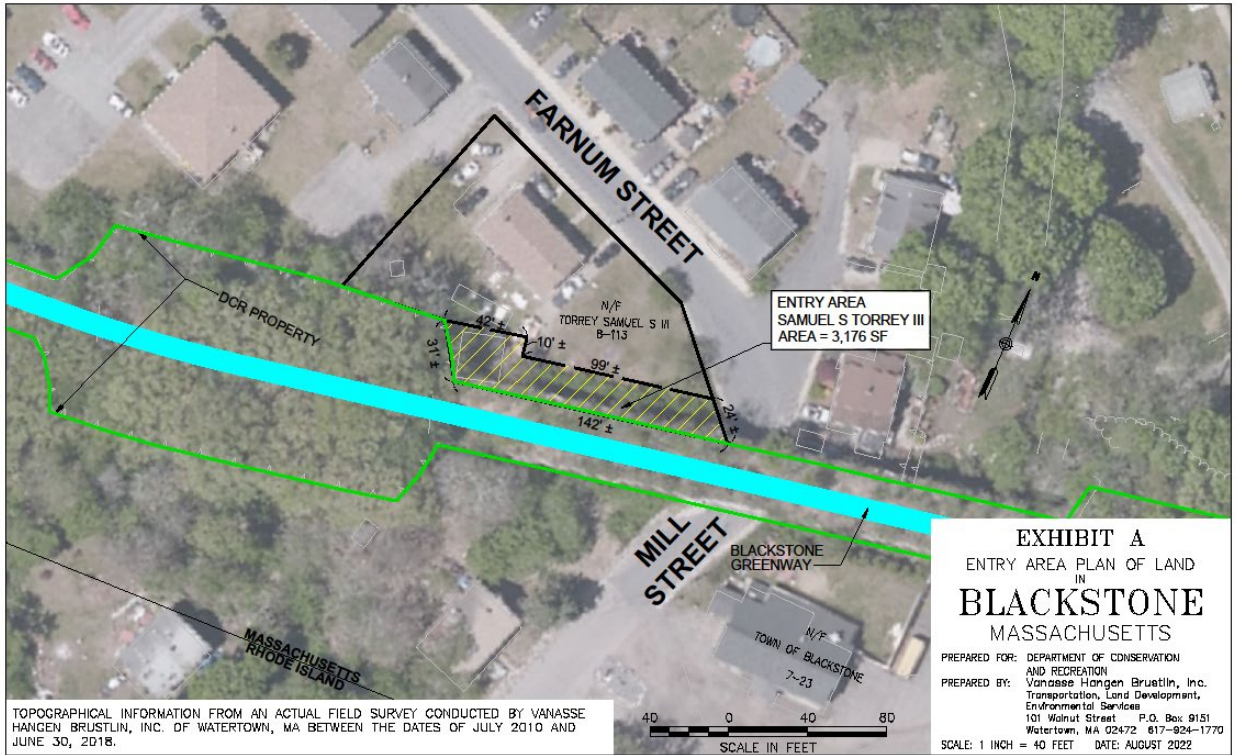
By: Samuel S. Torrey III  
Name: Samuel S. Torrey III

THE DEPARTMENT:

DEPARTMENT OF CONSERVATION AND RECREATION

By: \_\_\_\_\_  
Name: Douglas J. Rice  
Title: Commissioner

# EXHIBIT A



## RIGHT OF ENTRY AGREEMENT

Property Address: 7 Farnum Street, Blackstone MA

Date:

I, **Rita M. Lambert**, with an address of 13 Farnum Street Apt. 5, Blackstone, MA 01504 (“Licensor”), for good and valuable consideration but no monetary consideration, the receipt and sufficiency of which are hereby acknowledged, hereby grant to the **Commonwealth of Massachusetts**, acting by and through its **Department of Conservation and Recreation**, with an address of 251 Causeway Street, Suite 600, Boston, MA 02114 (the “Department”), and in accordance with and under the authority of section 38 of Chapter 132 and sections 2 through 3 of Chapter 132A of the Massachusetts General Laws, as amended, and all other statutory authority so enabling, and its successors, assigns and authorized employees, permittees, invitees and contractors, a temporary and irrevocable Right of Entry (the “Right of Entry”), subject in all respects to the following terms and conditions, to enter upon the Entry Area (as hereinafter defined) and to pass and re-pass, as stated herein, to access adjacent property of the Department (collectively, the “Access”):

1. Entry Area. That portion of the Licensor’s property, situated in the Town of Blackstone, known as 7 Farnum Street and described in a deed to Rita M. Lambert in Book 10131 Page 94 in the Worcester County South Registry of Deeds (the entire parcel described in said deed hereinafter the “Locus”), with the Entry Area also shown on the attached sketch plan attached hereto and incorporated herein as Exhibit A.
2. Purpose. Licensor acknowledges that the purpose of the Right of Entry is to allow the Department, its employees, agents, authorized permittees, invitees, consultants, and contractors to pass and repass through the Entry Area to access adjacent property of the Department associated with the planned design, layout and construction of a public multi-purpose recreational corridor on the adjacent land (the “Project”). Access shall include on foot, by vehicle, truck, trailer, construction equipment, delivery equipment, and all other modes of travel or machinery necessary in the Department’s determination for the design, layout and construction of the recreational corridor on adjacent Department land.
3. Required Notice and Term. The Department shall provide the Licensor fourteen (14) days prior written notice (the “Commencement Notice”) of the date on which the Department and other parties listed in paragraph 2 will first enter the Entry Area (the “Commencement Date”). The Right of Entry shall be effective for two years following the Commencement Date (the “Term”), after which Term the Right of Entry shall terminate and no longer be of any force or effect. The Department may terminate the Right of Entry at an earlier date by written notice to the Licensor.
4. Conditions and Limitations on Right of Entry.
  - A. Notwithstanding any other provision hereof, the Right of Entry is limited to the Entry Area specifically shown on Exhibit A. The Department shall have no right



to enter upon, use or occupy any other portion of the Locus unless Licensor approves such deviation in writing at least forty-eight (48) hours in advance. The Department may use the Entry Area for passage across the Locus and for temporary storage of materials and equipment and temporary improvements such as fencing and staging as the Department determines necessary to complete the Project in a safe and efficient manner.

- B. Prior to the expiration of the Right of Entry, the Department shall require that its contractors repair and restore any waste or damage resulting from the Access upon the Entry Area to substantially the same or better condition as exists at the Commencement Date.
  - C. Access shall be limited to work hours as set by the Department, but in no circumstances (except in the case of an emergency) shall access occur earlier than 8 am or later than one hour after sunset.
5. No Interest in Real Property. The Right of Entry is a temporary license only. This Right of Entry Agreement shall not be construed as creating an easement, lease or any other interest in real property, or as affecting in any way any other rights the parties hereto may have.
  6. Risk of Loss. The Department agrees that the Department and its contractors shall enter upon the Entry Area at their risk. Licensor shall not be liable to the Department or any third-party contractors or any employees, agents, representatives, permittees or invitees of the same, or any person or entity claiming by or through any of them, for any claim whatsoever for any injury, loss or damage to any persons or property that occurs on the Locus unless caused by negligence, reckless or intentional conduct of the Licensor.
  7. Insurance. Licensors understand that any claims against the Commonwealth of Massachusetts, including the Department, concerning personal injury, including death, and property damage are governed by Chapter 258 of the General Laws.

The Department shall require that third-party contractor's entering the Locus to procure and maintain, in full force and effect general public liability insurance against claims for personal injury, death or property damage, such insurance to afford protection to the limit of customary and reasonable amounts in accordance with the Department's standard construction specifications, and to provide that the same may not be canceled during the term of the Right of Entry. Any such policy insuring a third-party contractor shall also name the Licensor as an additional insured. The Department shall require that its contractors provide Licensor with certificates of such insurance for before such party may enter the Entry Area.

8. Governing Law. This Right of Entry Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

IN WITNESS WHEREOF, the undersigned Licensor and the Department have executed this Right of Entry Agreement in one or more counterparts as a sealed instrument as of the date first written above.

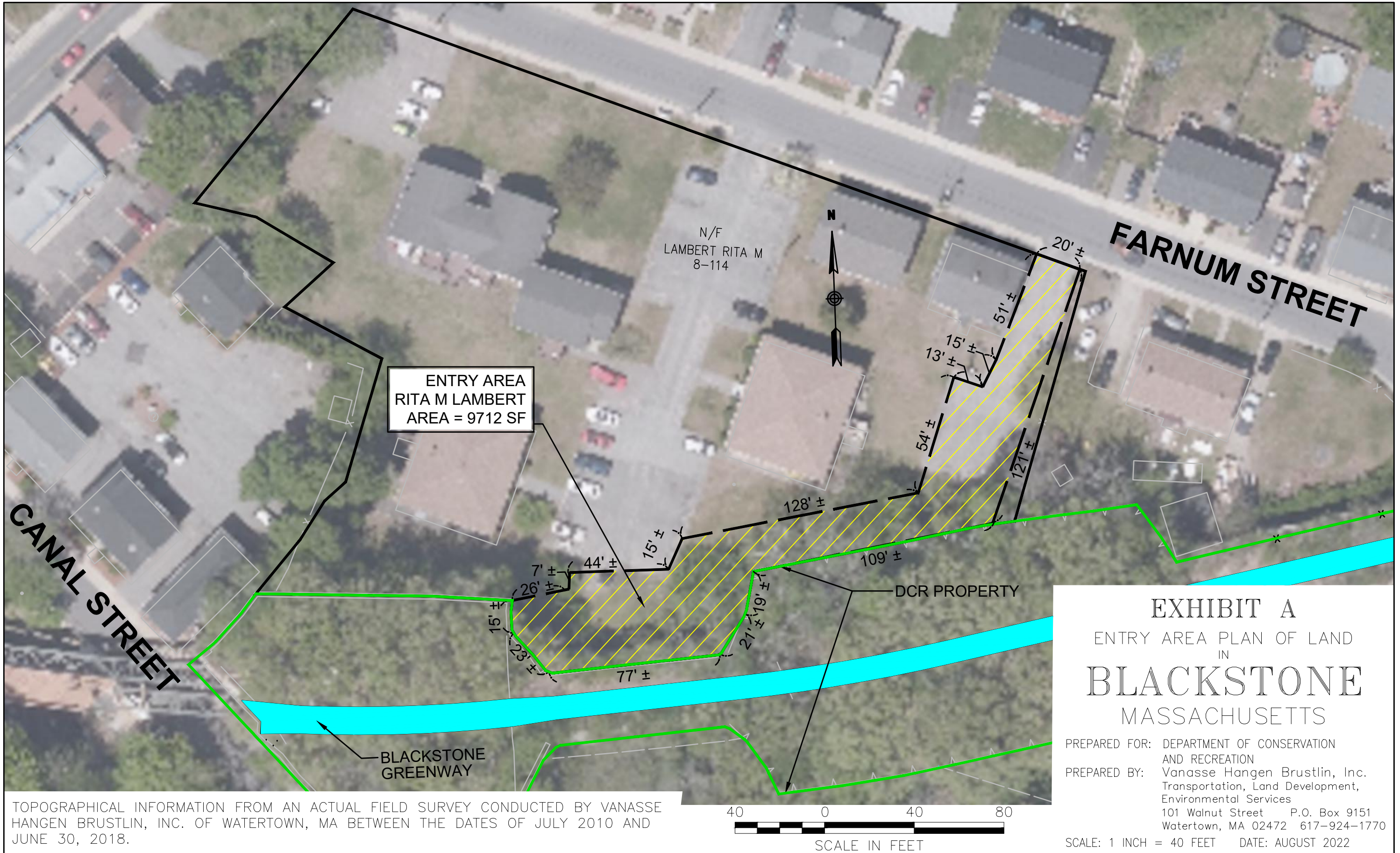
Licensor:

By: Rita M Lambert  
Name: Rita M. Lambert

THE DEPARTMENT:

DEPARTMENT OF CONSERVATION AND RECREATION

By: \_\_\_\_\_  
Name: Douglas J. Rice  
Title: Commissioner



N/F  
LAMBERT RITA M  
8-114

ENTRY AREA  
RITA M LAMBERT  
AREA = 9712 SF

**EXHIBIT A**  
ENTRY AREA PLAN OF LAND  
IN  
**BLACKSTONE**  
MASSACHUSETTS

PREPARED FOR: DEPARTMENT OF CONSERVATION  
AND RECREATION  
PREPARED BY: Vanasse Hangen Brustlin, Inc.  
Transportation, Land Development,  
Environmental Services  
101 Walnut Street P.O. Box 9151  
Watertown, MA 02472 617-924-1770

SCALE: 1 INCH = 40 FEET DATE: AUGUST 2022

TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY VANASSE HANGEN BRUSTLIN, INC. OF WATERTOWN, MA BETWEEN THE DATES OF JULY 2010 AND JUNE 30, 2018.



## **RIGHT OF ENTRY AGREEMENT**

Property Address: St. Paul Street Rear, Blackstone MA  
1 Mill Street, Blackstone MA  
6 Mill Street, Blackstone MA  
Back Meadows, Blackstone MA

Date:

**The Town of Blackstone**, a municipal corporation with an address of 15 St. Paul Street, Blackstone MA 01504 (“Licensor”), for good and valuable consideration but no monetary consideration, the receipt and sufficiency of which are hereby acknowledged, hereby grant to the **Commonwealth of Massachusetts**, acting by and through its **Department of Conservation and Recreation**, with an address of 251 Causeway Street, Suite 600, Boston, MA 02114 (the “Department”), and in accordance with and under the authority of section 38 of Chapter 132 and sections 2 through 3 of Chapter 132A of the Massachusetts General Laws, as amended, and all other statutory authority so enabling, and its successors, assigns and authorized employees, permittees, invitees and contractors, a temporary and irrevocable Right of Entry (the “Right of Entry”), subject in all respects to the following terms and conditions, to enter upon the Entry Area (as hereinafter defined) and to pass and re-pass, as stated herein, to access adjacent property of the Department (collectively, the “Access”):

1. Entry Areas. The following portions of the Licensor’s property, situated in the Town of Blackstone:
  - a. A portion of the parcel known as “1 Mill Street” shown on Assessor’s Map 8, Lot 127 and described the Tax Taking recorded in Book 15042 Page 353 in the Worcester County South Registry of Deeds; See also Land Court Order recorded in Book 45077 Page 60 (the entire parcel described in said taking hereinafter “Parcel 1”), with the Entry Area also shown on Exhibit A as “Entry Area 1.”
  - b. A portion of the parcel known “St Paul Street Rear” or “Roosevelt Park” shown on Assessor’s Map 7 Lot 4 and described in a deed to the Town of Blackstone in Book 2606 Page 396 in the Worcester County South Registry of Deeds (the entire parcel described in said deed hereinafter “Parcel 2”), with the Entry Area also shown on the attached sketch plan attached hereto and incorporated herein as Exhibit A as “Entry Area 2.”
  - c. A portion of the parcel known as “6 Mill Street” shown on Assessor’s Map 7, Lot 93 and described in the Tax Taking recorded in Book 3560 Page 89 in the Worcester County Registry of Deeds; See also Treasurer’s Deed recorded in Book 3995 Page 393 (the entire parcel described in said taking hereinafter “Parcel 3”), with the Entry Area also shown on Exhibit A as a portion of “Entry Area 3.”

- d. A portion of the parcel known as “Back Meadows” shown on Assessor’s Map 7 Lot 6 and described in a deed to the Town of Blackstone in Book 4964 Page 236 in the Worcester County Registry of Deeds (the entire parcel described in said taking hereinafter “Parcel 4”), with the Entry Area also shown on Exhibit A as portion of “Entry Area 3.”
2. Purpose. Licensor acknowledges that the purpose of the Right of Entry is to allow the Department, its employees, agents, authorized permittees, invitees, consultants, and contractors to pass and repass through the Entry Areas to access adjacent property of the Department associated with the planned design, layout and construction of a public multi-purpose recreational corridor on the adjacent land (the “Project”). Access shall include on foot, by vehicle, truck, trailer, construction equipment, delivery equipment, and all other modes of travel or machinery necessary in the Department’s determination for the design, layout and construction of the recreational corridor on adjacent Department land.
3. Required Notice and Term. The Department shall provide the Licensor fourteen (14) days prior written notice (the “Commencement Notice”) of the date on which the Department and other parties listed in paragraph 2 will first enter the Entry Areas (the “Commencement Date”). The Right of Entry shall be effective for two years following the Commencement Date (the “Term”), after which Term the Right of Entry shall terminate and no longer be of any force or effect. The Department may terminate the Right of Entry at an earlier date by written notice to the Licensor.
4. Conditions and Limitations on Right of Entry.
  - a. Notwithstanding any other provision hereof, the Right of Entry is limited to the Entry Areas specifically shown on Exhibit A. The Department shall have no right to enter upon, use or occupy any other portion of Parcels 1, 2, 3, and 4 unless Licensor approves such deviation in writing at least forty-eight (48) hours in advance. The Department may use the Entry Areas for passage across the Parcels and for temporary storage of materials and equipment and temporary improvements such as fencing and staging as the Department determines necessary to complete the Project in a safe and efficient manner.
  - b. Prior to the expiration of the Right of Entry, the Department shall require that its contractors repair and restore any waste or damage resulting from the Access upon the Entry Areas to substantially the same or better condition as exists at the Commencement Date.
  - c. Access shall be limited to work hours as set by the Department, but in no circumstances (except in the case of an emergency) shall access occur earlier than 8 am or later than one hour after sunset.
5. No Interest in Real Property. The Right of Entry is a temporary license only. This Right of Entry Agreement shall not be construed as creating an easement, lease or any other interest in real property, or as affecting in any way any other rights the parties hereto may have.

6. Risk of Loss. The Department agrees that the Department and its contractors shall enter upon the Entry Areas at their risk. Licensor shall not be liable to the Department or any third-party contractors or any employees, agents, representatives, permittees or invitees of the same, or any person or entity claiming by or through any of them, for any claim whatsoever for any injury, loss or damage to any persons or property that occurs on the Parcels unless caused by negligence, reckless or intentional conduct of the Licensor.
7. Insurance. Licensors understand that any claims against the Commonwealth of Massachusetts, including the Department, concerning personal injury, including death, and property damage are governed by Chapter 258 of the General Laws.

The Department shall require that third-party contractor's entering the Parcels to procure and maintain, in full force and effect general public liability insurance against claims for personal injury, death or property damage, such insurance to afford protection to the limit of customary and reasonable amounts in accordance with the Department's standard construction specifications, and to provide that the same may not be canceled during the term of the Right of Entry. Any such policy insuring a third-party contractor shall also name the Licensor as an additional insured. The Department shall require that its contractors provide Licensor with certificates of such insurance for before such party may enter the Entry Areas.

8. Governing Law. This Right of Entry Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

IN WITNESS WHEREOF, the undersigned Licensor and the Department have executed this Right of Entry Agreement in one or more counterparts as a sealed instrument as of the date first written above.

Licensor:  
TOWN OF BLACKSTONE  
By Its Board of Selectmen

By: \_\_\_\_\_  
Name: Ryan Chamberland

By: \_\_\_\_\_  
Name: Robert Kluchevitz

By: \_\_\_\_\_  
Name: Tanya Polak

By: \_\_\_\_\_  
Name: Mary Bulso

By: \_\_\_\_\_  
Name: Brian Scanlan

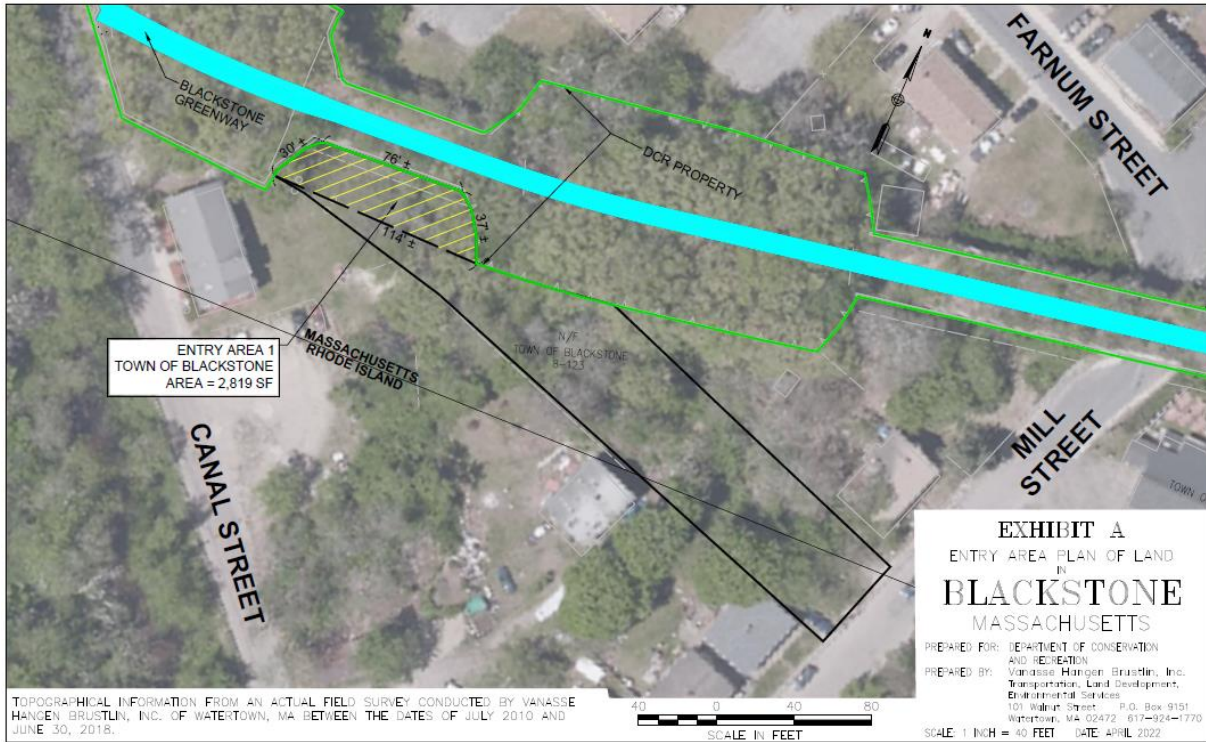
THE DEPARTMENT:

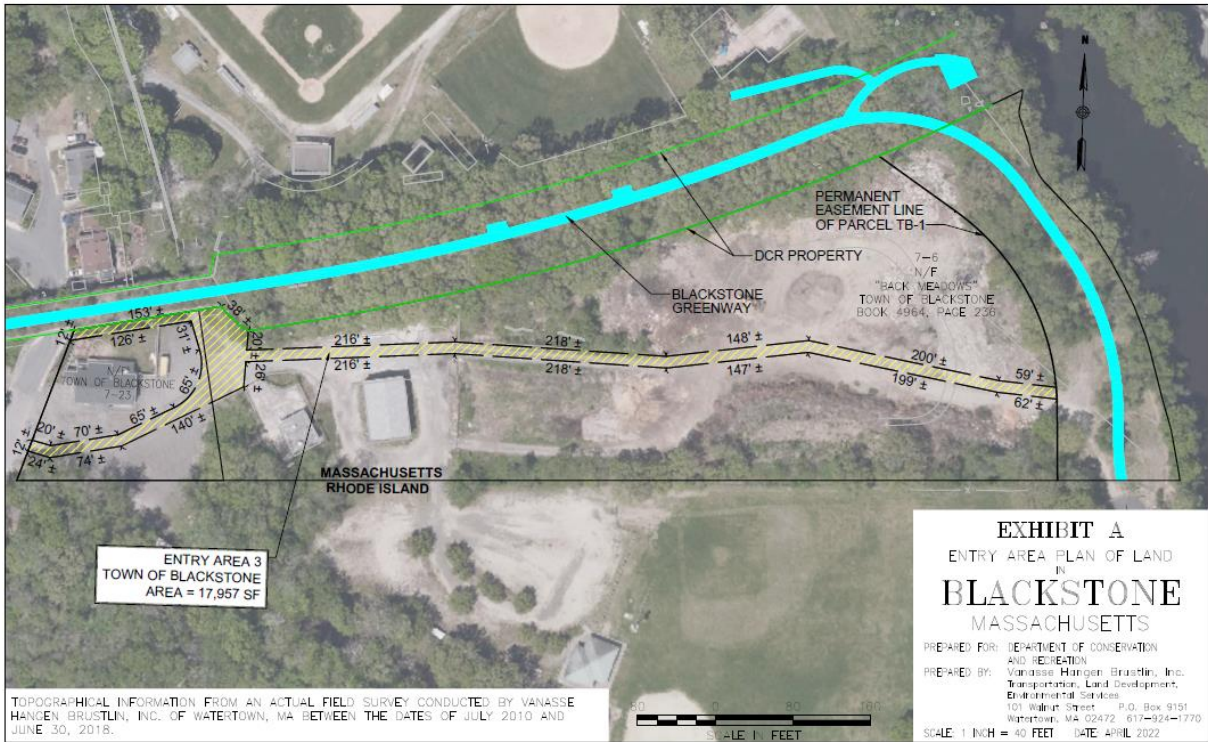
DEPARTMENT OF CONSERVATION AND RECREATION

By: \_\_\_\_\_  
Name: Douglas J. Rice  
Title: Commissioner

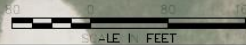


# EXHIBIT A





TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY VANASSE HANGEN BRUSTLIN, INC. OF WATERTOWN, MA BETWEEN THE DATES OF JULY 2010 AND JUNE 30, 2018.



**EXHIBIT A**  
 ENTRY AREA PLAN OF LAND  
 IN  
**BLACKSTONE**  
 MASSACHUSETTS

PREPARED FOR: DEPARTMENT OF CONSERVATION  
 AND RECREATION  
 PREPARED BY: Vanasse Hangen Brustlin, Inc.  
 Transportation, Land Development,  
 Environmental Services  
 101 Walnut Street P.O. Box 9151  
 Watertown, MA 02472 617-924-1770

SCALE 1" = 40 FEET DATE APRIL 2022

<b><u>ITEM 100.91</u></b>	<b><u>SITE PREPARATION AND RESTORATION</u> <u>AT 10 MILL STREET</u></b>	<b><u>LUMP SUM</u></b>
<b><u>ITEM 100.92</u></b>	<b><u>SITE PREPARATION AND RESTORATION</u> <u>AT 7 FARNUM STREET</u></b>	<b><u>LUMP SUM</u></b>

This work shall consist of preparing the site and restoring the site along the existing viaducts at 10 Mill Street and 7 Farnum Steet to provide access and space to perform the proposed viaduct repairs. Abutting property owners may be storing various personal items under and/or adjacent to the viaduct arches (hereinafter “Encroachments”) which need to be relocated for structural repairs to be completed. Abutting property owners may also have personal items within the licensed right of entry areas shown on the Plans (hereinafter “Obstructions”) that need to be temporarily relocated to gain access to the viaducts and the proposed work. Encroachments and Obstructions shall be collectively referred to as “Features.”

The proposed viaduct and retaining wall repairs adjacent to these properties shall be performed and completely during the first season of Construction to minimize impacts to the property owners.

The Contractor shall do the following prior to commencing site preparations operations:

- Provide the property owners and the Engineer with a minimum of 2 week notice prior to site preparation operations.
- Perform a site visit with the property owners and Engineer at least 1 week prior to the site preparation operations.
- The Contractor shall be responsible to conduct a photo and video inventory of the site prior to construction preparation operations.
- The Contractor shall coordinate with the property owners and Engineer to determine exactly what shall be done with each type of existing Feature encountered. Features may be required to be removed, discarded, stacked, stored, or reset elsewhere during construction. Encroachments stored under the viaduct arches shall be relocated at the owner’s expense and the Contractor shall provide the abutters at least 1 week of notice prior to beginning site preparation operations. If the Encroachments are not removed, the Contractor shall dispose of them after approval from the Engineer.
- The Contractor, along with the property owner and Engineer, shall determine a location on the property owner’s property where Obstructions can be temporarily stored. Storage units of adequate size to fit the possessions may be considered.
- The Contractor, along with the property owner and Engineer, shall determine if any temporary construction fence is required to contain and secure any pets that the property owner may have (such as dogs).
- The Contractor shall provide a written memo documenting the agreed to dispositions of each type of Feature being affected.

Once approved by the Engineer, the Contractor shall commence site preparation activities as detailed above and as outlined in the Contractor’s written memo.

### **ITEMS 100.91 & 100.92** (Continued)

The Features removed and discarded shall be the responsibility of the Contractor and shall be approved by the Engineer. All methods of disposal shall be accomplished in accordance with all applicable Federal, State and local ordinances. Payment for the disposal is inclusive to this item.

The Contractor shall not impact the buildings on the properties or the access of the property owner to their buildings. Any temporary access impacts shall be coordinated with the property owners and the Engineer at least 2 weeks prior to the temporary access impacts. Any damage to buildings due to the Contractor or Contractor operations shall be paid for by the Contractor and at no cost to DCR or the property owners.

Once the viaduct work and access along these properties is complete and no longer needed by the Contractor, the site shall be restored. Restoration of the site shall include storing and resetting of features and any required work to reconstruct and reestablish the conditions that existed prior to the site preparation. If storage units are used, the area that those units occupied shall be restored to pre-project conditions. All Contractor materials, debris and trash shall be removed from the property. The Contractor shall not make any improvements to the property beyond restoring what existed prior to construction. All final restoration activities shall be coordinated with the property owners and the Engineer.

### **MEASUREMENT AND PAYMENT**

Payment for all work under Items 100.91 and 100.92 shall be made at the contract unit price, lump sum, which shall include all work detailed above, including all coordination, documentation of existing conditions, storage units, pet fence, moving and/or removing of Features, site preparation activities and restoration activities.

Payment of fifty (50) % of the contract price shall be made upon acceptance of the site preparation activities. Payment of the remaining fifty (50) % of the contract price shall be made upon acceptance of restoration activities.

Existing fence removed and discarded will be paid for under Item 673.

New fence will be paid for under items 645.048, 652.048, 653.048 and 670.

Driveway reconstruction will be paid for under items 120, 151, 170, 452, 701.1 and 702.

Loam will be paid for under item 751.

Seed will be paid for item 765.4.

**ITEM 100.93****SITE PREPARATION AND RESTORATION  
AT 3 FARNUM STREET****LUMP SUM**

This work shall consist of preparing the site and restoring the site along the existing viaducts at 3 Farnum Street to provide access and space to perform the proposed viaduct repairs. The abutting property owner may be storing various personal items under and/or adjacent to the viaduct arches (hereinafter “Encroachments”) which need to be relocated for structural repairs to be completed. The abutting property owner may also have personal items within the licensed right of entry areas shown on the Plans (hereinafter “Obstructions”) that need to be temporarily relocated to gain access to the viaducts and the proposed work. Encroachments and Obstructions shall be collectively referred to as “Features.” This property owner also has a garage they may interfere with the viaduct and retaining wall repairs that are proposed adjacent to the garage.

The proposed viaduct and retaining wall repairs adjacent to this property shall be performed and completed during the first season of Construction to minimize impacts to the property owner.

**PRIOR TO SITE PREPARATION OPERATIONS**

The Contractor shall do the following prior to commencing site preparations operations:

- The Contractor shall determine if the proposed repairs can be achieved without impacting the garage structure. If it is determined that the work cannot be completed without impacting the structure, the Contractor shall notify and meet with the Engineer and owner immediately. If the garage needs to be impacted, it shall be replaced in kind. See ‘Potential Garage In-Kind Replacement’ section below.
- Provide the property owners and the Engineer with a minimum of 2 week notice prior to site preparation operations.
- Perform a site visit with the property owners and Engineer at least 1 week prior to the site preparation operations.
- The Contractor shall be responsible to conduct a photo and video inventory of the site prior to construction preparation operations.
- The Contractor shall coordinate with the property owners and Engineer to determine exactly what shall be done with each type of existing Feature encountered. Features may be required to be removed, discarded, stacked, stored, or reset elsewhere during construction. Encroachments shall be relocated at the owner’s expense and the Contractor shall provide the abutters at least 1 week of notice prior to beginning site preparation operations. If Encroachments are not removed, the Contractor shall dispose of them after approval from the Engineer.
- The Contractor, along with the property owner and Engineer, shall determine a location on the property owner’s property where Obstructions can be temporarily stored. Storage units of adequate size to fit the possessions may be considered.
- The Contractor, along with the property owner and Engineer, shall determine if any temporary construction fence is required to contain and secure any pets that the property owner may have (such as dogs). Temporary construction fence shall also be used to separate the proposed work from the rest of the property.
- The Contractor shall provide a written memo documenting the agreed to dispositions of each type of Feature being affected.

### **ITEM 100.93** (Continued)

Once approved by the Engineer, the Contractor shall commence site preparation activities as detailed above and as outlined in the Contractor's written memo.

#### **POTENTIAL GARAGE IN-KIND REPLACEMENT**

If the Contractor determines that the garage structure must be impacted and removed to complete the proposed viaduct and retaining wall repairs, the structure shall be replaced in-kind. The Contractor shall notify and meet with the Engineer and owner immediately.

The Contractor shall do the following:

- Perform a site visit with the property owner and Engineer at least 2 weeks prior to the site preparation operations near the garage.
- The Contractor shall document the dimensions of the garage structure (length, width, depth, height etc.).
- The Contractor shall be responsible to conduct a photo and video inventory of the garage and the area surrounding the garage. This inventory shall include the outside and the inside of the garage and shall document any Obstructions that are within, on, leaning on or attached to the garage. It shall also document any adjacent fencing that may be impacted. The Contractor shall note if there is a foundation under the existing garage and the condition of it if present.
- The Contractor shall coordinate with the property owner and Engineer to determine exactly what shall be done with each type of Obstruction encountered. Obstructions may be required to be removed, discarded, stacked, stored, or reset elsewhere during construction. The Contractor shall provide a written memo documenting the agreed to dispositions of each type of existing feature being affected.
- The Contractor shall furnish a temporary storage unit(s) of adequate size to fit the contents of the garage. The temporary storage unit(s) shall be placed at a location on the property that is agreed to by the property owner. The Contractor shall provide the property owner at least 1 week to move Obstructions into the temporary storage unit(s). After this time the Contractor may move the rest of the Obstructions into the storage unit after notifying the owner and the Engineer. The Contractor may legally dispose of Obstructions agreed to by the owner after approval from the Engineer.
- The Contractor, along with the property owner and Engineer, shall determine if any temporary construction fence is required to contain and secure any pets that the property owner may have (such as dogs). If so, this fence shall be placed prior to removing the garage structure. This temporary fence placement should account for any gaps that will be left behind from removing the garage structure and any existing adjacent fence that may be impacted by removing the garage structure.
- Once all Obstructions have been removed and/or detached from the garage, the Contractor shall legally remove and dispose of the garage structure so that the proposed viaduct and retaining wall repairs can be completed.

### **ITEM 100.93** (Continued)

- The Contractor shall furnish and install a new garage structure of similar size and dimensions as the existing structure. Shop drawings shall be provided to the Engineer for review and approval prior to ordering any aspect of the structure. Once approved, the Contractor can proceed with constructing the new garage. Any Obstructions that were attached to the existing garage structure shall be re-attached to the new garage after approval of the Engineer and the property owner.
- Once complete, the Contractor shall notify the property owner and the Engineer to arrange for the Obstructions in the storage unit(s) to be removed from the storage unit(s) and placed on the property. The Contractor shall provide the property owner at least 2 weeks to move the Obstructions from the storage unit(s). After 2 weeks have passed, and after notification to the owner, the Contractor may remove any remaining Obstructions from the storage unit(s) and may place them neatly on the property, after approval from the Engineer.

### **GENERAL**

The Features removed and discarded shall be the responsibility of the Contractor and shall be approved by the Engineer. All methods of disposal shall be accomplished in accordance with all applicable Federal, State and local ordinances. Payment for the disposal is inclusive to this item.

The Contractor shall not impact the buildings on the properties or the access of the property owner to their buildings. Any temporary access impacts shall be coordinated with the property owners and the Engineer at least 2 weeks prior to the temporary access impacts. Any damage to buildings due to the Contractor or Contractor operations shall be paid for by the Contractor and at no cost to DCR or the property owners.

Once the viaduct work and access along these properties is complete and no longer needed by the Contractor, the site shall be restored. Restoration of the site shall include storing and resetting of features and any required work to reconstruct and reestablish the conditions that existed prior to the site preparation. If storage units are used, the area that those units occupied shall be restored to pre-project conditions. All Contractor materials, debris and trash shall be removed from the property. The Contractor shall not make any improvements to the property beyond restoring what existed prior to construction. All final restoration activities shall be coordinated with the property owners and the Engineer.

### **MEASUREMENT AND PAYMENT**

Payment for all work under Item 100.93 shall be made at the contract unit price, lump sum, which shall include all work detailed above, including all coordination, documentation of existing conditions, storage units, pet fence, moving and/or removing of Features, removing garage, replacing garage in-kind, site preparation activities and restoration activities.

Payment of fifty (50) % of the contract price shall be made upon acceptance of the site preparation activities. Payment of the remaining fifty (50) % of the contract price shall be made upon acceptance of restoration activities.

Existing fence removed and discarded will be paid for under Item 673.

**ITEM 100.93** (Continued)

New fence will be paid for under items 645.048, 652.048, 653.048 and 670.

Driveway reconstruction will be paid for under items 120, 151, 170, 452, 701.1 and 702.

Loam will be paid for under item 751 and seed will be paid for item 765.4.



**ITEM 101.**  
**ITEM 102.**  
**ITEM 102.1**

**CLEARING AND GRUBBING**  
**SELECTIVE CLEARING AND THINNING**  
**TREE TRIMMING**

**ACRE**  
**ACRE**  
**FOOT**

The work under these items shall conform to the relevant provisions of Section 101 of the Standard Specifications and the following:

This work shall consist of clearing, grubbing, cutting, removal and disposal of all vegetation and debris from areas either within or outside of the Right-of-Way including vertical and horizontal faces of stone walls and abutments as shown on the plans or designated by the Engineer. The work shall include the trimming of low hanging tree limbs in areas adjacent to the work zone, which may conflict with construction operations.

Measurement and Payment Clearing and grubbing shall be measured by the horizontal plane area and will be the number of acres within the limiting stations of the project and/or as designated by the Engineer and the outside limits of measurement shall extend to a point no greater than 5 feet beyond the top or bottoms of slopes, excluding existing roadway and shoulder surfaces, streams or bodies of water.

Areas outside of the limits specified above, when cleared and grubbed in connection with the construction of fences shall be computed on the basis of a ten foot width multiplied by the total length of fencing installed.

Measurement of selective clearing and grubbing will be based on the actual number of acres which receive the required attention. Approximate locations will be shown on the plans and as designated in the field by the Engineer.

Clearing and grubbing and selective clearing and grubbing will be paid for at the contract unit price per acre, which price shall include all labor, materials, equipment and incidental costs required for the work.

No separate payment will be made for the removal of trees including the stumps there of and required spray material, or herbicide, but all costs in connection therewith shall be included in the price bid for clearing and grubbing.

Tree trimming will be paid for at the contract unit price per foot, which price shall include all labor, materials, equipment and incidental costs required for the work.

The method of disposal of all materials shall be the responsibility of the Contractor and shall be approved by the Engineer. All methods of disposal shall be accomplished in accordance with all applicable Federal, State and local ordinances.

Prior to selective clearing and thinning and tree trimming operations, the Contractor, Engineer and DCR Arborist shall identify all trees to be removed. The Contractor, Engineer and DCR Arborist shall also identify the locations of tree trimming. The Contractor shall review with the Engineer and no work shall begin without approval of the Engineer.

**ITEM 102.31 CONTROL OF INVASIVE PLANTS EXISTING ON SITE**

**HOUR**

Work under this item consists of controlling invasive plants within the project limits. An Invasive Plant Management Strategy (IPMS) for their control shall be submitted to the Engineer for review and approval and the IPMS shall be implemented on site. The IPMS shall be measured and paid for under Item 102.33, Invasive Plant Management Strategy.

Work under this item shall be coordinated with work and schedule for Selective Clearing and Thinning, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation items.

Payment is per hour on site and shall be compensation for a minimum crew of 2 licensed applicators, 2 back-pack sprayers and mist-blowers, a properly equipped spray truck with spray hoses, and a tank with sufficient capacity for a full day of work.

The overall intent is to improve the habitat value of the site, protect proposed landscape restoration, improve future maintenance operations, and attempt to prevent future spread both on-site and to adjacent sites.

Measures to prevent the introduction of invasive plant species to the site and to correct their introduction as a result of construction-related activities shall be covered under the Standard Specifications, Division I - Sections 7.01(D) Plant Pest Control and 7.13 Protection and Restoration of Property as amended in these Special Provisions.

Plant species targeted for management under this item shall be as determined in the field per the site walk and as specified in the IPMS.

The definition of invasive plant species shall be as described by Massachusetts Invasive Plant Advisory Group (MIPAG): “non-native species that have spread into native or minimally managed plant systems in Massachusetts, causing economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems.”

Control of invasive plants shall begin immediately with the initiation of construction activities and prior to any clearing or site disturbance. Treatment shall be done each consecutive year for the duration of the contract unless specified otherwise in the IPMS or unless directed otherwise by the DCR invasive species contact. Work shall be done during the growing season from May – October unless otherwise specified in the IPMS.

Areas identified for vegetation control measures shall be as shown on the plans and as determined in the field by the Engineer and a DCR Landscape Architect. Contact at Department of Conservation and Recreation is Stella Lensing at (617) 680-2466 or Stella.lensing@mass.gov

**SUBMITTALS**

No work shall begin without approval of the submittals.

**ITEM 102.31** (Continued)

Within 15 business days prior to the site walk, the Contractor shall submit all qualifications to the Engineer.

Submittals include the following items.

Qualifications

Contractor shall submit company qualifications to DCR Landscape Design for review and approval.

1. Company must provide proof of qualifications by providing the following:
  - a. Narrative describing company, its expertise and experience with invasive plant control.
  - b. Demonstrate experience with herbicide treatment as part of restorations and in sensitive areas
  - c. Describe company's technical qualifications and past performance.
2. Company must meet licensing requirements:
  - a. All crew applicators must have a Massachusetts Commercial Applicator License (CORE).
  - b. At least one or more applicator must have ROW certification if required for specific project.
  - c. Company must provide name(s) of applicator(s) and Applicator License/Certification number for all contractor crew leaders working on the project.
  - d. Company must provide documentation of any warnings, penalties or fines received in the last three (3) years.
3. Company must provide proof of experience with invasive plant control and include following:
  - a. At least five (5) references from prior invasive plant control work completed in last five (5) years. Provide contact information including address, phone number and email.
  - b. Provide a summary of each of these projects including nature of the problem, specific invasive vegetation treated, dates and period of treatment, methodologies used, and summary of success or not in terms of meeting performance objectives. Include summary of equipment used.
  - c. Photo documentation of these projects.
  - d. GPS coordinates of project locations, if available.
4. Crew leader must have expertise with invasive plant control and provide the following:
  - PRODUCT DATA SHEET 0 - Have held Core license for at least five (5) years.
  - PRODUCT DATA SHEET 1 - Resume listing five (5) or more years of experience applying pesticides with the company or with another company specializing in vegetation management.

**ITEM 102.31** (Continued)

The following companies are pre-approved by MassDOT Landscape Design Section:

Groundscapes Express, Inc.  
P.O. Box 737  
Wrentham, MA 02093  
Contact: John Engwer  
Phone: 508-384-7140

Native Habitat Restoration  
P.O. Box 334  
Stockbridge, MA 01262  
Contact: Jess M. Toro : 413-358-7400  
Sari Hoy: 413-394-0277

SWCA Environmental Consultants  
15 Research Drive  
Amherst, MA 01002  
Contact: Scott Fisher  
Phone: 413-658.2056

Vegetation Control Service, Inc.  
2342 Main St.  
Athol, MA 01331  
Contact: Andrew Powers  
Phone: 800-323-7706

Chris Polatin  
Polatin Ecological Services, LLC  
Old Blake Farm  
334 Mountain Road  
Gill, MA 01351  
Phone: 413-367-5292

Ted Elliman  
New England Wild Flower Society  
180 Hemenway Road  
Framingham, MA 01701  
508-877-7630 x 3203

**Invasive Plant Management Strategy (IPMS)**

At least thirty (30) days prior to proposed treatment the IPMS shall be submitted for approval by the Engineer and MassDOT Landscape Architect. All chemicals, methods and work shall be consistent with the IPMS. The IPMS shall be as described under Item 102.33.

**Follow-Up Treatment**

Depending on treatment results after the first year, the IPMS may be amended for the second year to address additional concerns or adjust to conditions. Treatment shall be adjusted accordingly.

**Herbicide Use Report**

Within two (2) weeks after each application, the Contractor shall provide to the Engineer a completed and signed MassDOT Herbicide Use Report. Where applicable, the Contractor shall provide the name/s of the associated water body/bodies affected by potential discharge, per the requirements of Sections 7.1 and 7.2 of the USEPA Pesticide General Permit for the Discharges from the Application of Pesticides.

**Photo Documentation**

Digital photos with date and time stamp shall be provided with IPMS and follow-up reporting. Photos shall show existing conditions and post-treatment conditions.

**ITEM 102.31** (Continued)

**MATERIALS**

All proposed herbicides shall be as approved in the IPMS. Herbicides shall be labeled for the method of treatment and shall meet all federal, state and local regulation requirements. Application rates will depend on herbicide proposed and shall be per the manufacturer's label for specific application.

**CONSTRUCTION METHODS**

All methods used shall be as approved in the IPMS.

Prior to the start of any work, Contractor shall walk the site with the Engineer and the DCR Landscape Architect. The purpose of the site inspection is to identify limits of work, mark locations of areas designated for treatment, and mark individual plants targeted for treatment or removal according to the IPMS. Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

**Herbicide Applications**

All herbicide application shall conform to Massachusetts Pesticide Laws and Regulations per the Massachusetts Department of Agricultural Resources (MDAR) Pesticide Bureau.

Mixing, applying and/or disposing of herbicides shall always be in accordance with instructions on their labels and all applicable federal, state, and local regulations. Mixing shall not occur within sensitive areas, wetlands, or buffer zones.

Contractor shall not spray 2 hours prior to precipitation and during rain. The Contractor shall be responsible for monitoring weather conditions and adjusting the work schedule as appropriate for the herbicide and application method to be used.

Targeted vegetation shall be identified and marked prior to treatment. Plants treated by foliar spray, injection or glove application or other methods that leave standing vegetation, as opposed to cut-stump application, shall remain clearly marked for identification through the contract period.

Desirable vegetation shall be protected from both spray and other physical damage.

Contractor is responsible for any damage to vegetation not designated for removal or treatment. Vegetation damaged shall be restored. Cost of replacement plants and/or restoration shall be borne by the Contractor.

Contractor shall ensure that the public does not enter a work area while herbicide application or spraying is underway.

## **ITEM 102.31** (Continued)

### Disposal of Invasive Plant Material

All material to be cleared shall become the property of the Contractor. The satisfactory disposal of all cleared plant material (seeds, roots, woody vegetation, associated soils, etc.) shall be the Contractor's responsibility.

The Contractor shall take measures to prevent viable plant material from leading to further infestations (seeds, roots, woody material, etc.) while stockpiled, in transit, or at final disposal locations. All precautions shall be taken to avoid contamination of natural landscapes with invasive plants or invasive plant material.

Chipping, shredding, or on-site burning of plant material shall not be permitted unless written approval is given as part of the Invasive Plant Management Strategy.

For plant material taken to an incinerating facility per the IPMS, a receipt from that facility shall be submitted to the Engineer as proof of disposal.

Where feasible, it is preferable to dispose of plants on site or to bury them on site with on-going monitoring for re-sprouting. Disposal locations and methods must be approved and included in the IPMS. Site work such as grading and seeding to stabilize and restore disposal area shall be incidental to this item.

Contractor shall be responsible for treating areas of re-growth due to improper disposal.

### Monitoring

After initial herbicide treatment, all treated plants and areas shall be monitored through visual observation and re-treated as necessary and appropriate throughout the season and for the duration of the contract per the management proposal and schedule for control submitted by Contract. Monitoring shall be incidental paid for under Item 102.33, Invasive Plant Management Strategy.

### Measure of Success

The expectation is a minimum of 85-95 percent control achieved after the first treatment, depending on plants targeted and extent of population, and based on the expectations laid out in the IPMS. The expectation for the contract duration is 95-100% eradication by the end of the treatment period, unless otherwise specified in the IPMS.

## MEASUREMENT AND PAYMENT

Item 102.3 will be measured for payment by the Hour of crew time spent on the project doing actual work. A crew shall be defined as a minimum of two licensed applicators each equipped with (at minimum) back-pack sprayer and mist blower. The crew shall also have a properly equipped spray truck with hoses and a tank with sufficient capacity for a full day of work.

Item 102.3 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools and all incidentals required to complete the work.

**ITEM 102.31** (Continued)

Payment will be based upon time spent on the project doing actual work and shall not include travel time to and from the Contractor's place of business and shall also not include time for investigative field trips.

The Invasive Plant Management Strategy will be paid for under Item 102.33.

**ITEM 102.33****INVASIVE PLANT MANAGEMENT STRATEGY****HOUR**

This item consists of providing an Invasive Plant Management Strategy (IPMS) for the control of invasive plants on the project site and shall be coordinated with Item 102.3 Control of Invasive Plants Existing on Site. The IPMS shall be submitted to the Engineer for review and approval and the IPMS shall be implemented on site.

Invasive plant control treatment on site shall be as described under Item 102.3 Control of Invasive Plants Existing on Site and shall be compensated per that Item.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation items.

**SUBMITTALS**

Task Summary: for measurement of payment, the contractor shall submit the total sum and a breakdown of hours for the following tasks performed, which shall include at least: Site Walk/s, IPMS Written Reports, Site Monitoring if required, and Final Report if required.

**Invasive Plant Management Strategy (IPMS)**

Prior to the start of any invasive plant control treatment, submit in writing an IPMS proposal and Schedule of Control for approval by the Engineer and DCR Landscape Architect at least thirty (30) days prior to proposed treatment. All chemicals and methods proposed shall be consistent with applicable Massachusetts Wetlands Protection Act Order of Conditions.

The IPMS shall include the following:

1. Description of treatment areas including identification of targeted invasive plant species, locations, approximate size of areas and digital photos with time/date stamp. Delineate treatment areas with polygons outlining their perimeter or locations of individual plants. A free-hand sketch drawn on construction plans or an aerial photo can be used to show locations.
2. Note coordination as required with items for clearing, clearing and grubbing, tree removal, mowing, planting, and wetland mitigation.
3. Proposed methods of treatment for each species or areas including manual removal, cutting, or herbicide treatment and proposed application rate.
4. If herbicides are proposed, submit product label including application methods and rates (entire MSDS information need not be submitted if available online).
5. Proposed time of treatment based on target plant species and construction schedule.
6. Method for disposing of invasive plant material including stems, trunks, branches, roots, associated soils, etc.
7. General monitoring schedule.
8. Preliminary re-treatment schedule. Re-treatment shall be based on assessment of initial results and time of year.
9. Proposed performance metrics, or measure of treatment success, which shall be agreed upon by DCR. \



## **ITEM 102.33** (Continued)

10. Expected end date of contract and last treatment.

Note: The IPMS is critical for identifying pre-construction conditions as well as strategies for minimizing import or spread of invasive plants. Failure to provide approved IPMS may jeopardize this item, in which case, the contractor will be responsible for control of invasive plants found on site at no cost to the contract.

### Follow-Up Treatment Schedule

Depending on treatment results after the first year, the IPMS may be amended for the following year/s to address additional concerns or adjust to conditions. A follow-up treatment schedule shall follow the same format as outlined above and submitted to the Engineer and DCR Landscape Architect for approval at least thirty (30) days prior to proposed treatment.

### Reporting

Within two (2) weeks after each application, the Contractor shall provide to the Engineer a completed and signed MassDOT Herbicide Use Report. Where applicable, the Contractor shall provide the name/s of the associated water body/bodies affected by potential discharge, per the requirements of Sections 7.1 and 7.2 of the USEPA Pesticide General Permit for the Discharges from the Application of Pesticides.

### Final Report

A final report documenting status of invasive control at the end of the project may be required for regulatory purposes or for instances where control will be continued by other means. Report shall include photo documentation, notation on a plan or aerial image of area treated, summary of treatment performed, and control achieved.

### Photo Documentation

Digital photos with date and time stamp shall be provided with IPMS and follow-up reporting.

## MEASUREMENT AND PAYMENT

Item 102.33 will be measured for payment by the Hour. The basis for measurement shall be per the completion of tasks as approved under the Task Summary submittal.

Item 102.33 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools and all incidentals required to complete the work.

Payment shall not include travel time to and from the Contractor's place of business.

**ITEM 102.511**  
**ITEM 102.521**

**TREE PROTECTION – ARMORING & PRUNING**  
**TREE AND PLANT PROTECTION FENCE**

**EACH**  
**FOOT**

The work under these items shall conform to the relevant provisions of Sections 101, 644 and 771 and the following:

The purpose of these items is to prevent damage to branches, stems and root systems of existing individual trees as well as shrubs and other quality vegetation to remain, and to ensure their survival. To the extent possible, to avoid soil compaction within the root zone, construction activities including, but not limited to, vehicle movement, excavation, embankment, staging and storage of materials or equipment shall not occur underneath the canopy (drip line) of trees to remain. Where these activities will occur within 10 feet (3 meters) of the canopy of trees or where directed, the Contractor shall take the appropriate protective measures specified herein.

Tree Protection – Armoring & Pruning, Item 102.511, shall be used when construction activities are likely to occur within the canopy of individual trees or where there may be any risk of damage to trees.

Tree and Plant Protection Fence, Item 102.521 shall be used to protect areas of existing trees or other areas of quality vegetation that is to remain.

The Contractor shall be solely responsible for judging the full extent of the work requirements, including, but not necessarily limited to any equipment and materials necessary for providing tree protection.

Incidental to the cost of these items, the Contractor shall retain the services of a certified arborist with demonstrated experience in construction protection, who shall make recommendations as to the specific appropriate treatment of trees within or near the work zone.

Prior to any construction activities, the Contractor and Arborist shall walk the site with the Landscape Architect and Town Tree Warden to identify which trees will require protection and to determine approved measures. The Arborist shall make recommendations as to appropriate methods to protect trees. The Landscape Architect will have final decision as to trees and methods.

The Contractor is responsible for the protection of all existing trees and plants within and immediately adjacent to the construction area that are not designated to be removed for the length of the construction period.

**SUBMITTALS**

Incidental to these items, the Contractor shall provide to the Engineer one (1) copy American National Standards Institute (ANSI) Standard Z-133.1 and A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance, Part 1: Pruning. These references shall be kept by the Engineer at his/her office for the length of the Contract.

**ITEM 102.511** (Continued)

**ITEM 102.521** (Continued)

Prior to start of work, the Contractor shall submit to the Engineer the name, certification number and resume of the Massachusetts Certified Arborist referenced herein. Cost for Certified Arborist for all activities pertaining to these Items shall be incidental to these items.

Submit arborists report documenting site walk and summarizing trees protected (species and quantities) as well as recommendations for protection.

**MATERIALS**

Fence and temporary fence posts shall be subject to the approval of the Engineer.

Fencing for individual plants shall be polyethylene fencing or chain link fence (new or used).

Staking for individual tree protection fencing shall be steel posts or 2x4 lumber as directed and approved by the Engineer.

Wood chips shall conform to provisions of Wood Chip Mulch under Materials Section M6.04.3.

Trunk protection shall be 2x4 cladding, at least 8 feet (2.4 meters) in length, clad together with wire. Alternative materials shall be at the approval of the Engineer. Alternative materials shall provide adequate protection from anticipated construction activities and shall not injure or scar trunk. Trunk protection shall include burlap to separate trunk cladding from bark.

Tree and Plant Protection Fence shall be brightly colored polypropylene barricade or wooden snow fencing for tree protection or safety fencing as shown on the Contract drawings or as directed by the Engineer. Fencing shall be a minimum of 4 feet high (1.2 meters) and supported by steel or hardwood stakes spaced at a maximum of 8 feet (2.4 meters) on center or by other means acceptable to the Engineer. Fencing shall be materials and fastenings sufficient to provide sturdy and highly visible separation of the construction activities from the trees and existing plantings to be preserved

Incidental to these items, the Contractor shall provide water for maintaining plants in the construction area that will have exposed root systems for any period during construction.

**CONSTRUCTION METHODS**

To the extent possible, to avoid soil compaction within the root zone, construction activities including, but not limited to, vehicle movement, excavation, embankment, staging and storage of materials or equipment shall not occur underneath the canopy (drip line) of trees to remain. Where these activities will occur within 10 feet (3 meters) of the canopy of trees, the Contractor shall provide Tree Protection as specified herein.

**ITEM 102.511** (Continued)

**ITEM 102.521** (Continued)

For individual tree protection, the Contractor shall set posts and fencing at the limits of the tree canopy. Where construction activities closer to the trees is unavoidable, the Contractor shall tie branches out of the way and place wood chips to a depth of 6 inches (150 mm) on the ground to protect the root systems. The Contractor shall wrap the area of the trunk of the tree with burlap prior to armoring with 2x4 cladding. Cladding for tree trunks shall extend from the base of the tree to at least 8 feet (2.4 meters) from the base.

To the extent possible, temporary landscaped fencing shall be installed at the limit of tree canopy and shall be staked and maintained vertical for the length of the contract.

Where excavation within canopy is unavoidable, the Contractor shall use equipment and methods that shall minimize damage to the tree roots, per recommendations of the Certified Arborist. Such methods may require root pruning prior to, as well as during, any excavation activities.

All fencing, trunk protection, branch protection, and woodchips shall be maintained throughout the duration of the contract. Protective fencing shall be repaired and woodchip mulch replaced as necessary during the duration of the contract at no additional cost.

**Cutting and Pruning**

Some pruning of roots and branches may be a necessary part of construction. Pruning will be performed on the same side of the tree that roots have been severed.

The Contractor shall retain the services of a Massachusetts State Certified Arborist to perform any cutting of limbs, stem or roots of existing trees. All cuts shall be clean and executed with an approved tool. Under no circumstances shall excavation in the tree protection area be made with mechanical equipment that might damage the existing root systems.

Any tree root area exposed by construction shall be covered and watered immediately. Exposed tree roots shall be protected by dampened burlap at all times until they can be covered with soil.

**Watering**

Water each tree within the construction area where work is in progress twice per week until the surrounding soil of each tree is saturated for the duration of construction activities.

**Removal of Protection**

After all other construction activities are complete, but prior to final seeding, wood chips, temporary fencing, branch protection, and trunk protection materials shall be removed and disposed off-site by the Contractor at no additional cost.

**Tree Damage**

**ITEM 102.511** (Continued)

**ITEM 102.521** (Continued)

The Contractor shall be held responsible for the health and survival of the existing trees in the immediate vicinity of the of the construction area. Damage that, in the Engineer's opinion, can be remedied by corrective measures shall be repaired immediately. Broken limbs shall be pruned according to industry standards. Wounds shall not be painted. Trees or shrubs that are damaged irreparably shall, at the Engineer's discretion, be replaced per the requirements of Division I of these Special Provisions. Cost of replacement trees shall be borne by the Contractor.

**MEASUREMENT AND PAYMENT**

Where the plans show specific, individual trees to remain and where grading or other disturbance is shown within the drip line of these trees or where the Engineer determines that an individual tree must be protected, these trees shall be protected and paid for under Item 102.511 Tree Protection – Armoring & Pruning per each tree protected.

Temporary landscape fence will be measured for payment by the foot of fence installed, complete in place.

Payment under these items shall be scheduled throughout the length of contract: 30 percent of value shall be paid upon installation, 30 percent approximately halfway through the contract, and the remainder to be paid at the end of the contract after completion of construction operations that would disturb plants and after the protection materials have been removed and properly disposed of off-site by the Contractor.

Tree Protection – Armoring & Pruning will be paid for at the contract unit price per Each under Item 102.511. This item shall include full compensation for all labor, equipment, materials, and incidentals for the satisfactory completion of the work, including the services of a certified arborist, water and fertilizer, and the subsequent removal and satisfactory disposal of the protective materials upon completion of the contract.

Where construction disturbance, such as grading activities, will occur within the limits of the canopy of groups of trees, these trees shall be protected and paid for under Item 102.521, Tree and Plant Protection Fence.

Submittal of arborist's report is incidental to and required for payment of these items.

Tree and Plant Protection Fence be paid for at the Contract unit price per Foot. This item shall include full compensation for all labor, equipment, materials, and incidentals for the satisfactory completion of the work, including the services of a certified arborist, water and fertilizer, and the subsequent removal and satisfactory disposal of the protective materials upon completion of the contract.

Cost of wood chips, as required, shall be incidental to these items.

**DESCRIPTION**

The work under this Item shall conform to the relevant provisions of Section 900 of the Standard Specifications with current Supplemental Specifications, and the following:

The work shall include the repair and sealing of cracks by pressure injection in the existing concrete structures, as shown on the Plans and as designated by the Engineer. See plans for additional requirements and details.

**CONSTRUCTION METHODS**

Existing cracks designated by the Engineer to be repaired shall conform to the manufacturer's recommendations and the following:

The Contractor shall submit shop drawings, including manufacturer's literature completely describing the products to be used along with product testing results as required, to the Engineer for his review and approval. Only those products previously approved for the purpose intended herein and listed on the Qualified Construction Materials List maintained by the MassDOT Research and Materials Section may be used.

The materials shall be delivered clearly marked with legible and intact labels containing the manufacturer's name, brand name and identification of the contents of the containers. The materials shall be stored in areas where temperatures conform to the manufacturer's recommendations and instructions.

The Contractor shall comply with all manufacturer's instructions and recommendations regarding safety. The surrounding work, the river and water resource area, vehicles, buildings, private properties, planting materials and items of similar nature, shall be protected from damage by repair materials and installation operations.

The Contractor shall conduct a field survey to determine and recommend the locations, limits and widths of the cracks to be repaired by pressure injection for approval by the Engineer. The Contractor shall provide safe access to the Engineer at all repair locations.

The type of crack sealing required shall be determined as a function of the surface type and maximum crack width.

Overhead surfaces, vertical surfaces, and non-overhead surfaces sloped greater than 15%:

- Cracks less than 0.010 inch wide shall be ignored;
- Cracks greater than or equal to 0.010 inch wide and less than 0.020 inch wide shall be sealed with an approved silane sealer; and
- Cracks greater than or equal to 0.020 inch wide shall be sealed using epoxy injection

**ITEM 107.855** (Continued)

The width of cracks shall be determined by the Contractor, and approved by the Engineer, using a width-indicating comparator card made of clear plastic with lines of specified width on the cards, or approved equal. The crack-width comparator cards shall be held on concrete surfaces to allow the widths of any concrete cracks to be determined by direct visual comparison of the crack width with the widths of the lines marked on the card surface. These cracks are assumed to be non-moving. All required crack sealing and crack repairs shall be performed by the Contractor and shall be paid for under this Item.

Cracks shall be sealed before damp-proofing, or other construction material that covers the cracked surface. Crack-sealing materials shall be applied by skilled applicators under a supervisor with proven successful experience in applications with similar scope of work. Crack-sealing materials shall be applied when the concrete and the ambient air temperatures are above 40°F. If a heated enclosure is used to accomplish this, the heating units shall be properly vented to the outside of the enclosure to prevent products of combustion from exhausting within the enclosure.

Before containers of sealing materials are opened, the labels shall be checked and the label information shall be documented. If multi-component systems are used, mixing shall be completed prior to application. Manufacturer's instructions shall be followed. An initial crack-sealing demonstration of the proposed application method shall be satisfactorily made in the presence of the Engineer before the application is continued.

Before sealing, the concrete must be clean, sound, and free of contaminants and surface moisture. Any curing compounds, sealers, oils, greases, coatings, or other impregnations shall be removed by abrasive blast cleaning. Once any concrete surface contaminants are removed, the concrete shall be swept clean and blown off using oil free compressed air immediately prior to applying the sealer.

Epoxy injection crack sealing shall be performed in accordance with the manufacturer's instructions within the allowable ambient temperature range. Epoxy resin for cement concrete crack injection shall conform to AASHTO M235, Type IV, Grade I. The cracks shall be cleaned with oil-free compressed air. Surface-mounted injection ports shall then be installed over the centers of the cracks. The spacing of these ports shall be contingent upon the material and the injection equipment chosen. Socket porting shall be allowed provided that a hollow drill bit and vacuum system is used to prevent debris from entering the cracks. Surface ports shall be mounted with rapid-setting-epoxy material.

The crack widths shall be noted during port installation. After the ports are installed, the crack surfaces shall be sealed with high modulus, 100% solids, moisture tolerant epoxy paste adhesive. This material shall be capped with fine sand before it is cured. After the capping material has cured, the cracks shall be injected with an epoxy resin compound. The injection pressure used to seal the cracks shall be based upon such applicable factors as crack width, crack depth, and the epoxy material used. Injection shall be accomplished using a metered system. The system shall be equipped with a pressure gauge accurate for the pressures anticipated for this work. Injection shall start at the widest point of the crack and shall continue until the narrowest portions of the crack

**ITEM 107.855** (Continued)

have been filled. Injection shall continue until refusal. If epoxy is observed at adjacent ports, the adjacent port shall be capped and injection shall continue until refusal occurs. Once refusal occurs, injection shall continue at the next wet port until refusal is reached.

Manufacturer's Field Representative

1. The Contractor shall arrange with the material manufacturer or distributor to have the services of a competent field representative at the work site prior to any mixing of components to instruct the work crews in the proper mixing and application procedures. The field representative shall remain at the job site after work commences and continue to instruct until the field representative, the Contractor, and the Engineer are satisfied that the crew has mastered the technique of installing the system successfully. The representative shall also make periodic visits at intervals not greater than monthly, to the project site as the work progresses and shall confer on each visit with the Contractor and the Engineer.
2. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Engineer.
3. The Contractor shall be completely responsible for the expense of the services of the required field representative and the bid contract price shall be full compensation for all costs in connection therewith.

MEASUREMENT AND PAYMENT

Measurement and payment will be by the foot of repaired and sealed crack by pressure injection, complete in place and accepted by the Engineer.



**ITEM 120.****EARTH EXCAVATION****CUBIC YARD**

The work under this item shall conform to the relevant provisions of Section 120 of the Standard Specifications and the following:

The work shall include the excavation of material of every description regardless of the type encountered, from within the project limits as shown on the drawings and as directed by the Engineer, except materials for which payment is made under the items of: Unclassified Excavation, Class A Rock Excavation, Reinforced Concrete Excavation, Track Excavation, Class A Trench Excavation, and Class B Rock Excavation except those materials for which excavation is included with the work specified to be performed under other items of this Contract.

The work shall include the disposal of existing materials shown on the drawings to be removed and reset, but which in the judgment of the Engineer are unsuitable for reuse in the proposed work, and their disposal is not paid for under a separate item.

No separate payment will be made for the transporting and stockpiling of excavated material or off-site disposal if required, but all costs in connection therewith shall be included in the price bid for earth excavation.

The removal and disposal of the railroad ties and railroad utility poles (treated wood products) will be paid for under Item 184.1.

Contaminated soil rehandled and spread will be paid for under Item 180.42.

## ITEM 120.1

## UNCLASSIFIED EXCAVATION

## CUBIC YARD

The work under this item shall conform to the relevant provisions of Section 120 of the Standard Specifications and the following:

The work to be done under this item shall consist of excavation, stock piling and the reuse of or removal and legal disposal of any materials on the viaducts except rock encountered under Item 144 within the limits of the Contract in accordance with the specifications and in close conformity with the lines, grades, thickness and cross sections shown on the contract drawings or established by the Engineer.

Unclassified excavation shall include any materials such as clay, bituminous concrete, sand, gravel, topsoil, muck, boulders less than 1 cubic yard, guardrails, fences and gates, anchors, steel bearings, steel posts and existing signs, including foundations and supports, and utility poles not paid for under other contract items.

### Disposal Of Excavated Materials

No excavated material shall be placed on DCR property without the approval of the Engineer or placed adjacent to DCR property without the approval of the Engineer and the property owner. All slopes shall be left with neat even surfaces, according to the lines, grades and directions given.

All unsuitable materials and surplus materials which cannot be used within the limits of the work shall be legally disposed of by the Contractor outside the limits of DCR property without additional compensation and in such a manner as to not obstruct streams or otherwise impair the drainage, appearance, safety or efficiency of any structure or any other part of the roadway.

No materials from the excavation, nor from construction, shall be deposited in flood plains nor within 100 feet of any body of water without compliance under the applicable provisions of the Massachusetts Wetlands Protection Act. Notification to the Engineer, in writing, will be required where such work has been authorized by the local Conservation Commission.

### Replacement Of Excavated Material

If the Contractor wastes any excavated materials which are suitable and required as embankment material, select material or gravel sub-base, he shall furnish, at his/her own expense, similar materials obtained from borrow. Borrow materials shall be of satisfactory quality, in an amount equal to the amount of such materials wasted.

## MEASUREMENT AND PAYMENT

Unclassified Excavation will be measured in units of cubic yards in its original position by the cross section method or, only if not feasible, by the truckload or some other practicable method designated by the Engineer.

**ITEM 120.1** (Continued)

Unclassified Excavation will be paid for at the contract bid price per cubic yard, which price shall be full compensation for all materials, tools, equipment, removal off of Commonwealth property, storage of material, rehandling of material and labor incidental to and necessary for the completion of the work to the satisfaction of the Engineer.

Excavation of materials located off of the viaducts will be paid for under Item 120, Earth Excavation.

The removal and disposal of tracks will be paid for under Item 129.5, Track Excavation.

Granite Blocks that are removed will be paid for under Item 144 Class B Rock Excavation.

The removal and disposal of the railroad ties and railroad utility poles will be paid for under Item 184.1, Removal and Disposal of Treated Wood Products.

No separate payment will be made for the off-site disposal of excavated material unsuitable for reuse in the proposed work, but all costs in connection therewith shall be included in the price bid for unclassified excavation.

**ITEM 121.**

**CLASS A ROCK EXCAVATION**

**CUBIC YARD**

The work under this item shall conform to the relevant provisions of Section 120 of the Standard Specifications and the following:

The work shall include the removal of boulders as required for excavation activities.

**Measurement and Payment**

Rock Excavation will be measured to subgrade an allowance of a depth of 6 inches below the proposed excavation. Boulders which are to be included in the item for rock excavation will be measured at the point of removal.

Class A rock excavation will be paid for at the Contract unit price per cubic yard, which price shall include all labor, materials, equipment and incidental costs required for the work.

**ITEM 127.1****REINFORCED CONCRETE EXCAVATION****CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Section 120 and 140 of the Standard Specifications with current Supplemental Specifications, and the following:

**DESCRIPTION**

This work shall consist of the excavation, removal, and satisfactory disposal of concrete at the outer surfaces, and up to full-depth removal as required, of the existing reinforced-concrete-encased stone-masonry arches, spandrel walls, piers, and abutments of the viaduct structure, as shown on the Plans and as directed by the Engineer.

**SUBMITTALS**

Reinforced Concrete Viaduct Excavation Plan - The Contractor shall submit an excavation plan and procedure to the Engineer for approval detailing the locations, types, and areas of excavation, materials, equipment, and sequence of work to be completed.

**CONSTRUCTION METHODS**

Existing deteriorated concrete shall be removed to the limits of sound concrete as directed by the Engineer and as shown on the Plans.

Live traffic shall be maintained on Mill Street and Farnum Street during demolition operations, unless the demolition causes an unsafe condition that would require a temporary shutdown of either roadway near the viaduct.

The Contractor shall not damage any existing reinforcing steel in areas where deteriorated or spalled concrete is being removed. Any existing reinforcing steel that is damaged as a result of the Contractor's operations shall be repaired or supplemented with new reinforcing steel by the Contractor at no cost to the Commonwealth and shall be done to the satisfaction of the Engineer.

The Contractor shall take all measures necessary to protect pedestrian and vehicular traffic, and adjacent private properties, from concrete excavation and construction operations. No debris, tools or incidental equipment of any kind will be permitted to fall into private properties or areas where vehicular or pedestrian traffic is active. Any material that accidentally falls into such areas shall be removed immediately.

All materials removed under this item shall be removed from the job site and disposed of properly.

Removal of Deteriorated Concrete: All deteriorated concrete designated for removal under this item shall be removed within the limits shown on the Plans and as agreed on site by the Engineer. The lateral limits of each area to be repaired will be delineated by the Contractor in accordance with the Plans. If reinforcing steel is encountered during sawing operations, the depth of sawcut shall immediately be adjusted to a shallower depth, or the sawcut not used, so as not to damage the steel reinforcing bars.

### **ITEM 127.1** (Continued)

Where over-breakage occurs resulting in a featheredge, the featheredge shall be squared up to a vertical edge in an approved manner. Where sawing is impractical, the area shall be outlined by chisel or other approved means.

The removal of deteriorated concrete shall be accomplished by hand tools, pneumatic hammers, and/or hydro-excavation submitted to and approved by the Engineer. For concrete removal, the weight of pneumatic hammers shall not exceed 30 pounds.

Where the existing reinforcing steel is damaged or deteriorated, it shall be supplemented with new reinforcing steel of the same size. Pneumatic tools shall not be placed in direct contact with reinforcing steel. Any sound reinforcing steel damaged during the concrete removal operations shall be repaired or replaced by the Contractor at his expense as directed by the Engineer. New steel shall be attached beside existing steel with a minimum splice length as indicated on the Plans, or as directed by the Engineer. The concrete shall be removed to a minimum depth of 1 inch below the new or existing steel.

Surface Preparation: surface preparation shall be included with Item 904.4.

#### Hydro-excavation

Hydro-excavation shall provide a highly roughened and clean bondable surface. After Hydro-excavation of the concrete, the Contractor shall remove any remaining areas of deteriorated concrete or concrete determined to be unsatisfactory by the Engineer.

Hand held high pressure wands, with an operating pressure of approximately 12,000 psi, shall be used to clean the bottom and sides of the chipping hammer excavation areas to remove any remaining loose concrete remaining from the chipping operation.

When performing hydro-excavation over or adjacent to traffic or private properties, the Contractor shall install shielding to prevent debris from going onto the traveled way or private property, and any material that does spill on to the traveled way or private property shall be immediately removed. The contractor shall clean the surface with a vacuum system capable of collecting loose and wet debris and water in the same pass leaving a clean surface prior to repair of the structure.

#### Preparation for Placement of New Concrete

Before placing new concrete, the existing surface must be cleaned with oil-free compressed air. After the surface preparation has been accepted, every effort should be made to thoroughly prewet the concrete surface, and all porous surfaces to be in contact with new concrete. This may be accomplished by continuous wetting with soaker hoses or the use of burlap/burlene, etc. where moisture can be maintained. If, in the opinion of the Engineer, conditions or the situation prohibits this, then the surfaces should be wetted for as long as possible. Surfaces must be wetted by a means acceptable to the Engineer using potable water.

### **ITEM 127.1** (Continued)

The Contractor shall remove any puddles of free standing water with oil-free compressed air, and protect the surfaces from drying, so the existing concrete remains in a clean, saturated surface dry condition until placement of the new concrete. The Contractor shall take all steps necessary to ensure that pedestrian and vehicular traffic is protected from harm at all times.

#### Equipment

The hydro-excavation equipment shall be a computerized, self-propelled robotic machine that utilizes a high-pressure water jet stream capable of attaining pressures in the range of 10,000 to 40,000 PSI and removing all unsound, or otherwise designated, concrete to the depth specified. The equipment shall be capable of providing a highly roughened and clean bondable surface. The equipment shall only be operated by individuals who have received rigorous training as required by the equipment manufacturer. Hand held high pressure wands or 35 lb maximum jackhammers operated at no more than a 45-degree angle from horizontal shall be used in areas that are inaccessible to the hydro-excavation equipment or in preparing repair areas that require minor trim work to remove remaining unsound concrete.

#### Limitations on Equipment

The contractor shall take steps to prevent damage to existing reinforcing steel and shall not place wheels from heavy equipment, such as vacuum trucks, on areas where outer layer of existing reinforcement has been left unsupported by the hydro-excavation process. Equipment shall be operated at speeds, and in a manner, that will not cause damage to the remaining structure.

#### Test Area

Test areas will be required to establish the operating parameters and to demonstrate that the equipment, personnel, and methods of operation are capable of producing satisfactory concrete removal results. Each area shall be approximately 50 square feet. Once satisfactory results are obtained, the quality and depth of removal will become the standard for the project. If hand lances are to be used to perform concrete removals, they should also be demonstrated to show satisfactory results.

#### Special Conditions

Incidental to this item, the contractor shall provide shielding, as necessary, to insure containment of all dislodged concrete within the removal area in order to protect the traveling public and private properties from flying debris both on and around the work site. It is the contractor's responsibility to ensure that the high-pressure water does not compromise the shielding rendering it ineffective. This may include installing steel plates on top of the shielding to prevent the water pressure from destroying the shielding. Potable water shall be used and shall be provided by the contractor. If planning to access hydrants, it is the contractor's responsibility to contact and make the appropriate arrangements with the proper municipal water departments. The contractor shall take necessary precautions during hydro-excavation to prevent damage to the remaining structure and adjacent

### **ITEM 127.1** (Continued)

property as a result of runoff. All catch basins shall be temporarily blocked. The contractor shall control dust and run-off in accordance with all applicable regulations. The contractor is responsible for the disposal of all material removed, including but not limited to, material collected by vacuuming the structure.

#### **Submittals**

Submittals for approval shall include complete manufacturer's data for equipment proposed for use, equipment operator's qualifications to perform the work, placement of machinery, means of shielding, means of controlling runoff, source of water, and any other means and methods necessary for completing the work. No work shall begin until these are approved.

#### **METHOD OF MEASUREMENT**

Excavation material shall be measured in its original position by cross section method except where such measurement is impracticable, in which case it shall be measured by other approved methods. The Contractor will not be paid for the removal of any concrete that is beyond the limits required by the contract and was not first approved by the Engineer.

Item 127.1 Reinforced Concrete Excavation shall be measured at the contract unit per cubic yard.

#### **BASIS OF PAYMENT**

The work described under this Item shall be paid for at the contract unit price per cubic yard, complete and in place, which payment shall be considered as full compensation for all labor, tools, equipment, materials, sawcutting and all incidentals as necessary to complete the work as described herein and in a satisfactory manner to the Engineer. The cost of hydro-excavation shall be incidental to this item.



**ITEM 129.5**

**TRACK EXCAVATION**

**FOOT**

The work under this item shall conform to the relevant provisions of Section 120 of the Standard Specifications and the following:

The work shall include the excavation, removal and disposal of all existing railroad tracks encountered in the areas of the proposed work and shall include the removal and disposal of the rails, hardware, switches, foundations, drainage castings and other appurtenances to meet proposed pavement subgrade elevations.

All track materials shall become the property of the Contractor and shall be legally disposed of off the Contract site.

**MEASUREMENT AND PAYMENT**

Track excavation will be measured for payment by the (linear) foot measured along the rails actually removed. All rail will be measured separately.

Track excavation will be paid for at the Contract unit price per foot, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

The removal and disposal of the railroad ties (treated wood products) will be paid for under Item 184.1.

**ITEM 141.**

**CLASS A TRENCH EXCAVATION**

**CUBIC YARD**

The work under these items shall conform to the relevant provisions of Section 140 of the Standard Specifications and the following:

The work shall include the excavation of swales at locations shown on the Plans.

**MEASUREMENT AND PAYMENT**

Class A trench excavation will be measured according to the amount of materials removed to the lines and grades shown on the Plans and as required by the Engineer.

Class A trench excavation will be paid for at the contract unit price per cubic yard.

**ITEM 141.1**

**TEST PIT FOR EXPLORATION**

**CUBIC YARD**

The work under this item shall conform to the relevant provisions of Section 140 of the Standard Specifications and the following:

The work shall include excavating test pits in locations required by the Engineer.

**Measurement and Payment**

Test Pit for Exploration will be measured at the actual volume removed to the limits required by the Engineer. Test Pit for Exploration shall be paid for at the contract unit price per cubic yard which price shall include excavation (including hand excavation) backfilling and compaction.

**ITEM 144.**

**CLASS B ROCK EXCAVATION**

**CUBIC YARD**

Work under this item shall conform to the relevant provisions of Section 140 and the following:

A few small vacuum-excavated test pits were made in the existing fill on top of the viaducts. They provided the basis for the limits of existing buried stone masonry spandrel walls shown on the Plans, but the Plans do not necessarily show the actual nature and extent of the materials that may be encountered in the proposed excavations. Materials encountered in the excavations may include boulders, rough-laid non-coursed stone masonry, and mortared or dry-laid cut-stone coursed masonry, all of which shall be classified as Class B Rock Excavation. Existing buried stone masonry spandrel walls on the viaducts to be removed and reused for Item 693. Stacked Boulder Block Wall – Salvaged Class B Rock and Item 986.5 Cut Slope Stone Embankment – Salvaged Class B Rock.

Stone materials removed from the excavations under this item shall be stored as directed by the Engineer for reuse in landscape features in the project area to the east of the viaduct structures. Storage areas may be onsite or in Town-owned areas adjacent to the project site, as approved by the Town and the Department. The Contractor shall be responsible for storage of these materials in a manner to prevent damage, vandalism, and theft. Unless otherwise stipulated in these specifications, all costs associated with excavating, removing, handling, storing, securing, cleaning for reuse in landscape cut slope stone embankments, and re-handling these materials shall be included for payment under this item. Any excess stone materials excavated under this item that are not used in the landscape features, as directed by the Engineer, shall become the property of the Contractor and shall be removed and properly disposed of by the Contractor, at no additional cost to the Commonwealth.

Unclassified Excavation shall include the removal and disposal of all materials encountered in excavating for the proposed base slabs and drainage troughs, regardless of their nature or size, except materials defined in Subsection 140.25, and herein, as "Class B Rock Excavation."

**MEASUREMENT AND PAYMENT**

Only actual quantity of material ordered removed will be measured for payment. Excavations outside the limits designated will be considered as made for the Contractor's convenience and will not be included for payment under any item, nor will the refilling of unauthorized excavation with the required backfill be included for payment under any item. Fill materials shall be paid for by the respective fill items.

The contract unit bid price per Cubic Yard shall be full compensation for all labor, tools, equipment, materials, and incidentals required to do the work of these Items as indicated on the Plans and as required by the Engineer.

**ITEM 144.2**

**CLASS B ROCK IMPORT**

**CUBIC YARD**

Work under this item shall conform to the relevant provisions of Section 140 and Section 150 and the following:

Class B Rock Import shall be sound local granite, hard and durable and free from seams or other imperfections and of an approved quality and shape.

No stone shall be less than 9-inches in its least dimension (depth). No surface area of the finished stone face shall be less than 18-inches in length and 12-inch in width. The stone shall be roughly square on joint lines, beds and surface faces.

Top and bottom faces shall be roughly parallel with the front and back faces split.

Hand dressing of stone edges at joints shall be required for final placement in Item 986.5 Cut Slope Stone Embankment to establish joint tolerances as provided in the plans.

**MEASUREMENT AND PAYMENT**

Class B Rock Import will be measured for at the contract unit price per cubic yard, delivered and stockpiled on site.

The contract unit bid price per Cubic Yard shall be full compensation for all labor, tools, equipment, materials, and incidentals required to do the work of these Items as indicated on the Plans and as required by the Engineer.

**ITEM 150.**  
**ITEM 151.**  
**ITEM 151.01**

**ORDINARY BORROW**  
**GRAVEL BORROW**  
**GRAVEL BORROW, TYPE C**

**CUBIC YARD**  
**CUBIC YARD**  
**CUBIC YARD**

The work under these items shall conform to the relevant provisions of Sections 150, 170 and 400 of the Standard Specifications and the following:

**MEASUREMENT AND PAYMENT**

Ordinary borrow, gravel borrow and gravel borrow type c will be measured for at the contract unit price per cubic yard, complete in place.

No overhaul allowance shall be made for any kind of borrow.

Payment for the formation of embankments as specified will be included in the items of excavation or borrow. Excavated material used with the permission of the Engineer for other than the formation of embankments will be paid for as specified in Subsection 120.81 and such payment shall include full compensation for the formation of the required embankments. The contract unit prices for the aforesaid items shall constitute full compensation for the satisfactory performance and completion of the entire work.

Ordinary borrow, gravel borrow and gravel borrow type c will be paid for at the contract unit price per cubic yard, which price shall include all labor, materials, equipment and incidental costs required for the work.

No separate payment will be made for fine grading and compacting but all costs in connection therewith shall be included in the unit price bid for the respective borrow items.

**ITEM 156.****CRUSHED STONE****TON**

The work under this item shall conform to the relevant provisions of Sections 150 and 170 of the Standard Specifications and the following:

The work shall include the furnishing and placing of 6 inches of 1-1/2" crushed stone under stone for pipe ends and 12 inches under modified rockfill slopes.

**Measurement and Payment**

Crushed stone will be measured by the ton, complete in place. The weight slips shall be countersigned on delivery by the Engineer, and no weight slip not so countersigned shall be included for any payment.

Crushed stone will be paid for by the ton, complete in place. No overhaul allowance will be made.

No separate payment will be made for fine grading and compacting, but all costs in connection therewith shall be included in the unit price bid.

Crushed stone for subdrains will be paid for under Item 265.06.

**ITEM 170.**

**FINE GRADING AND COMPACTING**

**SQUARE YARD**

The work under these items shall conform to the relevant provisions of Section 170 of the Standard Specifications and the following:

The work shall consist of fine grading and compacting for hot mix asphalt paved areas, cement concrete sidewalk at driveways and as required by the Engineer.

**Measurement and Payment**

Fine grading and compacting shall be measured by the square yard.

Fine grading and compacting will be paid for at contract unit price per square yard, which price shall include all labor, materials, equipment and incidental cost required to complete the work.



## **ITEM 180.01 ENVIRONMENTAL HEALTH AND SAFETY PROGRAM    LUMP SUM**

The work shall consist of ensuring the health and safety of the Contractor's employees and subcontracting personnel, the Engineer, their representatives, the environment, and public welfare from any on-site chemical contamination present in air, soil, water and sediment.

The Contractor shall prepare and implement a site-specific Environmental Health and Safety Plan (EHASP) which has been approved and stamped by a Certified Industrial Hygienist (CIH) and includes the preparer's name and work experience. The EHASP shall include appropriate components required by OSHA Standard 29 CFR 1910.120(b) and the Massachusetts Contingency plan (MCP) 310 CMR 40.0018 and must comply with all applicable state and federal laws, regulations, standards and guidelines, and provide a degree of protection and training appropriate for implementation on the project. The EHASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The EHASP shall be developed and implemented independently from the standard construction HASP.

Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions, including but not limited to standards established by OSHA and National Institute for Occupational Safety and Health (NIOSH). Equipment used for the purpose of health and safety shall be approved by and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the most up-to-date version of the EHASP shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer and each on-site employee DCR, Contractor, and Subcontractors involved with on-site activities. The employee's signature on the EHASP shall be deemed prima facie evidence that the employee has read and understands the plan. Updated copies of signature sheets shall be submitted to the Engineer.

The EHASP shall specify a Contractor Site Safety and Health Officer responsible for implementation of the EHASP and to oversee all construction activities, including handling, storage, sampling and transport, which require contact with or exposure to potentially hazardous materials.

The level of protection, required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized.

**ITEM 180.01** (Continued)

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

**Method of Measurement and Basis of Payment**

Preparation and implementation of the Environmental Health and Safety Program, including the monitoring, protection and storage of all contaminated materials, as well as subsequent modifications to the EHASP, will be measured and paid for at the Lump Sum Bid Price.

Payment of 50% of the Environmental Health and Safety Program contract price will be made upon the initial acceptance of the EHASP by the Engineer. Payment of the remaining 50% of the Environmental Health and Safety Program contract price will be made upon completion of the work. The bid price shall include preparation and implementation of the EHASP as well as the cost for its enforcement by the Site Safety and Health Officer along with any necessary revisions and updates. The work of implementing the Environmental Health and Safety Program includes work involving, but not limited to, the monitoring, protection, and storage of all contaminated materials.

**ITEM 180.02****PERSONAL PROTECTION LEVEL C UPGRADE****HOUR**

The work shall consist of providing appropriate personal protective equipment (PPE) for all personnel in an area either containing or suspected of containing a hazardous environment.

Contingencies for upgrading the level of protection for on-site workers will be identified in the EHASP and the Contractor shall have the capability to implement the personal protection upgrade in a timely manner. The protective equipment and its use shall be in compliance with the EHASP and all appropriate regulations and/or standards for employee working conditions.

Personal Protection Level C Upgrade will be measured and paid only upon upgrade to Level C and will be at the contract unit price, per hour, per worker, required in Level C personal protection. No payment will be made to the Contractor to provide Level D PPE.

**ITEM 180.03****LICENSED SITE PROFESSIONAL SERVICES****HOUR**

Within limited areas of the project site, soils, sediments and/or groundwater may be contaminated. A Licensed Site Professional (LSP) shall be required to provide the services necessary to comply with the requirements of the MCP. These services may include sampling, analysis and characterization of potentially contaminated media, preparation of Immediate Response Action (IRA) Plans, Utility-Related Abatement Measure (URAM) and Release Abatement Measure (RAM) Plans, Imminent Hazard Evaluations, status reports, transmittal forms, release notification forms, risk assessments, completion statements, and related documents required pursuant to the Massachusetts Contingency Plan (MCP). LSP hours related to the characterization and disposal of contaminated soil and/or sediment are incidental to the disposal items. An estimate of LSP services to be provided shall be submitted to the Engineer for approval before any LSP activity begins.

The name and qualifications of the LSP and all environmental technicians to be assigned to the project shall be submitted to the Engineer for approval at least four weeks prior to initial site activities. The LSP shall have a current, valid license issued by the Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals. The LSP shall have significant experience in the oversight of MCP activities at active construction sites. Qualification packages for the LSP and each technician shall include a resume, all recent work assignments with responsibilities identified (previous 5 years), and applicable training and certifications. A list of all Notices of Noncompliance, Notice of Audit Findings and Enforcement Orders issued by the DEP shall be submitted for all work assignments listed for the LSP and environmental technicians.

The LSP shall evaluate soil and/or sediment with discoloration, odor, and presence of petroleum liquid or sheening on the groundwater surface, or any abnormal gas or materials in the ground which are known or suspected to be oil or hazardous materials. Excavated soil and sediment which is suspected of petroleum contamination shall be field screened using the jar headspace procedures according to established DEP Guidance. All field screening equipment must be pre-approved by the Engineer. The LSP shall ensure proper on site calibration of all field screening instrumentation.

The Engineer shall be contacted immediately when observations or any field screening results verify contamination requiring further analysis, and/or enhanced management of suspect soil and/or sediment. Any enhanced management of contaminated soil to ensure proper stockpiling and storage is incidental to the LSP Services item. The LSP shall adequately characterize subsurface conditions prior to backfill in areas where contaminated material has been excavated. The Engineer shall approve the locations of the testing sites prior to the sampling.

Contaminated soil, sediment and/or groundwater shall be handled in accordance with all applicable state and federal statutes, regulations and policies. The LSP shall adequately characterize contaminated media for comparison to the requirements of the MCP. The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations, and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations. The LSP shall maintain written records in a clear and concise format which tracks the excavation, stockpiling, analysis and reuse/disposal of all suspect contaminated soils, sediments and

**ITEM 180.03** (Continued)

groundwater. These records shall be up-to-date and available to the Engineer on a bi-weekly basis. The LSP shall review and summarize the laboratory data from any analyses performed on contaminated media. A report shall be delivered to the Engineer outlining the material sampling methods, laboratory analysis results and proposed course of action. The laboratory report together with Chain of Custody forms for all analytical results shall be submitted to the Engineer within 14 days after completion of such analyses.

The LSP and Contractor shall be held responsible for the submission of all MCP-related documents to the Engineer at least 14 days in advance of any timeframe specified in the MCP and for the timely submission of data and tracking information as noted within this Item. All documents prepared under this Item must be reviewed and signed by the approved LSP. The Contractor and LSP shall be responsible for all fines, penalties and enforcement requirements imposed by applicable regulatory agencies for failure to meet regulatory and contract timeframes. No compensation will be provided for such fines, penalties and enforcement actions.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations, and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations.

If the Contractor causes a release of OHM, the Contractor shall be responsible for assessing and remediating the release in accordance with all pertinent State and Federal regulations, including securing the services of a LSP, at his own expense.

The LSP shall coordinate all activities involving both DCR and the DEP through the Engineer. Any notification of release shall be approved by the Department before submittal to the DEP, except if an imminent hazard condition exists as defined in 309 CMR 4.03(4)(b).

## **ITEM 180.03** (Continued)

### **Laboratory Testing in Support of LSP Services**

Laboratory testing provides for analytical testing in support of LSP services related to maintaining MCP compliance, such as delineating the extent and type of contamination present. Sampling and testing for disposal purposes are not included.

In order to maintain compliance with the MCP or other regulatory requirements, the LSP shall request approval from the Engineer to obtain samples from various locations and depths within the project area and to perform laboratory analyses on those samples. The samples shall be delivered to a DEP-certified laboratory using proper chain-of-custody documentation for analyses which, depending upon site conditions and suspected and/or identified contaminants of concern, may include, but are not limited to, metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs) and volatile petroleum hydrocarbons (VPHs). Subsequent testing, depending upon initial results, may be required for Toxicity Characteristic Leaching Procedure (TCLP) analyses (EPA Method 1311) for metals.

### **Method of Measurement and Basis of Payment**

LSP Services for work under this item will be measured per person, per hour of service provided by LSP, Environmental Technicians and other approved personnel. Travel time shall not be included in the billable hours. LSP hours related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

The quantity and type of laboratory tests must be approved by the Engineer beforehand. The contractor will be reimbursed upon satisfactory written evidence of payment. The contractor may be required to obtain cost estimates from three DEP certified laboratories for the Engineer to choose the service provider. Laboratory testing related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

LSP Services will be paid at the Contractor bid price for each hour, or fraction thereof, spent to perform the work as described above. The bid price shall be a blended rate that includes the cost of the LSP, environmental technicians and other personnel, the performance of all work tasks and field screening, including required equipment, materials and instrumentation, and production of all documentation described above. All requests for payment must be accompanied by the following information: the names of the personnel associated with the work charged under LSP Services, dates and hours worked, work conducted, including, where appropriate, locations as identified on the construction plans, and a copy of the field diary for the dates submitted.

Laboratory Testing will be reimbursed upon receipt of paid invoices for testing approved by the Engineer.

**ITEM 180.42**

**CONTAMINATED SOIL  
REHANDLED AND SPREAD**

**CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Sections 150 and 751 of the Standard Specifications and the following:

The work to be done under this item shall consist of rehandling, spreading and fine grading and compaction of excavated contaminated soils within the limits of the Contract in accordance with the specifications and in close conformity with the lines, grades, thickness and cross sections shown on the contract drawings or established by the Engineer.

**MEASUREMENT AND PAYMENT**

Contaminated soil rehandled and spread shall be measured per cubic yard, complete in place.

When measured by the cross section method, borrow shall be paid for as measured in place.

No overhaul allowance shall be made.

Contaminated soil rehandled and spread shall be paid for at the contract unit price per cubic yard, which price shall include all labor, materials, grading, equipment and incidental costs required for the work.

<b><u>ITEM 181.11</u></b>	<b><u>DISPOSAL OF UNREGULATED SOIL</u></b>	<b><u>TON</u></b>
<b><u>ITEM 181.12</u></b>	<b><u>DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY</u></b>	<b><u>TON</u></b>
<b><u>ITEM 181.13</u></b>	<b><u>DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY</u></b>	<b><u>TON</u></b>
<b><u>ITEM 181.14</u></b>	<b><u>DISPOSAL OF HAZARDOUS WASTE</u></b>	<b><u>TON</u></b>

The work under these Items shall include the transportation and disposal of contaminated material excavated, or excavated and stockpiled. It shall also include the cost of any additional laboratory analyses required by a particular disposal facility beyond the standard disposal test set.

Excavation of existing subsurface materials may include the excavation of contaminated soils. The Contractor shall be responsible for the proper coordination of characterization, transport and disposal, recycling or reuse of contaminated soils. Disposal, recycling or reuse will be referred to as “disposal” for the purposes of this specification. However, regardless of the use of the term herein, there will be no compensation under these items for reuse within the project limits. The Contractor will be responsible for coordinating the activities necessary for characterization, transport and disposal of contaminated soils. Such coordination will include the Engineer and his/her designee overseeing management of contaminated materials. Contaminated soils must be disposed of in a manner appropriate for the soil classification as described below and in accordance with the applicable laws of local, state and federal authorities. The Contractor shall be responsible for identifying disposal facility (ies) licensed to accept the class of contaminated soils to be managed and assure that the facility can accept the anticipated volume of soil contemplated by the project. The Contractor shall be responsible for hiring a Licensed Site Professional (LSP) and all ancillary professional services including laboratories as needed for this work. The Contractor will be responsible for obtaining all permits, approvals, manifests, waste profiles, Bills of Lading, etc. subject to the approval of the Engineer prior to the removal of the contaminated soil from the site. The Contractor and LSP shall prepare and submit to the Engineer for approval all documents required under the Massachusetts Contingency Plan (MCP) and related laws and environmental regulations to conduct characterization, transport, and disposal of contaminated materials.

**CLASSES OF CONTAMINATED SOILS**

The Contractor and its LSP shall determine if soil excavated or soil to be excavated is unregulated soil or contaminated soil as defined in this section. Such materials shall be given a designation for purposes of reuse or disposal based on the criteria of the MCP. Soils and sediments which are not suitable for reuse will be given a designation for purposes of off-site disposal based on the characterization data and disposal facility license requirements. The Classes of Contaminated Soils are defined as follows:



**ITEMS 181.11 through 181.14** (Continued)

UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to DCR the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the DCR construction project limits is equal to or less than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

**ITEMS 181.11 through 181.14** (Continued)

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

**MONITORING/SAMPLING/TESTING REQUIREMENTS**

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

### **ITEMS 181.11 through 181.14** (Continued)

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

#### **WASTE TRACKING:**

Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with DCR to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

#### **DECONTAMINATION OF EQUIPMENT**

Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

## **ITEMS 181.11 through 181.14** (Continued)

### **REGULATORY REQUIREMENTS**

The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. DCR shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to DCR. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse DCR for all costs it incurs, including penalties and/or for fines, as a result of the Contractor's failure to adhere to the regulations, specifications, recognized standard practices, etc., that relate to contaminated material handling, transportation and disposal.

### **SUBMITTALS**

#### I. Summary of Sampling Results, Classification of Material and Proposed Disposal Option.

The following information, presented in tabular format, must be submitted to the Engineer for review and approval prior to any reuse on-site or disposal off-site. This requirement is on-going throughout the project duration. At least two weeks prior to the start of any excavation activity, the Contractor shall submit a tracking template to be used to present the information as stipulated below. Excavation will not begin until the format is acceptable to DCR.

Characterization Reports will be submitted for all soil, sediment, debris and groundwater characterized through the sampling and analysis program. Each report will include a site plan which identifies the sampling locations represented in the Report. The Construction Plan sheets may be used as a baseplan to record this information.

The Sampling Results will be presented in tabular format. Each sample will be identified by appropriate identification matching the sample identification shown on the Chain of Custody Record. The sample must also be identified by location (e.g. grid number or stockpile number). For each sample, the following information must be listed: the classification (unregulated, regulated, etc.), proposed disposal option for the stockpile or unit of material represented, and, all analytical results.

**ITEMS 181.11 through 181.14** (Continued)

Each Characterization Report will include the laboratory analytical report and Chain of Custody Record for the samples included in the Report.

II. Stockpiling, Transport, and Disposal.

At least two weeks prior to the start of any excavation activity, the Contractor shall submit, in writing, the following for review and shall not begin excavation activity until the entire submittal is acceptable to DCR.

Excavation and Stockpiling Protocol:

Provide a written description of the management protocols for performing excavation and stockpiling and/or direct loading for transport, referencing the locations and methods of excavating and stockpiling excavated material.

Disposal and Recycling Facilities:

1. Provide the name, address, applicable licenses and approved waste profile for disposal and/or recycling location(s) where contaminated soil will be disposed. Present information substantiating the suitability of proposed sites to receive classifications of materials intended to be disposed there, including the ability of the facility to accept anticipated volumes of material.
2. Provide a summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. Material should not be sent to facilities which are actively considered by the DEP, USEPA or other responsible agency to be in violation of federal, state or local hazardous waste or hazardous material regulations. DCR reserves the right to reject any facility on the basis of poor compliance history.

Transportation:

The name, address, applicable license and insurance certificates of the licensed hauler(s) and equipment and handling methods to be used in excavation, segregation, transport, disposal or recycling.

III. Material Tracking and Analytical Documentation for Reuse/Disposal.

The following documents are required for all excavation, reuse and disposal operations and shall be in the format described. At least two weeks prior to the start of any excavation or demolition activity, the Contractor shall submit the tracking templates required to present the information as stipulated below. Excavation or demolition will not begin until the format is acceptable to DCR.

**ITEMS 181.11 through 181.14** (Continued)

All soils, sediments and demolition debris must be tracked from the point of excavation to stockpiling to onsite treatment/processing operations to off-site disposal or onsite reuse as applicable.

**Demolition Debris:**

Demolition debris must be tracked if the debris is stockpiled at a location other than the point of origin or if treatment or material processing is conducted. Identification of locations will be based on the station-offset of the location. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations/comments, quantity, and stockpile ID/processing operation location. For each unit of material tracked, the table will also track reuse of the material on-site, providing reuse date, location of reuse as defined by start and end station, width of reuse location by offset, the fill elevation range, quantity, and finish grade for said location. For demolition debris which is not reused on site, the table will also track disposal of the material as defined by disposal date, quantity and disposal facility. The table must provide a reference to any analytical data generated for the material.

**Soil/Sediment:**

Soil excavation will be identified based on the station-offset of the excavation location limits. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations, quantity, and stockpile number/location. For each unit of material tracked, the table will also track reuse of the material on-site and disposal of the material off-site using the same categories identified for demolition debris above.

**Method Of Measurement And Basis Of Payment**

Disposal of contaminated soil shall be measured for payment by the Ton of actual and verified weight of contaminated materials removed and disposed of. The quantities will be determined only by weight slips issued by and signed by the disposal facility. The most cost-effective, legal disposal method shall be used. The work of the LSP for disposal under all of these items shall be incidental to the work with no additional compensation.

ITEM 181.11 Measurement for Disposal of Unregulated Soil shall be under the Contract Unit Price by the weight, in tons, of contaminated materials removed from the site and transported to and disposed of at an approved location or licensed facility, and includes any and all costs for approvals, permits, fees and taxes, additional testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.12 Measurement for Disposal of Regulated Soil – In-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved in-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

**ITEMS 181.11 through 181.14** (Continued)

ITEM 181.13 Measurement for Disposal of Regulated Soil - Out-of-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved out-of-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.14 Measurement for Disposal of Hazardous Waste shall be under the Contract Unit Price by the weight in tons of hazardous waste removed from the site and transported to and disposed of at the licensed hazardous waste facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

**ITEM 184.1 REMOVAL AND DISPOSAL OF TREATED WOOD PRODUCTS      TON**

The work under this item includes the removal of the existing railroad ties, transportation, and recycling of all treated wood products.

The timber components suspected to be treated with creosote, pentachlorophenol and/or CCA. This item shall include all costs for sampling, laboratory testing, loading, transportation and disposal of the treated wood. The Contractor is required to submit disposal manifests to the Engineer prior to the completion of the project. All aspects of this Item are to be completed in accordance with state and federal regulations.

The Contractor shall remove, load, transport and dispose of the wood to a licensed facility. Contractor shall submit copies of all receiving facility documentation and weight slips.

Temporary stockpiling of the wood prior to loading is permitted if approved by the Engineer.

The Contractor shall submit to the Engineer the name and a copy of the operating permit for the proposed receiving facility at least 10 days prior to commencement of removal of the treated wood from the Site.

**MEASUREMENT AND PAYMENT**

Removal and disposal of Treated Wood Products will be measured for payment by weight, in tons, of treated wood products removed and subsequently disposed at a licensed facility.

Removal and disposal of Treated Wood Products will be paid for at the contract unit prices per ton, which price shall include all labor, tools, equipment, materials, testing, loading, transportation, disposal, approvals and permits necessary for the completion of the work. Release of retainage under this Item will not be made until all documentation required under this section has been submitted.

NOTE: It is anticipated that most, if not all, of the material will be contaminated and will require disposal at an approved facility.



**ITEM 206.****DROP INLET, TYPE A****EACH**

The work under these items shall conform to the relevant provisions of Sections 120, 150, 170 and 201 of the Standard Specifications and the following:

The work shall consist of installing a drop inlet, type A at Station 28+28 left, as detailed in MassDOT Construction Standard detail 203.1.0.

Frames and grates within DCR jurisdiction shall be iron castings and shall conform to the requirements of AASHTO Designation M105, Class No. 30, Gray Iron Castings, unless otherwise specified. The preferred drop inlet frames shall be “D-Frame” style, and the preferred basin grates shall be a two-directional or “grid-pattern” type, and not the “Cascade” style or the one-directional style. Test bars required shall be Test Bar B 1.20 inches in diameter.

Drop inlet castings shall conform to “M.D.C. Standard Design” No. 14 Old Style Grate-Drop inlet for four flanges, as manufactured by,

- Neenah Foundry (Drop Inlet Model No. R3405A),
- E.L. LeBaron (Model No. LBM 266)
- C.M. White Iron Works (Model No. S421)
- or an approved equal.

**Measurement and Payment**

Drop inlets will be measured and paid for at the Contract unit price per each, which price shall include all labor, material, equipment, frames and grates, excavation, gravel, crushed stone, fine grading and compacting and incidental costs required to complete the work.

<u>ITEM 241.12</u>	<u>12 INCH REINFORCED CONCRETE PIPE</u>	<u>FOOT</u>
<u>ITEM 241.15</u>	<u>15 INCH REINFORCED CONCRETE PIPE</u>	<u>FOOT</u>
<u>ITEM 242.12</u>	<u>12 INCH REINFORCED CONCRETE FLARED END</u>	<u>EACH</u>
<u>ITEM 242.15</u>	<u>15 INCH REINFORCED CONCRETE FLARED END</u>	<u>EACH</u>

The work under these items shall conform to the relevant provisions of Section 230 of the Standard Specifications and the following:

The work shall include the furnishing and installation of 12 inch and 15 inch reinforced concrete pipe and reinforced concrete flared ends at locations shown on the Plans.

Measurement and Payment

12 inch and 15 inch reinforced concrete pipe will be measured in place and the quantity paid for shall be the length actually constructed.

12 inch and 15 inch reinforced concrete pipe will be paid for at the contract unity price per foot, installed and complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

12 inch and 15 inch reinforced concrete flared ends will be measured in place by the unit each, complete and in place.

12 inch and 15 inch reinforced concrete flared ends will be paid for at the contract unity price per each, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

Gravel borrow, type c will be paid for under Item 151.01.

When wet conditions are encountered and crushed stone is used instead of gravel borrow, type c, the crushed stone will be paid for under Item 156.

**ITEM 252.106**

**6-INCH FLARED END**

**EACH**

The work under this item shall conform to the relevant provisions of Section 260 of the Standard Specifications and the following:

6-inch flared end shall be plastic, high density polyethylene (HDPE), or metal.

Plastic or HDPE flared ends shall conform to applicable requirements of AASHTO M294.

Metal ends shall conform to section M5.03.6.

**MEASUREMENT AND PAYMENT**

6-Inch Flared End will be measured and paid for at the contract unit price per each, complete in place, which price shall include all labor, materials, equipment and incidental cost required to complete the work.

No separate payment will be made for filling operations to establish sub-grade or subsoil elevations or fine grading and compacting, but all costs in connection therewith shall be included in the Contract unit price bid.

**ITEM 258.**

**STONE FOR PIPE ENDS**

**SQUARE YARD**

The work under these items shall conform to the relevant provisions of Sections 170, 258 and M9.50.0 of the Standard Specifications and the following:

The work shall consist of furnishing and placing stone for pipe ends at stone protection outfalls and at flared end sections as shown and detailed on the plans.

At locations of geotextile fabric installation, the subgrade shall first be graded and compacted. All rocks, vegetation, and other obstructions shall be removed before placement of fabric. The fabric shall be installed and fastened in place in conformance with the manufacturers recommendations for installation on slopes.

Geotextile fabric shall be rolled vertically down the slope and there should be no overlaps in the vertical direction. Adjacent strips of geotextile should overlap at least 2 feet. The geotextile should be secured in place at the overlaps with steel pins at least 18 inches long and spaced at 2 feet on center. The pins should be fitted with washers at least 1.5 inches in diameter.

**Measurement and Payment**

Stone for pipe ends shall be measured by the square yard, complete in place.

Stone for pipe ends will be paid for at contract unit price per square yard, which price shall include all labor, materials, equipment and incidental cost required to complete the work.

No separate payment will be made for fine grading and compacting but all costs in connection therewith shall be included in the unit prices bid.

Crushed stone will be paid for under Item 156.

Geotextile fabric for separation will be paid for under Item 698.3.

**ITEM 269.04****4 INCH WIDE – FLAT PANEL PIPE  
PERFORATED CORRUGATED PLASTIC PIPE (SUBDRAIN)****FOOT**

The work under this item shall conform to the relevant provisions of Section 260 of the Standard Specifications and the following:

Underdrain piping shall be High Density Corrugated Polyethylene panel pipe, Type C. Nominal sizes for which this specification is acceptable are 4-inches to 6-inch width. Pipe and fittings shall be made of virgin PE compound that conform to the requirements of cell classification 335420C as defined and described in ASTM D-3350. Compounds that have higher cell classifications in one or more properties are acceptable provided product requirements are met.

The pipe and fittings shall be free of foreign inclusion and visible defects. All holes of any kind in the corrugation crests or sidewalls shall be considered unacceptable. Standard perforation for 4 to 6 inch pipe shall be AAWSHTO M-252 Class 2. The ends of the pipe shall be cut squarely and cleanly so as not to adversely affect joining.

The nominal size for the pipe and fittings shall be based on the nominal inside width of the pipe. Corrugated fittings may be either molded or fabricated by the manufacturer. Fittings supplied by the manufacturers other than the supplier of the pipe shall not be permitted without approval of the Designer.

Joints for 4 to 6 inch pipe shall be made with snap couplings.

Flared ends shall be High Density Polyethylene Drain Pipe flared ends (HDPE) sized to be compatible with PVC and shall conform to applicable requirements of AASHTO M294.

Installation shall be in accordance with ASTM Recommended Practices D-2321 and as specified herein.

The underdrainage panel pipe shall be excavated to the depth and width designated on the Contract Documents. The drain shall be installed to the elevations and in the locations noted on the Contract Documents. Granular backfill shall be placed in accordance with the requirements of Item 151., of this Specification.

The excavation shall proceed only in close proximity to the actual drain construction. Where rock is encountered in the excavation, no part of any rock remaining in the trench shall come within six inches of any portion of the pipe.

Underdrain pipe shall be laid without kinks, bends or twists in the pipe. Plug high ends of all underdrain pipe with plugs compatible with the pipe.

Joints shall be formed tight and secure and in conformance with the pipe manufacturer's printed instructions.

**ITEM 269.04** (Continued)

Open outlets of underdrains shall be covered with a No. 23 gauge galvanized wire screen of one-quarter inch mesh satisfactorily fastened to the pipe.

The Contractor shall be responsible for keeping the backfill material clean and free of objectionable material.

**MEASUREMENT AND PAYMENT**

4-Inch Wide – Flat Panel Pipe Perforated Corrugated Plastic Pipe will be measured and paid for at the contract unit price per foot, complete in place, which price shall include all labor, materials, equipment and incidental cost required to complete the work.

No separate payment will be made for filling operations to establish sub-grade or subsoil elevations or fine grading and compacting, but all costs in connection therewith shall be included in the Contract unit price bid.

**ITEM 269.06****6 INCH SLOT-PERFORATED  
CORRUGATED PLASTIC PIPE (SUBDRAIN)****FOOT**

The work under this section shall also conform to the relevant provisions of Section 150, 170 and 260 of the Standard Specifications and the following:

**Description**

The work shall consist of furnishing all labor, tools, equipment and materials and performing all operations necessary for the installation of slot perforated plastic pipe along the locations shown on the Plans and as required by the Engineer.

The pipe shall consist of slot-perforated corrugated polyethylene pipe, couplings, and fittings. Materials, dimensions, physical properties and fabrication shall be in accordance with AASHTO-M252. Perforated pipes shall be furnished factory perforated; no perforations shall be performed on-site by the Contractor.

**Construction**

The slot-perforated corrugated plastic pipe shall be surrounded by crushed stone and wrapped in geotextile fabric to meet the dimensions shown on the plans and construction details. A minimum cover of 12 inches over the top of the stone backfill shall be provided over the pipe at all times during construction.

The geotextile fabric to be supplied under this item shall be equal to Mirafi 140N, Cevex25, or Typar 3351.

**Measurement and Payment**

6 inch slot perforated corrugated plastic pipes (subdrain) will be measured and paid for at the Contract unit price per foot, respectively, which shall include all labor, materials, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, crushed stone, fine grading and compacting or geotextile fabric but all costs in connection therewith shall be included in the Contract unit price bid.

Class B rock excavation will be paid for under Item 144.

**ITEM 281.6****OVERFLOW TRANSITION MAT****SQUARE YARD**

The work under this item shall conform to the relevant provisions of Section 200 of the Standard Specifications and the following:

The Contractor shall furnish and install a high density polyethylene mat to provide erosion control at the locations shown on the construction plans. The mat shall be a 4'x 4' square with a ½" thickness. Circular holes with a 2-½" diameter shall be provided with a 1" spacing between the hole. See plans for more details. The mat shall be installed over a bedding of loam and lawn sod.

The existing soil shall be removed to a depth 8" below the proposed surface. A minimum of 4" of loam borrow shall be placed over the existing soil and graded to provide a uniform surface. Lawn Sod shall be installed over the loam borrow and trimmed to a 1"-2" height. The Contractor shall anchor the mat to the existing ground to prevent the mat from shifting. The anchor shall be driven at least 18" deep and shall be spaced at a minimum of 18" apart. After installation, the sod shall be watered, as needed, to establish vegetation.

The surface of the mat shall be set flush with the proposed finish surface of the rail trail.

Overflow transition mat will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, backfill, loam borrow, or lawn sodding, but all costs in connection therewith shall be included in the unit price bid.



**ITEM 402. DENSE GRADED CRUSHED STONE FOR SUB-BASE CUBIC YARD**

The work under this item shall conform to the relevant provisions of Sections 170 and 402 of the Standard Specifications and the following:

The work shall include the furnishing and placing of dense graded crushed stone for sub-base for check dams as shown and detailed on the Plans.

**Measurement and Payment**

Dense graded crushed stone for sub-base will be measured by the cubic yard, complete in place.

Dense graded crushed stone for sub-base will be paid for at the Contract unit price per cubic yard, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for fine grading and compacting, but all costs in connection therewith shall be included in the unit price bid.

**ITEM 443.**

**WATER FOR ROADWAY DUST CONTROL**

**MGL**

The work under this item shall conform to the relevant provisions of Section 440 of the Standard Specifications and the following:

Water shall be applied to prevent dust during construction, compacting, and as required by the Engineer. The amount of water and frequency of water applications shall be determined by the site conditions and the Engineer.

**Measurement and Payment**

Water for roadway dust control will be measured by the number of M gallons (1,000 gallons). The quantity shall be measured by tanks or tank trucks of predetermined capacity, or by satisfactorily installed meters. Any and all measuring devices shall be furnished by the Contractor.

Water will be paid for by the M gallon, which price shall include all water, meters, labor material, equipment and incidental costs required to complete the work.

<u>ITEM 450.22</u>	<u>SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5)</u>	<u>TON</u>
<u>ITEM 450.23</u>	<u>SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5)</u>	<u>TON</u>
<u>ITEM 452.</u>	<u>ASPHALT EMULSION FOR TACK COAT</u>	<u>GALLON</u>
<u>ITEM 453.</u>	<u>HMA JOINT SEALANT</u>	<u>FOOT</u>

The work under this item shall conform to the relevant provisions of Section 450 of the Standard Specifications and the following:

The work shall include the furnishing and placing of superpave hot mix asphalt surface course and intermediate course for the full depth pavement (path) as shown on the Plans.

Superpave surface course paving to be completed at the end of the project and as directed when it can be placed in its entirety.

Asphalt emulsion for tack coat and hot mix asphalt joint sealant shall be applied as indicated on the Plans and as directed by the Engineer.

Measurement and Payment

Superpave surface course and superpave intermediate course will be measured by the ton, complete in place. The quantity shall be determined by weight slips countersigned by the Engineer at the time of delivery.

Superpave surface course and superpave intermediate course will be paid for at the Contract unit price per ton, which price shall include all labor material, equipment and incidental costs required to complete the work.

Asphalt emulsion for tack coat will be measured and paid for by the gallon, complete in place, which price shall include all labor material, equipment and incidental costs required to complete the work.

Hot mix asphalt sealant will be measured and paid for by the foot, complete in place, which price shall include all labor material, equipment and incidental costs required to complete the work.

Fine grading and compacting will be paid for under Item 170.

**ITEM 472.**

**HOT MIX ASPHALT FOR MISCELLANEOUS WORK**

**TON**

The work under this item shall conform to the relevant provisions of Section 472 of the Standard Specifications and the following:

The work shall include placement of hot mix asphalt for temporary pedestrian and vehicular access as well as traffic management and maintenance.

The Contractor is advised that this material will have to be placed primarily by hand methods.

**MEASUREMENT AND PAYMENT**

Hot mix asphalt for miscellaneous work shall be measured by the ton and shall be the actual and verified tonnage, complete in place and approved. The quantity shall be determined only by weight slips that have been properly countersigned by the Engineer at the time of delivery.

Hot mix asphalt for miscellaneous work will be paid for at the contract unit price per ton, complete in place which includes full compensation for the satisfactory removal and disposal of temporary material at a later date and as directed by the Engineer.

**ITEM 507.1****FLUSH GRANITE CURB****FOOT**

The work under this item shall conform to the relevant provisions of Section 150, 170, 501 and 901 of the Standard Specifications and the following:

Work under this item shall include furnishing and installing flush granite curb – type VB.

Granite curb type VB shall be sawn all sides. Provide thermal finish all exposed surfaces.

**MEASUREMENT AND PAYMENT**

Curb items will be paid for at the Contract unit price per foot, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

No separate payment will be made for storage, transporting and handling, excavation, fine grading and compacting, cement concrete and mortar joints, but all costs in connection therewith shall be included in the Contract unit price bid.

<u>ITEM 645.048</u>	<u>48 INCH CHAIN LINK FENCE (PIPE TOP RAIL)</u> <u>(LINE POST OPTION)</u>	<u>FOOT</u>
<u>ITEM 652.048</u>	<u>48 INCH CHAIN LINK FENCE END POST</u>	<u>EACH</u>
<u>ITEM 653.048</u>	<u>48 INCH CHAIN LINK FENCE CORNER</u> <u>OR INTERMEDIATE BRACE POST</u>	<u>EACH</u>

The work under this item shall conform to the relevant provisions of Sections 120 and 644 of the Standard Specifications and the following:

Work under this item shall include furnishing and installing 48 inch chain link fence as shown on the Plans and as directed by the Engineer.

Concrete bases shall be 4000 psi, 1.5 inch, 565 cement concrete.

MEASUREMENT AND PAYMENT

Item 645.048 will be paid for at the Contract unit price per foot, which price shall include all labor, materials, equipment, excavation, concrete and incidental costs required to complete the work.

Items 652.048 and 653.048 will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment, excavation, concrete and incidental costs required to complete the work.

Class B Rock Excavation will be paid for under Item 144.

**ITEM 655.3**

**TIMBER RAILING (IPE)**

**FOOT**

The work under this item shall conform to the relevant provisions of Sections 150, 170 and 600 of the Standard Specifications and the following:

The work under this item shall consist of furnishing and installing the timber railing fence fastened to wood posts, as shown on the plans.

Timber railings shall be IPE.

**SUBMITTALS**

The Contractor shall submit to the Engineer for approval a complete set of shop drawings, showing the layout of all railings, including bolt holes.

**QUALITY ASSURANCE**

Beams that contain unsound knots and shakes, excessive checking or other defects that may be detrimental to their structural integrity will be rejected and shall not be used in the proposed work.

**MATERIALS**

Timber for rails and rail posts shall be IPE, *Tabebuia* spp., lapacho group. IPE lumber shall have a minimum density of 64 pounds per cubic foot. Lumber dimensions shown on the plans are nominal.

The mechanical properties of the IPE lumber shall be verified using US Forest Product Laboratories testing methods (2" standard) and shall exceed the values listed below:

Modulus of Elasticity: 3,140,000 pounds per square inch  
Bending Strength: 25,400 pounds per square inch  
Crush Strength: 10,000 pounds per square inch

The lumber shall be dried to a moisture content of no more than 19%. Dimensions shall have a tolerance of plus/minus 0.08" at 19% moisture.

The IPE lumber supplier shall provide proof of membership in the Certified Forest Products Council.

Ends of the lumber shall be sealed after cutting using a clear aqueous wax end sealer appropriate for use with IPE to reduce end checking.

The lumber shall be in sound condition, free from worm holes, knots, longitudinal heart cracks, soft sap wood, fungus, and deformation (twisting or cupping) that cannot be removed during installation using normal installation methods and tools. Natural drying checks to a maximum of 1/8 inch width will be acceptable.

### **ITEM 655.3** (Continued)

All holes shall be predrilled. Bolt holes shall be 1/16 inch larger than bolt thread diameter, unless otherwise noted on the plans.

All connectors, fasteners, and hardware shall be either stainless steel type 304 or 316 alloy or shall be Hot-dip galvanized meeting the requirements of ASTM A153 and A123, with 2 ounces of zinc coating per square foot minimum. Fasteners, connectors, and hardware used together shall be of the same type.

### **CONSTRUCTION METHODS**

Wood rail fence posts shall be set plumb, backfilled with ordinary borrow, as required, and compacted to the lines and grades shown on the Plans and/or as required by the Engineer.

The Contractor shall be required to furnish extra length posts at transition areas or where field conditions warrant. These posts shall be of such length that the minimum depth in the ground, as shown on the Plans, is maintained.

The Contractor shall take extreme care in the handling of the railings. Any damaged timbers will be replaced by the Contractor at the discretion of the Engineer and at no additional cost.

Rails shall span a minimum of three members.

Wood rails shall be erected to form a smooth continuous rail conforming to the required line and grade. Butt adjoining rail sections with a maximum separation between adjoining rail sections of 1/16 inch.

Rails shall be butt jointed at alternate posts or as directed. Hammering or other forceful method of inserting bolt shall not be used.

### **MEASUREMENT AND PAYMENT**

Timber Railing will be measured per foot of actual fence installed and accepted.

Timber Railing shall be paid for at the contract unit bid price per foot complete in place, which price shall be considered as full compensation for all labor, tools, equipment and materials, including all required excavation, backfill, fasteners, bolts, nuts, fine grading and compacting and washers required to complete the work



**ITEM 657.**

**TEMPORARY FENCE**

**FOOT**

The work under this item shall conform to the relevant provisions of Section 600 of the Standard Specifications and includes installation of a chain link fence as shown on the plans. The fence shall be chain link and shall meet the requirements of the Standard Specifications and the Construction Standards, except the material need not be new. Gates shall be used at all locations that are to be opened on a regular basis.

**CONSTRUCTION METHODS**

The Contractor shall submit a plan to the Engineer indicating the locations and the amount of Temporary Fence he anticipates he will install for the project. The methods of installation(s) and fence detail(s) shall also be submitted for approval by the Engineer. The Contractor shall inspect the condition of temporary fence on a daily basis. Temporary fence that is damaged shall be promptly replaced. Contractor is responsible for removing and disposing of the fence when it is no longer required.

**MEASUREMENT AND PAYMENT**

All temporary fence will be paid for at the contract unit price per foot complete in place, which shall include all posts, gates, fasteners and/or clips, fence fabric and the necessary, excavation and equipment to complete the work to the satisfaction of the Engineer. No payment will be made for the final removal of temporary fence.

**ITEM 670.**  
**ITEM 673.**

**FENCE REMOVED AND RESET**  
**FENCE REMOVED AND DISCARDED**

**FOOT**  
**FOOT**

The work under this item shall conform to the relevant provisions of Sections 120 and 665 of the Standard Specifications and the following:

Work under this item shall involve removing existing fence as shown on the Plans and as directed by the Engineer. The work shall include the removal of fence posts, foundations and appurtenances. Fence and fence features shall become the property of the Contractor.

**MEASUREMENT AND PAYMENT**

Fence removed and reset will be paid for at the Contract unit price per foot, which price shall include all labor, materials, equipment, excavation, concrete and incidental costs required to complete the work.

Fence removed and discarded will be paid for at the Contract unit price per foot, which price shall include all labor, materials, equipment, excavation and incidental costs required to complete the work.

## **ITEM 690.91      CLEAN AND REPOINTING EXISTING MASONRY   SQUARE FOOT**

The work under this Item shall conform to the applicable provisions of Section 690 of the Standard Specifications.

Deteriorated mortar joints in the existing stone masonry wing walls shall be identified and quantified with the Engineer before commencement of cleaning and repointing. Cleaning of existing stonework under this Item shall include removal of vegetation (including vines, brush, and small trees) that may be attached to or growing out of the stonework or joints.

### **QUALIFICATIONS**

Cleaning and repointing work shall be performed by skilled masons with a minimum of five years of experience restoring historic masonry structures. The Contractor shall provide the Engineer with specific documentation of each mason's experience.

### **MATERIALS**

Pointing mortar shall conform to the relevant provisions of Section M4.02.15, which specifies a cement and sand mortar mix consisting of 1 part portland cement and 2 parts sand. An acceptable alternate mortar mix may contain 1 part portland cement, 2 parts lime, and 8 parts sand. The Engineer may require the use of the alternate cement-lime-sand mortar mix if the standard cement-sand mortar mix proves unsatisfactory, in the Engineer's opinion, in the initial mock-up sample.

Dry ingredients shall be measured by volume and thoroughly mixed prior to the addition of any water. Add sufficient water to the dry ingredients to produce a mortar that retains its form when hand-squeezed and released. Mix for approximately 5 minutes. Allow this mortar to stand covered for not less than 1 hour nor more than 1.5 hours for pre-hydration. Add additional water in small portions until a stiff, but workable, consistency is reached. The use of pigments or other mortar additives will not be permitted unless approved in writing by the Engineer and demonstrated as being acceptable by a suitable mock-up sample. Mortar shall be used within 30 minutes of final mixing. Re-tempering of mortar will not be permitted.

Where small chinking stones (6" maximum thickness or width, and 12" maximum length) are required to complete a joint repair, the provision and installation of the chinking stones shall be included in this Item. Chinking stones shall match the type and appearance of the surrounding existing stonework and be subject to the Engineer's approval.

### **MOCK UP**

The Contractor shall prepare a masonry repointing mock-up sample at a representative location selected by the Engineer. The sample area shall measure at least 1 square yard. The repointing shall be completed in accordance with the plans and specifications. The completed sample shall be subject to approval by the Engineer in writing, prior to commencing repointing work throughout

### **ITEM 690.91 (Continued)**

the structure. The approved sample will be the standard by which completed repointing work will be accepted. If the repointing sample is not approved, a new sample shall be prepared at a new location selected by the Engineer. The rejected sample areas shall be cleaned and repointed as directed by the Engineer.

### **CONSTRUCTION METHODS**

At locations identified with the Engineer, all existing pointing mortar shall be removed a minimum uniform depth of 1.5 inches or 2.5 times the joint width, whichever is greater. Any loose or disintegrated mortar beyond this minimum depth shall also be removed as required by the Engineer. Removal of mortar from joints shall be accomplished using hand tools and small pneumatically powered chisels and small electric grinders. If electric grinders are used, special care shall be used at ends of joints to prevent damage to adjacent stones. All tools shall be subject to approval by the Engineer prior to commencing work. If, in the opinion of the Engineer, the Contractor's methods of mortar removal are found to be damaging to the masonry, work shall be stopped until acceptable corrective action is taken.

After mortar removal work is complete, the joints shall be rinsed with water and brushed out to removal any loose particles and dust. The rinsing action should not scour additional bedding mortar material out of the joint. Loose stones shall be carefully removed, cleaned, and reset in their original position. Bedding mortar for resetting stones shall be proportioned and mixed as specified for pointing mortar.

Repointing shall not be done when the ambient temperature is 40° F or below, nor when the stone contains frost. At the time of pointing, the joints shall be damp, but with no standing water present. All pointing mortar shall be placed by hand. Where the existing mortar has been removed to a depth greater than 2 inches, these deeper areas shall be filled first, compacting mortar to fill all voids. Once a uniform joint depth is attained, the joint shall be filled by applying several layers of mortar, packing it well into the back corners. The thickness of individual layers shall not exceed ½ inch and each successive lift of mortar shall be permitted to reach thumb-print hardness before application of the next layer. The final lift of mortar shall be recessed slightly behind the face of the stones and finished with an approved flat pointing tool. Feathered edges shall be avoided. After the mortar has dried, but before it is initially set (usually 1 to 2 hours), excess mortar shall be removed from the edge of the joint by brushing with a natural bristle or nylon brush.

Repointed surfaces shall be kept moist by water-misting at least three times a day, or as required by the Engineer, and protected from extreme heat, freezing, high winds, and direct sunlight for 72 hours after finishing. Repointed areas shall be protected from rain for at least 12 hours after finishing. At the completion of the project, repointed masonry surfaces shall be cleaned using

### **ITEM 690.91 (Continued)**

plain water and natural bristle or nylon brushes as required by the Engineer. Use of chemical detergents will not be permitted for cleaning masonry.

#### METHOD OF MEASUREMENT AND PAYMENT

Cleaning and Repointing Mortar Joints shall be measured by the square foot and the pay quantity shall be only that quantity actually cleaned, repointed and approved by the Engineer.

Repointing Mortar Joints will be paid for at the contract unit bid price per Square Foot of masonry surface with mortar joints that are cleaned and/or repointed, and shall be full compensation for all labor, materials, and suitable equipment and incidentals to complete the work.

**ITEM 693.**

**STACKED BOULDER BLOCK WALL –  
SALVAGED CLASS B ROCK**

**SQUARE YARD**

The work under this Item shall conform to the relevant provisions of Sections 150, 170 and 685 of the Standard Specifications and the following:

The work shall include the furnishing and installation of geotextile fabric, crushed stone base, and reclaimed dressed granite block - Class B Rock ITEM 144. to be removed from existing viaduct spandrel and installed as shown on the Plans.

**MATERIALS**

Stacked Boulder Block Wall -Salvaged Class B Rock shall conform to the provisions of Materials Section M2.06.0. Crushed Stone shall conform to the provisions of Materials Section M2.01.1.

The geotextile fabric shall conform to the provisions of Materials Section M9.50.0, Table I – Type I Geotextile Fabric for Separation. The selected fabric shall be non-woven.

The geotextile fabric shall be placed on a prepared subgrade and in intimate contact with the soils without wrinkles or folds and shall be anchored on a smooth graded surface approved by the Engineer. The geotextile fabric shall not excessively stretch or tear the geotextile when overlaying materials.

Stone for stacked boulder block wall shall be placed on the prepared base with a minimum amount of voids and with the minimum thickness as shown on the Plans.

**MEASUREMENT AND PAYMENT**

Stacked Boulder Block Wall – Salvaged Class B Rock shall be measured by the square yard, complete in place.

Stacked Boulder Block Wall – Salvaged Class B Rock will be paid for at the contract unit price per square yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

No separate payment shall be made for geotextile fabric, crushed stone, and grading, but all costs in connection therewith shall be included in the unit price bid of this Item.

**ITEM 694.**

**CUT GRANITE BLOCK ‘ABUTMENT’  
WALL – NEW STONE**

**SQUARE YARD**

The work under this Item shall conform to the relevant provisions of Sections 150, 170, 400 and 685 of the Standard Specifications and the following:

The work shall include the furnishing, delivery and install of cut granite block wall stone, geotextile fabric, crushed stone base as shown on the Plans.

**MATERIALS**

Cut Granite Block “Abutment” Wall – New Stone shall conform to the provisions of Materials Section M9.04.9. Crushed Stone shall conform to the provisions of Materials Section M2.01.1.

Granite block shall be provided to the sizes and shapes shown on the plans and in accordance to the proposed grading plan elevations.

**METHOD OF MEASUREMENT**

Cut Granite Block “Abutment” Wall – New Stone shall be measured by the square yard, complete in place.

**BASIS OF PAYMENT**

Cut Granite Block “Abutment” Wall – New Stone will be paid for at the contract unit price per square yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

No separate payment shall be made for geotextile fabric, crushed stone, and grading, but all costs in connection therewith shall be included in the unit price bid of this Item.

**ITEM 698.3****GEOTEXTILE FABRIC FOR SEPARATION****SQUARE YARD**

The work under this item shall conform to the requirements of Section M9.50.0 of the Standard Specifications and the following:

The work under this item includes the furnishing and installation of geotextile fabric under stone for pipe ends and modified rock fill slopes.

At locations of fabric installation, the subgrade shall first be graded and compacted. All rocks, vegetation, and other obstructions shall be removed before placement of fabric. The fabric shall be installed and fastened in place in conformance with the manufacturers recommendations for each type of condition listed above.

Fabric for areas under stone for pipe ends shall conform to the requirements of AASHTO M288 for Separation.

**MEASUREMENT AND PAYMENT**

Geotextile fabric for separation will be measured for payment per square yard, complete in place as measured across the surface of grade; any overlaps shall be measured as a single layer of fabric.

Geotextile fabric for separation will be paid for at the Contract unit price per square yard, which price shall include all labor, tools, material, equipment and incidental costs required to complete the work.



**ITEM 701.1 CEMENT CONCRETE SIDEWALK AT DRIVEWAYS SQUARE YARD**

The work under this item shall conform to the relevant provisions of Section 701 of the Standard Specifications and the following:

The work shall include reconstructing the cement concrete sidewalk at the driveway of 10 Mill Street as shown on the Plans.

**Measurement and Payment**

Cement concrete sidewalk at driveway shall be measured by the square yard, complete in place.

Cement concrete sidewalk at driveway will be paid for at the contract unit price per square yard, which price shall include all labor, materials, equipment, sawcuts and incidental costs required to complete the work.

Excavation and gravel borrow will be paid for under Items 120 and 151 respectively.

Fine grading and compacting will be paid for under Item 170.

**ITEM 702.****HOT MIX ASPHALT SIDEWALK OR DRIVEWAY****TON**

The work under this item shall conform to the relevant provisions of Section 702 of the Standard Specifications and the following:

The work shall include reconstructing the driveways at 10 Mill Street and 7 Farnum Street as shown on the Plans.

**Measurement and Payment**

Hot mix asphalt driveway shall be measured by the ton, complete in place. The quantity shall be determined by weight slips countersigned by the Engineer at the time of delivery.

Hot mix asphalt driveway will be paid for at the contract unit price per ton, which price shall include all labor, materials, equipment, sawcuts and incidental costs required to complete the work.

Excavation and gravel borrow will be paid for under Items 120 and 151 respectively.

Fine grading and compacting will be paid for under Item 170.

**ITEM 704.01****STABILIZED AGGREGATE PAVING****SQUARE FOOT**

The work under this item shall conform to the relevant provisions of Sections 150 and 170 of the Standard Specifications and the following:

The work of this item consists of all stabilized aggregate path work and related items as indicated on the Drawings and or as specified herein.

**REFERENCES AND STANDARDS**

The following standards and definitions are applicable to the work of this Section to the extent referenced herein:

1. ASTM: American Society for Testing and Materials.
  - a. ASTM C136/C136M – 14, Standard Test Method for Sieve Analysis of Fine and Course Aggregates.
  - b. ASTM D2419-14, Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregates.
  - c. ASTM F1951 – 14, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.
2. AASHTO: American Association of State Highway and Transportation Officials.

**SAMPLES AND SUBMITTALS**

Sieve analysis of aggregate for pathways and patios.

Samples, Test Results and Manufacturer's Literature for the following:

1. 3 pound bag sample of base course aggregate
2. 3 pound bag sample of stabilized crushed aggregate paving
3. Stabilize crushed aggregate gradation indicating that the product meets specifications.
4. Manufacturer's Material Safety Data Sheet

Construction Samples:

1. Construct mock-up panels or areas for each different type of paving system as specified herein to demonstrate ability to archive types of setting bed, joints, pattern, color and texture required herein.
2. Paving material for aggregate pathway and patio surfacing: Construct a 6' x 12' sample of finished path as directed by the Engineer on site.
3. General:
  - a. Schedule mock-up construction so that mock-up can be accepted a minimum of 30 days prior to the application of paving surfaces represented by the mock-up.
  - b. Locate mock-up panel(s) in areas as directed by the Engineer.
  - c. Continue to construct mock-ups until acceptable mock-up is produced (at no cost to the Owner). Acceptable mock-up shall be standard for texture, color and workmanship.

**ITEM 704.01** (Continued)

- d. Use same setting bed and joint mixes used in accepted mock-up in final work unless otherwise directed by Engineer.
- e. Protect accepted mock-ups from damage until completion and acceptance of the work represented by the mock-ups.
- f. Remove mock-up panel(s) from the site at completion of the project, unless otherwise instructed by Engineer.

Submit the following manufacturer's literature for the stabilized aggregate paving including specifics of "lime-based" binder mix

**WARRANTY**

General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

Special Warranty: Submit a written warranty executed by the installer agreeing to repair or replace components of Paving Material that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:

1. Premature wear and tear provided the material is maintained in accordance with manufacturer's written maintenance instructions.
2. Failure of system to meet performance requirements.

Warranty Period: Contractor shall provide warranty for performance of product. Contractor shall warranty installation of product for the time of one year from completion.

Contractor shall provide, for a period of sixty days, unconditional maintenance and repairs as required

**MATERIALS**

Organic-Lock for Organic-Lock stabilized pathway aggregate provided by:

Envirobond Products Corporation  
6191-2100 Bloor Street West  
Toronto, Ontario, Canada  
M6S 5A5  
1-866-636-8476  
info@envirobond.com  
www.envirobond.com  
www.organic-lock.com

**ITEM 704.01** (Continued)

Crushed Aggregate Materials:

1. Crushed Aggregate Material shall consist of sound, angular, durable particles.
2. Gradation, in accordance with ASTM C136:

Optimal Gradation		
Sieve	Sieve Size (mm)	Percent Passing
4	4.75	80% - 100%
8	2.36	65% - 90%
16	1.18	40% - 65%
30	0.6	25% - 55%
50	0.3	15% - 35%
100	0.15	10% - 20%
200	0.075	5% - 15%

Organic-Lock Binder

1. Patented powdered organic binder (containing lime additive) designed to be blended with crushed aggregate.
2. Made from 100% naturally occurring materials.

Color shall be selected by Owner.

CONSTRUCTION METHODS

PREPARE THE SUBGRADE

Excavate the area to the depth required so that finish grade can be established as noted on plans.

A Foot-Traffic Pathway will require a full depth of 7-9 inches: 4-6 inches of compacted base depth together with 3 inches of compacted Organic-Lock Pathway Aggregate.

Compact the subgrade to 95% Modified Proctor Density.

PREPARE THE BASE

Foot-Traffic Pathway will require 4-6 inches of compacted base material.

Depending upon the method of compaction the installation of base material may require separate lifts. 4 inches can be compacted in a single lift with a minimum 2-ton compaction roller.

### **ITEM 704.01** (Continued)

Compact the subgrade to 95% Modified Proctor Density using a single or double drum static roller or vibratory compactor.

### **WATERSHED MANAGEMENT**

Crowns and/or cross-slopes must be incorporated into the compacted base material.

If the slope is 2% or lower, a crown should be incorporated into the pathway.

If the slope is greater than 2%, incorporate a cross-slope.

Note: The addition of crowns and cross-slopes is heavily dependent upon surrounding watershed.

### **SPREADING**

The use of a paving machine is highly recommended for large projects to evenly spread Organic-Lock Pathway Aggregate at the specified depth. It's recommended to screed the material to ensure the depth is consistent for smaller projects or projects with tight areas.

Spread the loose and uncompacted Organic-Lock Pathway Aggregate over the compacted base material.

Typically, a lift of 4 inches of loose, pre-wet Organic-Lock Pathway Aggregate will compact to the required 3-inch depth for Foot-Traffic Pathways.

### **COMPACTION**

Make 4-6 passes using a 1-ton double or single static drum roller, or equivalent. A Foot-Traffic Pathway will typically require one lift, compacted to 3 inches.

Compaction will vary with different aggregates due to particle shape and size. It will compact 20-25%, less if using paving machinery. This level of compaction needs to be monitored as early as possible (starting during the test plot) to determine the actual degree of compaction. It is better to put down too much material and to remove it from the top than to put down too little and add a layer later.

Compact to 95% Modified Proctor Density.

Note: Vibratory compaction is acceptable for the base material but generally not suitable for Organic-Lock blended aggregate as it risks disassociating the bonds of the stabilized aggregate or allowing the fines and moisture to migrate to the surface, causing the surface to take on a smooth, concrete-like appearance. Organic-Lock Blended Aggregates should be compacted using a single or double drum static roller wherever possible. For tight spaces that are not accessible by drum

## **ITEM 704.01** (Continued)

rollers, a hand tamper is recommended. However, in certain circumstances, a vibratory or plate tamper can be used where the installer deems it to be more effective as hand-tamping over large spaces will create inconsistent results.

Provided the moisture content of the Organic-Lock blended aggregate is adequate, additional hydration should not be necessary. On dry, sunny days, however, the surface layer may start to dry out while installing, in which case, a light misting would be appropriate to prevent surface cracks from appearing during compaction. Refer to our installation guideline video [https://www.youtube.com/watch?v=mzQ-vZu2ynw&list=PL4SwT3V0vLBg\\_K6VCTUWAuep3zDg\\_0yCv&index=6&t=40s](https://www.youtube.com/watch?v=mzQ-vZu2ynw&list=PL4SwT3V0vLBg_K6VCTUWAuep3zDg_0yCv&index=6&t=40s) for more information.

## **COMPLETING INSTALLATION**

Apply a light spray to the surface of the material to give a clean appearance.  
Apply water until the water begins to run-off.

Do not allow any traffic on the newly installed pathway until fully cured, a minimum of 24-72 hours.

## **REPAIRS AND PROTECTION**

Excavate the damaged area and scarify exposed Organic-Lock Pathway Aggregate.

Pre-blend the replacement crushed stone aggregate material with Organic-Lock at 28-34 lbs / imperial ton. Apply the material to the excavated area and compact. Thoroughly water the material to achieve an 8-10% moisture content. Use the “snowball test” to determine moisture content - refer to [https://www.youtube.com/watch?v=mzQ-vZu2ynw&list=PL4SwT3V0vLBg\\_K6VCTUWAuep3zDg\\_0yCv&index=6&t=40s](https://www.youtube.com/watch?v=mzQ-vZu2ynw&list=PL4SwT3V0vLBg_K6VCTUWAuep3zDg_0yCv&index=6&t=40s) for details.

Allow the newly installed Organic-Lock Pathway Aggregate to cure, but not completely dry out.

Re-compact the material, ensuring that the final grade and crown are maintained.

## **MAINTENANCE**

All outdoor products require a level of maintenance analysis. It is recommended to do a thorough analysis of your installed Organic-Lock blended aggregate 7 days after installation followed by monthly analysis to ensure no alterations are required.

## **ITEM 704.01** (Continued)

### Erosion Damage

The greatest element of concern is rainfall erosion. Often, this problem can be greatly reduced by adjusting the watershed areas surrounding the product itself. The best way to determine how the water is building up, is to examine your project area during a rainstorm. Learning where the water is coming from can lead to water diverting that dramatically reduces the stress on your surface.

Installing culverts, drains, cross slopes, crowns, or diverters can limit the majority of stress causing damage.

If you do experience erosion damage, first look at ways to get the water away or slow the water down, that's causing the damage...secondly, replace the lost material with new material following the guidelines below.

### Excess Loose Material

Directly after the installation, the aggregate surface will be smooth because of the weight of the fresh compaction. As the surface weathers with traffic and time, the larger particles of the aggregate will loosen on the surface to create a natural look and feel which is often sought after. The loose aggregate particles on your surface should not exceed 1/4" in depth.

Sweeping off the excess particles can be accomplished in areas where excess 1/4" chip is not detrimental. These loose particles can also be shoveled and removed from site. The remaining surface will eventually chip loose again, so new material is recommended as a top up (see instructions below) after doing this more than once.

If material exceeds a 1/4", redistribute the particles over a greater surface, scarify the surface to a depth of 1" and water to a 1" depth and compact with a roller of no less than 1000-lbs. Keep traffic off for 24-72 hours.

### Removing Debris

You can remove grass clippings, soil, debris or organic material by mechanically blowing or hand raking as needed.

### Snow Plowing

When plowing snow, use a shoe lift or rubber baffle on the blade of the plow to lift the blade up 1/4" off the surface. Extra precautions should always be taken after the first snow and last snow of the season, as this is when the material is most prone (i.e. the ground is not frozen).



**ITEM 704.01** (Continued)

**ADDING NEW BLENDED ORGANIC-LOCK BLENDED AGGREGATE MATERIAL TO DAMAGED AREAS**

Below the loose surface particles, the firmed material should be stable to resist erosion and support the intended traffic.

If this lower level material incurs damage, we recommend the following:

**Fixing Lightly Damaged Areas**

Lightly damaged areas can be repaired by soaking, scarifying with a rake to 1-2 inches and compacting the scarified area using a roller or a hand tamper.

**Adjusting Organic-Lock Blended Aggregate**

The Organic-Lock gel activates each time it comes in contact with water, which allows for the blended aggregate to be physically broken up, re-worked and returned back to its initial state. This self-healing nature allows for a simplified maintenance procedure that leaves no sign of the maintenance itself.

For example:

If you have to run an irrigation line below your finished pathway, all you need to do is add water, dig the material up, put down your irrigation line, spread the material back in place, then water and compact it using a roller or a hand tamper back to new.

**Fixing Larger or More Severely Damaged Areas**

Excavate the damaged area to a depth of 2" to an approximate 50% increase in area (i.e. if your area is in a 4-foot radius circle, excavate a total of 6 feet in diameter).

Estimate amount of material lost or material needed to be topped up. Add this amount of preblended Organic-Lock aggregate in the area.

Blend this newly blended aggregate in by one of the following methods:

**A. Rototill to a Depth of 2 Inches**

This needs to be done with multiple passes and should not exceed the depth of the Organic-Lock blended aggregate (i.e. avoid disrupting the base material). Spray the surface with a light spray and begin to till this material to achieve a homogeneous blend of the new and existing material. Add further water as you mix to achieve the optimal snowball (as seen in the snowball test).

**ITEM 704.01** (Continued)

A. Remove and Blend the Material Off Site

Add the new Organic-Lock blended aggregate to the existing material on a clean pad. Using a front-end loader (or shovels for smaller projects) mechanically turn the material over until you achieve a homogeneous blend. Add water into this mixture until you achieve an optimal snowball (as seen in the snowball test).

Spread this newly blended material back into the area where the excavation was completed and compact using a roller or a hand tamper

Note: Maintenance or patching should not be compacted with a vibratory plate compactor because it will rattle and damage the surrounding cured area.

**MEASUREMENT AND PAYMENT**

Stabilized aggregate paving will be measured by the square foot, complete in place.

Stabilized aggregate paving will be paid for at the contract unit price per square foot, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, dense graded crushed stone, providing all base materials, stabilized aggregate paving, placing, spreading, repairing or fine grading and compacting, but all costs in connection therewith shall be included in the unit price bid.

**ITEM 706.3**

**CONCRETE UNIT PAVERS**

**SQUARE YARD**

The work under this item shall conform to the relevant provisions of Sections 150 and 170 of the Standard Specifications and the following:

Work under this item shall include furnishing and installing concrete unit pavers, sand/asphalt setting bed and concrete base course over gravel borrow bases.

**REFERENCES**

The following standards shall apply to the work of this Section.

1. American Association of State Highway and transportation Officials (AASHTO).  
M43 Standard Size of Coarse Aggregate for Highway Construction  
M140 Emulsified Asphalt  
M208 Cationic Emulsified Asphalt
2. American Society for Testing and materials (ASTM)  
C33 Specification for Concrete Aggregates.  
C136 test Method for Sieve Analysis of Fine and Coarse Aggregates.  
C936 Specification for Solid Concrete Interlocking Paving Units.  
D36 Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus).  
D113 Test Method for Ductility of Bituminous Materials.  
D1557 Test method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>).  
D3381 Specification for Viscosity- Graded Asphalt Cement for Use in Pavement Construction.

**SUBMITTALS**

Submit the following for review:

1. Manufacturer's Product Data: Manufacturer's product data shall be submitted for the following items:
  - a. Concrete Unit Pavers
2. Neoprene modified asphalt adhesive
3. Asphaltic primer
4. Stone dust for joint filler

Schedule: Submit Schedule of all access panels to be furnished hereunder, indicating locations for each size and type of access door.

Samples: Samples shall be submitted for the following items:

**ITEM 706.3** (Continued)

1. Furnish not less than two individual Concrete Pavers of each type, size, and finish required for the Engineer's approval. Samples shall exhibit the full color range of pavers to be provided.
2. Submit a 10 pound sample of stone dust for joint filler to Architect for approval.

Design Mix Submittals: Submit design mix submittals including description of materials, proportions, and mechanical sieve sizes of aggregates for the following:

1. Certified sieve analysis for stonedust.
2. Bituminous concrete setting bed mix.
3. Neoprene modified asphalt adhesive

Shop Drawings: Submit shop drawings for layout, illustrating paver layout at typical intersections, typical banding and paving pattern, for approval by the Engineer prior to installation.

Test Report: Test report of precast Concrete Paver shall be submitted.

Testing shall be done by an independent testing laboratory. Test procedures shall conform to ASTM C 936 methods, where applicable.

Test reports shall indicate, as a minimum, the following:

1. Compressive strength, pounds per square inch.
2. Absorption, 5 hr. submersion in cold water.
3. Absorption, 24 hr. submersion in cold water.
4. Maximum saturation coefficient.
5. Initial rate of absorption (suction).
6. Abrasion index.
7. Freeze-thaw.

Sample Panel: Construct a sample panel of Concrete Pavers on the specified base and setting bed before start of any precast concrete paving. Sample panels shall exhibit proposed color range, texture, bond, jointing, pattern, finish, paver size, and workmanship. Unless otherwise indicated, size of panel shall be 8 feet x 8 feet minimum.

1. The sample panels may not be part of the finished work.
2. The quality of workmanship, paver jointing and cleanliness of pavers after installation must be approved by the Architect before permanent paving is started.
3. If the original sample is not approved, the Contractor shall provide additional samples, as required, at no cost to the Engineer, until an approved sample is obtained.

### **ITEM 706.3** (Continued)

4. The approved sample shall become the standard for unit paving for the work of this Section. Panel shall remain undisturbed until all paving is completed. Remove panel from the site upon completion of paving.

### **QUALITY ASSURANCE**

Installer must review installation procedures of all precast concrete paving and sequence of work with General Contractor to insure proper coordination with other subcontractors and suppliers whose work is affected by the delivery schedule and installation of paving work.

### **DELIVERY, STORAGE AND HANDLING**

Concrete Paver units shall be packaged by strapping to manufacturer's standard and delivered on pallets. Pavers damaged in any manner will be rejected and shall be replaced with new material at no additional cost to the Owner.

Store all paving units on raised platforms. Storage piles or stacks shall be located to avoid or be protected from heavy or unnecessary traffic. Store paving units on wood skids or pallets. Place and stack skids and units to distribute weight evenly and to prevent breakage or cracking of units. Materials shall be stored under an approved roof or covered with non-staining waterproof tarpaulins, at all times, except when materials are being installed. Protect paving units during storage and construction against moisture, soiling, staining and physical damage.

Handle paving units to prevent chipping, breakage, soiling or other damage. Do not use pinch or wrecking bars without protecting edges of units with wood or other rigid materials. Lift with wide-belt type slings or vacuum lifts wherever possible; do not use wire cable or ropes containing tar or other substances which might cause staining. If required, use wood rollers and provide cushion at end of wood slides. Any paving unit chipped during delivery, storage, or handling will be rejected and replaced by the Contractor at no additional cost to the Architect.

Deliver cement in manufacturer's original water-resistant bags, labeled with manufacturer's name and product brand, with seals unbroken and full weight. Damaged and fractional packages will be rejected.

### **PROTECTION OF ADJACENT SURFACES**

Finished surfaces adjacent to the concrete unit paving shall be adequately protected from soiling, staining, and other damage during construction.

### **ITEM 706.3** (Continued)

#### **MATERIALS**

##### **Concrete Unit Paver**

Concrete Pavers shall conform to ASTM C936-82, Standard Specifications for Solid Concrete Interlocking Paving Units. The minimum compressive strength shall not be less than 7,200

pounds per square inch with the average compressive strength not less than 8,000 pounds per square inch Maximum absorption shall be 5 percent or less at 50 cycles of freeze-thaw testing per section ASTM C67. Submit paver tests for freeze thaw and abrasion resistance to be approved by the Architect.

Concrete Unit Pavers shall have a non-slip finish.

Concrete Unit Pavers shall be in a range of sizes with quantities necessary to install the patterns designated in the Contract Drawings. Concrete Unit Paver sizes shall be as indicated on the Contract Documents and as indicated below:

1. 12 inches long by 4 inches thick by 4 inches deep
2. 16 inches long by 4 inches thick by 4 inches deep
3. All dimensions are nominal sizes.

Concrete Unit Pavers shall be provided in a blend and range of colors from Tan to chocolate.

All joints shall be hand tight, butt joints swept with stone dust, unless indicated otherwise.

Concrete Unit Pavers shall be installed in pattern shown on the Contract Documents.

##### **Compacted Aggregate Base Course**

Base materials shall consist of compacted gravel borrow, M1.03.0, Type b.

##### **Concrete Setting Slab**

Concrete shall be 4000 psi, 3/4 inches high early strength wet placed concrete conforming to Section M4 and constructed as shown on the Contract Documents.

The dimensions of the lumber used to form concrete pavements shall not be less than 2 inches nominal thickness by the required pavement depth of 4 inches.

Welded wire mesh (WWM) reinforcement shall conform to the applicable requirements of ASTM A 185. Fabric reinforcement shall be furnished in flat sheets. Fabric reinforcement in rolls will not be permitted.

Provide 6 inches x 6 inches W1.4 x W1.4 welded wire mesh for concrete base. Steel expansion dowels shall be hot-rolled plain steel rounds conforming to the requirements of AASHTO M31, Grade 60 and consisting of a 1/2 inches by 24 inches smooth steel dowel and compatible waxed tube sleeve, by 12 inches in length.

### **ITEM 706.3** (Continued)

Cast-in-place concrete shall be air-entrained concrete with minimum 28-day compressive strength of 4,000 pounds per square inch, conforming to the requirements and applicable provisions of M4.02. Concrete shall be air-entrained 7 percent minimum +/-1 percent, by volume. Concrete shall have a slump of 2 inches to 4 inches slump. Maximum Aggregate Size: Aggregate size shall be a maximum of 3/4 inches. Thickness of Concrete: Depths shall be as noted on the Contract Documents.

The finish for the concrete base shall be roller bug or rough screeded; no sealant required.

#### Bituminous Setting Bed

Asphalt cement to be used in the bituminous setting bed shall conform to ASTM D 3381. Viscosity grade shall be A.C. 10 or A.C. 20.

Fine aggregate to be used in the bituminous setting bed shall be clean, hard sand with durable particles and free from adherent coating, lumps of clay, alkali salts, and organic matter. Aggregate shall be uniformly graded from "coarse" to "fine" with 100 percent by weight passing the No. 4 sieve and shall meet the gradation requirements when tested in accordance with ASTM C 136.

Fine aggregate shall be dried and shall be combined with hot asphalt cement, and the mix shall be heated to approximately 300 degrees Fahrenheit at an asphalt plant. The approximate proportion of materials shall be 7 percent cement asphalt and 93 percent fine aggregate. Each ton of material shall be apportioned by weight in the approximate ratio of 145 pounds asphalt to 1,855 pounds sand. The Contractor shall determine the exact proportions to produce the best possible mixture for construction of the bituminous setting bed to meet specified requirements.

#### Neoprene modified asphalt adhesive

Neoprene modified asphalt adhesive shall meet the following requirements:

1. Mastic (asphalt adhesive)
  - a. Solids (base) content by volume =  $75 \pm 1$  percent
  - b. Weight= 8.0 to 8.5 pounds/gallon
  - c. Solvent vehicle = Varsol (over 100°F flash)
  
2. Base (2 percent neoprene, 10 percent fibers, 88 percent asphalt)
  - a. Melting point (ASTM D 36) = 200°F minimum.
  - b. Penetration at 77°F 100 gram load 5 second = 23 to 27.
  - c. Ductility (ASTM D 113 at 77°F, 5 cm/minute)=125 cm, minimum.

#### Asphaltic Primer

Primer for base beneath bituminous setting bed and Concrete Unit Pavers shall be an emulsified asphalt rapid setting type conforming to AASHTO M 140, Grade RS-1, or AASHTO M 208, Grade

### **ITEM 706.3** (Continued)

#### Stone Dust for Joint Filler

Stone dust for filling joints between pavers shall be stone dust of decomposed granite or trap rock conforming to the gradation requirements of AASHTO M 43, No. 10, or "stone dust" minus 1/4 inch screenings.

#### Water

Water shall be potable and shall be free of injurious contaminants.

### CONSTRUCTION METHODS

#### Examination

Inspect all surfaces and verify that they are in proper condition to receive the work of this Section. Verify that prepared openings are ready to receive the work of this Section and opening dimensions are as indicated on the shop drawings. Verify that all blocking is set in place and secure.

Beginning of installation means acceptance of existing project conditions.

#### Installation

Install in accordance with manufacturer's instructions and direction from authorities having jurisdiction.

#### Base Course

Base course shall be spread in layers from self-spreading vehicles equipped with automated grade controlled equipment for cross sections greater than 10 feet in width and by hand for cross sections less than or equal to 10 feet in width. Power graders or conventional self-spreading vehicles may be used only with prior written approval of the Engineer. Base course shall be compacted until the surface is even and true to the required lines and grades within a tolerance of 3/8 inch above or below the required cross sectional elevations and to a maximum irregularity not exceeding 3/8 inch under a 10 foot line longitudinally.

Any specific area of base course which, after being rolled, does not form a satisfactory, solid, stable foundation shall be removed, replaced and re-compacted by the Contractor at no additional cost to the Owner.

Compaction of base course shall be to 95 percent of maximum density as determined by ASTM D 1557.

Width of base course shall be greater than or equal to the width of stone dust surface, if continuous lateral support is provided during rolling, and shall extend at least 2 x base thickness beyond edge of the course above, if not so supported.

Material shall be applied in lifts less than or equal to 3 inches thick, compacted measure. Each lift



### **ITEM 706.3** (Continued)

shall be separately compacted to specified density. Rolling shall begin at sides and progress to center of crowned areas, and shall begin on low side and progress toward high side of sloped areas. Rolling shall continue until material does not creep or wave ahead of roller wheels.

Sub-grade and base course shall be kept clean and uncontaminated. Less select materials shall not be permitted to become mixed with base course. Materials spilled outside stone dust surfacing lines shall be removed and area repaired.

Portions of sub-grade or of construction above which become contaminated, softened, or dislodged by passing of traffic, or otherwise injured, shall be cleaned, replaced, re-compacted, or otherwise repaired to conform to the requirements of this specification before proceeding with next operation.

#### Acceptability of Concrete Base

Contractor shall verify that the concrete base provided, to determine that it has been placed accurately to meet the line and grading requirements for the pavers and to verify its adequacy to receive Concrete Unit Pavers and setting bed. Concrete shall have fully cured prior to the work of installing Concrete Unit Pavers. Evidence of inadequate base shall be brought to the immediate attention of the Engineer and shall be corrected by the Contractor as directed by the Engineer at no additional cost to the Owner.

#### Bituminous Setting Bed Installation

The surface of the concrete base shall receive an asphalt prime coat before laying bituminous setting bed.

Prime coat shall be applied at rate that will leave bituminous residue of 5 to 7 gallons per 100 square yards after evaporation of vehicle. Base surface shall be dry and clean when prime coat is applied. Bituminous setting bed shall not be placed until vehicle has completely evaporated from prime coat.

Bituminous setting bed shall be installed over the concrete base. Control bars 3/4 inch deep shall be placed directly over the base. If grades must be adjusted, wood chocks under depth control bars shall be set to proper grade. Set two bars parallel to each other to serve as guides for the striking board. The depth control bars must be set carefully to bring the pavers, when laid, to proper grade.

While still hot (not less than 250 degrees Fahrenheit some of the bituminous bed material shall be placed between the parallel depth control bars. This bed shall be pulled with the striking board over the control bars several times. After each passage, low porous spots shall be showered with fresh bituminous material to produce a smooth, firm, and even setting bed. As soon as this initial panel is completed, advance the first bar to the next position in readiness for striking the next panel. After the depth control bars and wood chocks have been removed, carefully fill any depressions that remain.

**ITEM 706.3** (Continued)

The setting bed shall be rolled with a power roller to a nominal depth of 3/4 inch while still hot. The setting bed thickness shall be adjusted so that when the Concrete Pavers are placed and rolled, the top surface of the pavers will be at the required finished grade.

A coating of neoprene-modified asphalt adhesive shall be applied by mopping, squeegeeing, or troweling over the top surface of the bituminous setting bed so as to provide continuous bond under the pavers.

If adhesive is trowel-applied, trowel shall be serrated type with serrations not to exceed 1/16 inch.

**Setting Concrete Pavers**

Concrete Pavers shall be set on a bituminous setting bed over a prepared concrete base, unless indicated otherwise in the Contract Documents. Setting bed shall be protected from damage prior to setting pavers.

Concrete Pavers with chips, cracks, stains, or other structural or aesthetic defects shall not be used.

Only competent workmen under adequate supervision shall perform the work of setting Concrete Pavers. Set pavers in accordance with manufacturer's recommendations. Concrete Pavers shall be set true to the required lines and grades in the pattern detailed on the Contract Documents.

After the modified asphalt adhesive is applied, pavers shall be carefully placed by hand, set true to the required lines and grades in the pattern shown on the Contract Documents. Accurate alignment shall be maintained. The Architect's Representative will approve the start of paving layouts. Paving layouts shall always begin at building entries.

Pavers shall be neatly cut and fitted at all perimeters and closures to fit neatly and closely. Pavers shall be tightly butted. Joints between pavers shall be uniform and shall not exceed 1/8 inch in width. Joints greater than 1/8 inch in width will not be accepted. Surface edge of one paver shall be level with the next adjacent pavers so that no voids, rocking motions, or tripping hazards are encountered. There shall be no deviation from a true grade greater than 1/4 inch in 10 feet. All finish paved areas shall slope to drain at a minimum of 1/8 inch in 1 foot.

All cutting and patching required to complete the work shall be done (including the filling and closing of all openings) with water-cooled radial cut-off type masonry saws with diamond-tipped blade for a sharp, straight edge. Cut edges shall be plumb and straight. Scoring and breaking will not be acceptable.

After a sufficient area of pavers has been installed, joints of pavers shall be filled by sweeping stone dust into the joints, as specified.

Completed surface shall be compacted by running a medium plate vibrator across the top of the pavers. Additional joint filler material shall be swept in the joints during vibration to completely fill joint space.

### **ITEM 706.3** (Continued)

Newly laid pavers shall be protected at all times by panels of plywood. These panels may be advanced as work progresses; however, the plywood protection shall be kept in areas which will be subjected to continued movement of materials and equipment. All necessary precautions shall be taken in order to avoid depressions and protect paver alignment.

#### Joint Treatment

Joints shall be butt joint. Unless otherwise indicated, stone dust joint filler shall be swept dry into the joints between pavers until the joints are completely filled. Surface shall be swept clean. Swept surface shall than be thoroughly dampened with a low-volume fine spray of water.

Sweep stonedust into paver joints until joints are filled solid. Fog lightly with water and repeat a minimum of three times or until joints are compacted and full.

Prior to acceptance, the paved area shall be flooded with water to assure that there are no depressions. Pavers with top surfaces greater than 1/16 inch above or below adjacent pavers shall be removed and reset. Remove and reset pavers as required until surface is true to line and grade. Refill sand joints as necessary until all joints are filled to finish grade.

Concrete paving shall be kept damp by intermittent spraying for three days, minimum, to effectively cure the joints.

#### Cleaning of Concrete unit Paver Surfaces

After completion of concrete paving, surfaces shall be carefully cleaned, removing all dirt, excess filler, and stains. Clean pavers using an approved masonry cleaner and soft bristle brush.

### MEASUREMENT AND PAYMENT

Concrete unit pavers will be measured by the square yard, complete in place.

Concrete unit pavers will be paid for at the contract unit price per square yard, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, pavers, bituminous setting bed, asphalt adhesive, asphaltic primer, concrete setting slab, welded wire mesh, crushed stone base, water, stone dust or fine grading and compacting, but all costs in connection therewith shall be included in the unit price bid.

**ITEM 707.1**  
**ITEM 707.12**

**SITE BENCH AND CONCRETE PAD**  
**SITE BENCH W/ COMPANION SPACE**  
**AND CONCRETE PAD**

**EACH**  
**EACH**

The work under this item shall conform to the relevant provisions of Sections 150 and 170 of the Standard Specifications and the following:

**DESCRIPTION**

The work of this section consists of furnishing and installing wood benches.

**QUALITY ASSURANCE**

Grading Agency: National Lumber Grading Authority. Identify lumber by official grade mark.  
Lumber: Grade stamp containing symbol of NLGA, rules under which graded, mill number or name, grade of lumber, species or species grouping, and condition of seasoning.

**SUBMITTALS**

Submit complete Shop Drawings of wood benches for approval by the Engineer.  
Submit certification that the lumber for the bench seat is Forest Stewardship Council certified.

Samples: 12 inch long sample of bench seat lumber with paint for review and approval.

**REFERENCES AND STANDARDS**

The following standards shall apply to the work of this Section: Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

1. SSPC Steel Structures Painting Council (SSPC):

SP1 Solvent Cleaning  
SP6 Commercial Blast Cleaning  
SP7 Brush-off Blast Cleaning  
SP 11 Power Tool Cleaning to Bare Metal  
PA 2 Measurement of Dry Coating Thickness with Magnetic Gages

2. Federal Standards

Standard No. 595B, Colors Volume 1

3. ASTM American Society for Testing and Materials

D523-89 Standard Test Method for Specular Gloss  
D4541-95e1 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers  
D4285-83 Standard Test Method for Indicating Oil or Water in Compressed Air  
D3359 Standard Test Method for Measuring Adhesion by Tape Test

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D3363

Standard Test Method for Film Hardness by Pencil Test

Project Conditions

The complete coating system shall be applied in an enclosed shop except for field touch-up painting which shall be applied after items have been installed in accordance with the requirements of the various Sections of this Specification. The enclosed shop shall be a permanent facility with outside walls to grade and a roof

where surface preparation and coating activities are normally conducted in an environment not subject to outdoor weather conditions and/or blowing dust.

Indoor temperature: Maintain indoor temperature at 65 degrees Fahrenheit during application and drying of paints.

Lighting: Since lighting conditions can alter appearances of finish painting work, perform work of this Section under lighting conditions simulating permanent lighting system to the greatest extent possible.

Field Touch Up

Outdoor Temperature and Conditions: Air and surface temperature shall be between 50 degrees Fahrenheit and 90 degrees Fahrenheit. Surfaces shall be dry within limits of finish system manufacturer.

Do not paint exterior surfaces while surfaces are exposed to the hot sun.

Quality Assurance Source:

The same coating material manufacturer shall furnish all materials for the complete coating system. Intermixing of materials within and between coating systems will not be permitted. Thinning of paint shall conform to the manufacturer's written instructions.

Where manufacturer makes more than one grade of any material specified, use the highest grade of each type, whether or not the material is mentioned by trade name in this Section.

Include on labels of all containers the manufacturer's name, the product name and number, the color and batch number.

Closeout Submittals

Furnish one quart of finish coat of paint used. Manufacturer's cleaning instructions for painted surfaces.

**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

**MATERIALS**

**Lumber for Benches**

Wood slats shall be Douglas Fir “B” and better grade, vertical, close grained with ninety percent (90%) or more of heartwood on each side, face or edge measured at the narrowest point. Slats shall be milled perfectly smooth on all sides to detail and shall be cut smooth to the finished length. All milled surfaces shall be sanded after being worked to the required dimension. All edges of slats shall have a 1/8” radius.

Slats shall be free from marks, blemishes, discolorations, warp, twist, quirk or other imperfections. All wood shall be thoroughly seasoned and shall contain between twelve percent (12%) and sixteen percent (16%) of moisture by weight.

The paint for bench slats shall be exterior enamel as manufactured by Sherwin-Williams Company, Devoe and Reynolds Co., and Pratt and Lambert, Inc., Pittsburgh Plate Glass Company or Sapolin. Color Bottle Green.

**Bench Hardware**

ASTM A276-95, Type 304 stainless steel bolts, nuts and washers. Dimensions as shown on Drawings.

**Steel Components**

The bench frame shall be solid bar stock steel conforming to the requirements of ASTM A36. Steel frame shall be galvanized in accordance with ASTM A123, A153 and/or A3186 requirements.

**Galvanizing**

Galvanizing of all materials and fabrications called out on the Drawings to be galvanized shall be the hot-dip method, only.

Galvanizing of fabricated steel materials as indicated on Drawings to be galvanized shall be as follows:

1. Carbon Steel Fabrications and Iron Castings. ASTM A123.
2. Iron and Steel Hardware. ASTM A153.

Galvanizing Assembled Steel Fabrications. Galvanize only after all welding, cutting, and grinding fabrication and finishing work is complete. Only where items are too large for industry-standard galvanizing tanks shall galvanizing before full assembly be acceptable.

Each galvanized piece shall bear the stamp of the galvanizer indicating the ASTM specification number and the weight of the zinc coating per square foot.

**Paint and Finish Products**

Touch-up paint for field touch-up of galvanized surfaces shall be a two-component, moisture-cured, zinc-rich inorganic or organic primer. Recommended Dry Film Thickness shall be as

**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

recommended by manufacturer and approved by Engineer. Acceptable products and their manufacturers shall include the following:

1. Ply-Tile Epoxy Organic Zinc Rich Primer  
Manufactured by M.A.B Industrial Coatings  
Broomall, PA 19008
2. Dimetcote 9  
Ameron International  
Alpharetta, GA 30004
3. Metalhide 97-673 Series, 1001 Inorganic Zinc Rich Coating  
PPG Architectural Finishes, Inc.  
One PPG Place  
Pittsburgh, PA 15272
4. Zinc Clad III HS, Organic Zinc-Rich Epoxy Primer  
Sherwin-Williams Company  
www.sherwin-williams.com
5. MC Zinc  
Wasser High-Tech Coatings  
Kent, WA 98032

Primer coating for shop painting of galvanized surfaces shall be an epoxy or urethane coating. Recommended Dry Film Thickness shall be as recommended by manufacturer and approved by Engineer. Acceptable products and their manufacturers shall include the following:

1. Ply-Tile 520-W-45 Epoxy Primer  
Manufactured by M.A.B Industrial Coatings  
Broomall, PA 19008
2. Amercoat 385  
Ameron International  
Alpharetta, GA 30004
3. Pitt-Guard 97-946 Series All Weather Direct-to-Rust Epoxy Coatings  
PPG Architectural Finishes, Inc.  
One PPG Place  
Pittsburgh, PA 15272
4. Macropoxy 646 Fast Cure Epoxy  
Sherwin-Williams Company  
www.sherwin-williams.com

**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

5. MC-Ferrox B  
Wasser High-Tech Coatings  
Kent, WA 98032

Finish over epoxy or urethane coating shall be an aliphatic urethane coating. Recommended Dry Film Thickness shall be as recommended by manufacturer and approved by Engineer. Acceptable products and their manufacturers shall include the following:

1. Ply-Thane 890 HS Coating  
Manufactured by M.A.B Industrial Coatings  
Broomall, PA 19008
2. Amercoat 450HS  
Ameron International  
Alpharetta, GA 30004
3. Pitthane II  
PPG Architectural Finishes, Inc.  
One PPG Place  
Pittsburgh, PA 15272
4. Acrolon 218 HS Acrylic Polyurethane  
Sherwin-Williams Company  
www.sherwin-williams.com
5. MC-Ferrox A  
Wasser High-Tech Coatings  
Kent, WA 98032

Surface Preparation: Coat over preceding epoxy or urethane coat within 24 hours

Color shall be a custom color green selected by the Engineer.

Adhesive

Bench supports shall be secured with “Loctite” Construction Adhesive to prevent vandalism.

Construction Adhesive shall be “Loctite Power Grab All-Purpose Construction Adhesive” as manufactured by Henkel Corporation, Westlake, Ohio; 800-624-7767; or, approved equal.

Construction Adhesive shall dry clear.



**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

Concrete Footing/Base

Concrete shall be 4000 psi, 3/4 inches high early strength concrete conforming to Section M4 and constructed as shown on the Contract Documents.

Anchors

Anchors shall be stainless steel expansion anchors, 1/2" diameter x 5" long.

Construction Methods

Inspect all work areas at the project site to assure that proper conditions exist to receive delivery of items fabricated under this Section. Notify the Engineer in writing before delivery should any condition exists that requires correction. Failure to make such a report shall be construed as acceptance of the existing conditions at the project site and the responsibility for delays of Work and damage to Items.

General

Newly fabricated work shall be shop assembled in sections or entirely so far as practicable, except as indicated the Drawings, and accurately finished with any separate sections match-marked for coordinated field erection. Where necessary, measurements shall be made of prior installed construction before fabrication of the items so that work included shall properly fit the construction.

All work shall conform to details indicated on the Drawings, be clean and straight with sharply defined profiles. Unless otherwise noted, finish surfaces shall be smooth.

Dimensions of new materials and details of assembly and support shall be provided as indicated on Drawings or as otherwise required to provide ample strength and stiffness.

Provide holes and connections as required on the Drawings to accommodate the work of other trades for site assembly of Miscellaneous Metals work. Holes shall be drilled or punched only and, as required, tapped or reamed in the shop. Show sizes and locations of all such machining on the Shop Drawings.

Joints and connections exposed to weather shall be formed or otherwise made to exclude water.

Welding, Cutting and Grinding

Welding shall be performed according to procedures, processes, details, and joint forms prescribed in AWS D1.0, "Code for Welding in Building Construction."

Welders shall be prequalified as prescribed in AWS D1.0, "Code for Welding in Building Construction." Evidence of such prequalification shall be furnished to the Contracting Officer upon request.

**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

No testing of welds by the Contractor is required if those used are prequalified under AWS D1.1, "Structural Welding Code." If other than prequalified joint forms are used, testing of same shall be provided by the Contractor at no increase in the contract price by a certified welding inspector chosen and paid by the Contractor as approved by the Contracting Officer.

Thoroughly fuse all welds without undercutting or overlap. Discoloration of surfaces is not acceptable. Welds shall be continuous along line of joint unless indicated otherwise on Drawings.

Remove welding spatter and slag from work and grind exposed welds smooth and flush to blend and contour surfaces to match or transition into those adjacent.

Perform cutting with acetylene torch, saw or pipe cutter to avoid damage to adjacent finished material. Grind smooth all cut surfaces.

Application of Paint and Finishes to Metal Surfaces

All coatings shall be applied in the shop except for field touch-up after installation. See requirements for field touch-up as described in this Section. All surface preparation and coating work, including field touch up work, shall be as specified and performed under the work of this Section.

All galvanized steel surfaces shall receive the 2-coat shop applied paint system as specified in this Section, except the following particular locations that shall be masked off and treated as follows:

1. Faying surfaces of slip-critical bolted connections shall receive only a single application of primer. The dry film thickness shall be no greater than the thickness tested on the coating manufacturer's Certified Test Report for slip coefficient.
2. Miscellaneous metal surfaces within 4 inches of field welds shall receive only a single coating of primer at 0.5 - 1.5 mils dry film thickness.
3. Edges and shop welds of galvanized steel items shall be locally hand-stripped with a brush in the longitudinal direction with an additional coat of the epoxy or urethane coating prior to application of the finish aliphatic urethane coating. The coating manufacturer shall be consulted to determine the appropriate epoxy or urethane coating to use for striping. The application of the striping materials shall be in accordance with the coatings manufacturer's written instructions. The striping material shall be tinted to distinguish it from the intermediate coats.

Application Methods: The coating system shall be applied by spray equipment of a type and size capable of applying each coat within the required thickness range. The applicator shall strictly

**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

adhere to the manufacturer's recommendations about application methods, cure times, temperature and humidity restrictions and recoat times for each individual coat of the specified system. Brushes shall be used in areas where spray application will not achieve acceptable results. Brushing technique shall be performed in a manner that will provide a uniform, blended finish. No coating material shall be thinned in any way except as directed by manufacturer.

1. Conventional spray equipment with mechanical agitators shall be used for prime coat application on bare steel and for epoxy or urethane intermediate coat on galvanized surfaces.
2. All storage, mixing, thinning, application and curing efforts, techniques and methods shall be accomplished in strict accordance with the printed material data sheets and application instructions published by the respective coating material manufacturer.
3. Surfaces shall be painted with the specified prime coat material before the end of the same work shift that they were blast cleaned and before any visible rust back occurs.
4. Applied coatings shall not have runs, sags, holidays, pinholes or discontinuities.
5. The dry film thickness shall be within the range specified in the manufacturer's printed literature for the specified coating system. Dry film thickness shall be measured in accordance with SSPC-PA 2.
6. The intermediate coat shall be of a contrasting color to the prime and top coat colors.
7. There shall be no color variation in the topcoat as determined by comparison with Federal Standard 595B.

All storage, mixing, thinning, application and curing efforts, techniques and methods shall be accomplished in strict accordance with the written requirements and procedures published by the respective coating material manufacturer.

Additional coats: Provide additional coats necessary to eliminate show through and bleed through conditions.

Drying Time: Allow manufacturer's recommended drying time between successive coats. However, allow each coat to thoroughly dry prior to application of subsequent coat.

All compressed air sources shall be properly sized and designed with oil and moisture separators, attached and functional, to allow air at the nozzle, either for blast cleaning, blow-off, painting or breathing, to be oil-free and moisture-free. It shall be of sufficient pressure to accomplish the associated work efficiently and effectively.

**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

Surfaces not in contact with other steel surfaces but inaccessible after assembly shall be coated prior to assembly.

Critical attention shall be given to edges and bolted connections. All bolts, nuts and washers shall be fully coated and no gaps left unfilled and un-coated.

Adhesion strength of the fully coated assemblies shall be within 80 percent of the values for Adhesion as described in the approved manufacturer's literature measured per ASTM D4541 using apparatus under Annex A4.

Strict attention must be directed to the re-coat times of all applied materials. Shop bolted connections shall also have all bolt heads and nuts striped in a circular brush motion with the same material.

All applied coating shall have no runs, sags, holidays or discontinuities; the dry film thickness shall be within the range specified. There shall be no color variation in the topcoat as determined by Federal

Standard 595B. Also, there shall be no gloss variation in the topcoat where tested in accordance with ASTM D523.

Protection of Coated Miscellaneous Metal: All fully coated and cured assemblies shall be protected from handling and shipping damage with the prudent use of padded slings, dunnage, separators and tie downs. Loading procedures and sequences shall be designed to protect all coated surfaces.

**Field Touch Up**

Touch-up and repair finishes that, for any reason, have been damaged during construction work.

Field application of coatings shall be in accordance with the manufacturer's written application guidelines and these specifications. All areas cleaned to bare metal must be coated with a zinc-rich primer before any visible rust back occurs. The topcoat material for field touch-up painting and additional field topcoat application shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used.

The materials used for the field primer and intermediate coat must be compatible with the shop primer and intermediate coats.

All rust, scale, dirt, grease, concrete splatter and other foreign material on connections, bolts, nuts and around field welds shall be completely removed by power tool cleaning per SSPC-SP 11. Areas cleaned to SSPC-SP 11 shall have a 1-3 mil profile and must be primed prior to

**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

rusting. All debris generated from cleaning operations must be contained and properly disposed of.

Bolts, nuts and washers shall receive brush applications of intermediate and topcoat after final tensioning. Careful attention shall be given to bolted connections to ensure that all bolts, nuts and washers are fully coated and that no gaps are left unfilled and uncoated.

Field welded areas shall be treated in the same manner as shop welded areas, including special treatment requirements.

At damaged areas that extend back to the steel surface (such as scratches, gouges or nicks), the entire three-coat system shall be locally reapplied after power tool cleaning to bare metal in accordance with SSPC-SP 11. The coating system adjacent to the damage shall be feathered back to increase the surface area for touch up painting. The area cleaned to SSPC-SP 11 shall be primed with a zinc-rich primer before rustback occurs. The coating manufacturer shall be consulted to determine the appropriate zinc-rich primer to use. Application of the zinc-rich primer shall be in accordance with the coating manufacturers written instructions. The specified intermediate and topcoats shall be reapplied in accordance with the manufacturer's written instructions.

At damaged areas that extend back only to the prime or intermediate coat, the area shall have the topcoat applied. Application of the touch-up materials in these damaged areas shall be performed by brush only.

Tarps shall be used to collect all surface preparation debris. The Contractor shall be responsible for disposing of all removed materials, including tarps.

**Application of Paint and Finishes to Wood Surfaces:**

All coatings shall be applied in the shop except for field touch-up after installation.

Apply a one coat of primer to all wood surfaces that is appropriate for use with the selected top coat. Primer may be spray or brush applied. Follow the manufacturer's recommendations for application and drying time.

Two coats of top coat paint shall be applied on the primer. Follow the manufacturer's recommendations for application and drying time.

**Acceptance Standards**

Finished work shall be free from runs, sags, hairs, defective brushing, and clogging of lines and angles. Flaws visible in the completed work shall be removed and the area satisfactorily repaired.

**ITEM 707.1** (Continued)

**ITEM 707.12** (Continued)

Completed work: Provide finishes that match approved samples and mock-ups for color, texture, and coverage, remove, refinish, or repaint work not in compliance with the requirements of this section.

Completion of Painting

Cleaning: At completion of work of this Section, remove paint and finish spots, and oil, grease, and other stains caused by this work from exposed vertical and horizontal surfaces. Leave finished work in a satisfactory condition.

At completion of work of this Section, remove masking materials and other debris. Reinstall or replace fixtures, plates, etc., removed to facilitate application of paint.

Final Inspection: Protect painted surfaces against damage until date of Substantial Completion. Engineer will conduct final inspection of painting work. Areas that do not comply with requirements of these Specifications shall be repainted or retouched to satisfaction of Engineer at no additional cost to Owner.

Bench Installation

Install cement reinforced concrete base in accordance with the Drawings.

Install bench in locations shown on the plans. Install plumb, and square. Anchor benches to cement concrete base with stainless steel anchor bolts.

Apply construction adhesive according to manufacturer's instructions.

MEASUREMENT AND PAYMENT

Site bench will be paid for at the contract unit price per each unit, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, gravel borrow, base materials, lumber, bench hardware, steel components, galvanizing, paint and finish products, adhesive, concrete pad or bases, anchors, field touch ups or fine grading and compacting, but all costs in connection therewith shall be included in the contract unit price bid.

**ITEM 707.6****PICNIC TABLE****EACH**

The work under this item shall conform to the relevant provisions of Sections 150 and 170 of the Standard Specifications and the following:

**DESCRIPTION**

The work of this section consists of furnishing and installing Picnic Tables as shown on the plans (See Landscape details) including installation of duckbill anchor, stainless steel cable and hardware.

**MEASUREMENT AND PAYMENT**

Picnic Tables shall be measured by each, complete in place.

Picnic Tables will be paid for at the contract unit price per each unit, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, base materials, stainless steel hardware, duckbill anchor with stainless steel cable and hardware, adjusting or cleaning, or fine grading and compacting, but all costs in connection therewith shall be included in the Contract unit price bid.

**ITEM 707.9**

**BIKE RACK**

**EACH**

The work under this item shall conform to the relevant provisions of Sections 150 and 170 of the Standard Specifications and the following:

Work under this item shall include furnishing and installing stainless steel bike racks.

**REFERENCES**

1. ASTM Testing Standards:
  - ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
  - ASTM D 522 – Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
  - ASTM D 523 – Standard Test Method for Specular Gloss.
  - ASTM D 2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
  - ASTM D 3359 – Standard Test Methods for Measuring Adhesion by Tape Test.
  - ASTM D 3363 – Standard Test Method for Film Hardness by Pencil Test.
  - ASTM G 155 – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.
  
2. ISO Testing Standards:
  - ISO 1520 – Paints and Varnishes – Cupping Test.
  - ISO 2815 – Paints and Varnishes – Buchholz Indentation Test.

**SUBMITTALS**

Product Data: Submit manufacturer’s product data, storage and handling requirements and recommendations, installation methods and available colors, styles, patterns and textures.

Shop Drawings: Submit manufacturer’s shop drawings, including plans and elevations, indicating overall dimensions.

Samples: Submit manufacturer’s samples of materials, finishes, and colors.

Warranty: Manufacturer’s standard warranty.

**QUALITY ASSURANCE**

Manufacturer’s Qualifications: Manufacturer regularly engaged in manufacture of site furnishings since 1969.

Product Support: Products are supported with complete engineering drawings and design patents.

Base Worth: An installed base of products worth in excess of one hundred million dollars.



## **ITEM 707.9** (Continued)

Assets: Excess of twenty million dollars in assets.

Production: Orders are filled within a 40-day schedule.

Facility Operator: Welders and machine operators are certified.

### **QUALITY STANDARDS**

The current issue of Standard Code of Arc and Gas Welding in Building Construction shall apply to this Section, SITE METAL FURNISHINGS, as though written out in full. Welding shall be in accordance with the Structural Welding Code of the American Welding Society.

Where structural joints are made by welding, the details of all joints, techniques of welding employed, the appearance and quality of welds made, and the methods used to correct defective work shall conform to requirements of the AISC and AWS codes.

Welds shall be made only by welders who have previously been qualified by tests as prescribed in AWS "Standard Qualification Procedure" for the type of work required.

All dissimilar metals shall be insulated to prevent bimetallic interaction.

Workmanship and finish shall be equal to the best practice of modern shops for each item of work. Metal fabrication shall be accomplished using the highest standards of workmanship. All work shall be executed by experienced metal workers, shall conform to the requirements of the Contract Documents, and meet the following requirements.

1. Individual metal pieces shall be saw cut and carefully fitted together.
2. Sections shall be well formed to shape and size with sharp lines and angles; curved work shall be sprung evenly to curves.
3. Exposed surfaces shall have a smooth finish and sharp, well defined lines and arrises.
4. Grind all edges of bars and plates completely free from nicks and machine marks.
5. All surfaces and connections of metal items shall be without visible grinding marks, surface differentiation or variation.
6. All fabricated metal items shall be fine sanded throughout to produce a high standard of surface smoothness.
7. Welding shall be continuous and shall extend for the entire length of the joints except where specifically indicated on the Contract Documents. All exposed welds shall be ground smooth.
8. Weld with uncoated wire to prevent flux deposits. If coated wire is used, all flux residue shall be thoroughly removed and bare white metal exposed, prior to galvanization, if

**ITEM 707.9** (Continued)

9. applicable. Where overlapping surfaces are welded, seal off contact area by welding all edges around contact area.
10. All welds shall be water tight.
11. All shop connections shall be full seam welded and ground flush and smooth. Field connections bolted unless otherwise permitted as indicated in this specification.

Where the work of this specification must be attached to other materials or where it must be assembled and installed in the field, Contractor shall cut, drill, punch and ream, countersink and tap, or otherwise provide the required holes in the shop, unless such connections are to be welded. The sizes and locations of all such holes shall be shown on the Shop drawings.

Metalwork to be built in with concrete shall be of the form required for anchorage or shall be provided with suitable anchors or expansion shields.

All materials and workmanship under this specification shall be subject to inspection in the mill, shop or field by the Architect, or by qualified inspectors retained by the Owner. Inspection shall be without expense to the Contractor. However, such inspection, wherever conducted, shall not relieve Contractor of his/her responsibility to furnish materials and workmanship in accordance with Contract requirements.

**DELIVERY, STORAGE AND HANDLING**

**Delivery:** Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

**Storage:** Store materials in clean, dry area in accordance with manufacturer's instructions. Keep materials in manufacturer's original, unopened containers and packaging until installation.

**Handling:** Protect materials and finish during handling and installation to prevent damage.

**Warranty**

Products will be free from defects in material and/or workmanship for a period of three years from the date of invoice.

The warranty does not apply to damage resulting from accident, alteration, misuse, tampering, negligence, or abuse.

The manufacturer shall, at its option, repair, replace, or refund the purchase price of any items found defective upon inspection by an authorized Landscape Forms service representative.

## **ITEM 707.9** (Continued)

Purchasers should be aware that normal use of these high quality products can result in superficial damage affecting the finish. Scratches, nicks, and dents are to be considered normal wear and tear, and are not the responsibility of the manufacturer.

### **MATERIALS**

#### **Metals - Stainless Steel**

Pipe and tubing shall conform to Schedule 10s, Type 304 circular stainless steel meeting the requirements of ASTM A312/A312M.

Stainless steel hardware shall be AISI Type 304 conforming to the requirements of ASTM A193M, Identification Symbol B8 or B8A.

Stainless steel finish shall be No. 4 unless specified otherwise. Stainless steel shall have a surface roughness of 0.5 microns or less.

Recycled content shall be:

1. Recycled Material Content: Minimum 65 percent.
2. Post-Consumer Material Content: Minimum 50 percent.
3. Pre-Consumer Material Content: Minimum 15 percent.
4. Recyclable: 100 percent.

#### **Bike Rack**

Bike rack shall be a “ring” rack conforming to the Contract Documents. Bike rack shall have the capacity to store two bicycles.

Bike rack shall be made of tubular steel with an Outside Diameter of 1.5 inches and a Wall Thickness of 0.120 inches.

Bike rack shall be 32 inches high by 25 inches wide by 1 ½ inches deep.

#### **Concrete Footing**

Concrete shall be 4000 psi, 3/4 inches high early strength concrete conforming to Section M4 and constructed as shown on the Contract Documents.

#### **Grout**

Grout as required for anchoring shall be a pourable, quick setting, non-metallic and non-shrinking hydraulic cement grout equal to the following:

1. Five Star Grout  
U.S. Grout Corporation  
425 Stillson Road  
Fairfield, CT 06430  
(800) 243-2206

## **ITEM 707.9** (Continued)

2. Sika Grout 212  
Sika Corporation  
Lyndhurst, NJ 07071  
(201) 933-8800
3. Harris Construction Grout  
AH Harris & Sons  
10 West Mill St.  
Medfield, MA 02052  
(508) 359-7321

## **CONSTRUCTION METHODS**

Inspect all work areas at the project site to assure that proper conditions exist to receive delivery of items fabricated under this Section. Notify the Engineer in writing before delivery should any condition exist that requires correction. Failure to make such a report shall be construed as acceptance of the existing conditions at the project site and the responsibility for delays of work and damage to Items.

### **Installation**

The Contractor shall install in accordance with manufacturer's instructions at locations indicated on the Drawings.

Bike racks shall be install level and shall be securely anchored in place.

### **Metal Fabrication – General**

Take all measurements required at the work site. Check measurements, compare dimensions and other data with various trades installing adjoining work to assure proper coordination.

Do all shop drilling, shop fitting, shop cutting, shop welding, and bolting required to erect, install and fit metal work to adjoining work. Conform to AISI Code for Stainless Steel as applicable. Furnish all screws, bolts, anchors, etc., required to attach metal work securely to adjoining work.

Welding shall be continuous except where tack welding is specifically permitted. Tack welding will not be permitted on exposed surfaces. All exposed welds shall be ground smooth.

Do not enlarge unfair holes by burning and forcing, but correct by reaming.

Furnish all required metal inserts, anchor slots, anchors, anchor bolts, fastenings, etc., for attachment of work of all trades to cast-in-place concrete and concrete pavers, except where otherwise specified or obviously included under other specifications.

Weld with uncoated wire to prevent flux deposits. If coated wire is used, all flux residue shall be thoroughly removed and bare white metal exposed. Where overlapping surfaces are welded, seal

## **ITEM 707.9** (Continued)

off contact area by welding all edges around contact area.

### **INSTALLATION**

All metal items fabricated under this specification shall be transported to the construction site and installed in accordance with the requirements of this specification. Cost of transportation of all items fabricated under this specification shall be paid for under this Section.

Install fabricated site metal in conformance to the Contract Documents and approved Shop Drawings.

Core drill all holes in concrete in precise locations established in the field with fabricated site metal furnishings on hand.

Set posts in cored holes with non-shrink grout, recessed 0.75 inches to receive sealant. All care shall be taken to prevent cracks, chips, or scratches to the accepting materials surface during the core drilling process.

#### **Adjusting**

Finish Damage: Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Engineer.

Component Damage: Remove and replace damaged components that cannot be successfully repaired as determined by Engineer.

#### **Cleaning**

Clean rack promptly after installation in accordance with manufacturer's instructions. Do not use harsh cleaning materials or methods that could damage finish.

#### **Protection**

Protect installed racks to ensure that, except for normal weathering, racks will be without damage or deterioration at time of Substantial Completion.

### **MEASUREMENT AND PAYMENT**

Bike rack shall be measured by each, complete in place.

Bike rack will be paid for at the contract unit price per each unit, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, base materials, concrete footings, metal and metal fabrication, grout, adjusting or cleaning, or fine grading and compacting, but all costs in connection therewith shall be included in the Contract unit price bid.

**ITEM 710.4**  
**ITEM 711.**

**BOUND – PLAIN GRANITE**  
**BOUND REMOVED AND RESET**

**EACH**  
**EACH**

The work under these items shall conform to the relevant provisions of Section 710 of the Standard Specifications and the following:

All layouts for new bounds shall be made or directed by a Professional Land Surveyor registered in Massachusetts. The layout method shall be the responsibility of the Land Surveyor, subject to the Engineer's approval.

Existing bounds to be removed and reset in the same location shall be offset staked prior to removal.

All bounds to be located within proposed pavement or within 5 feet of the edge of pavement shall be set flush with the finished grade as not to create a tripping hazard.

Bounds found to be unsuitable for reuse shall be legally disposed of off-site.

Work under these items includes all types of bounds encountered.

#### **MEASUREMENT AND PAYMENT**

Bound – plain granite, bound removed and reset will be measured and paid for at the contract unit price per each, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for storage, transporting and handling of bounds, but all costs in connection therewith shall be included in the Contract unit prices bid for the respective items.

**ITEM 724.002**

**ENGRAVED BOULDER**

**EACH**

The work under this item shall conform to the relevant provisions of Sections 150 and 170 of the Standard Specifications and the following:

The work of this item consists of furnishing and installing all granite landscape features, engraving recessed lettering and graphics into select boulders, lithochrome staining of engravings, and related items as indicated on the Drawings and/or as specified herein and includes, but is not limited to boulders and interpretive graphic engravings.

**REFERENCES**

Unless otherwise specified or indicated, materials and workmanship shall conform with the latest edition of the following standards, codes, specifications, requirements and regulations:

1. ASTM: American Society for Testing and Materials.  
C 97            Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone  
C 99            Test Methods for Modulus of Rupture of Dimension Stone  
C 170           Test Method for Compressive Strength of Dimension Stone  
C 615           Specification for Granite Dimension Stone  
C 880           Test Method for Flexural Strength of Dimension Stone
2. SSPC:      Steel Structures Painting Council.
3. NBGQA Specifications: National Building Granite Quarries Association Specifications, latest edition.

**SUBMITTALS, SAMPLES, AND SHOP DRAWINGS**

At least thirty (30) days prior to intended use, the Contractor shall provide the following samples and submittals for approval. Do not order materials until Engineer's approval of samples, certifications and/or test results has been obtained. Delivered materials shall closely match the approved samples. Samples and Approvals which are not obtained prior to the ordering of materials or the completion of work shall result in possible disapproval of obtained materials or completed work. Take measurements and verify dimensions at site before submitting Shop Drawings and constructing samples.

Shop Drawings: Submit black line copies of each of detailed Shop Drawings for each item required to be fabricated or installed under this Section. Include plans, sections and details as required to show all materials, layout, dimensions, jointing and connections for all items required. Shop drawings required for granite pier with engraving, template for engravings for granite pier, and template for engravings for interpretive boulder.

Material Samples: Submit 3 representative samples of the following materials:

## **ITEM 724.002** (Continued)

1. Boulders: Photographs of boulders proposed for use on this project showing typical shape, form and scaled size. In the event that the Engineer does not accept photographic samples provide photographs from other sources until Engineer is satisfied. Provide name and address of sources supplying accepted boulders. Engineer reserves the right to reject boulder source upon inspection of source.
2. Engraved Boulder: Provide 12” by 24” by 4”-sized, irregular surfaced sample representing shape, form and surface texture of interpretive boulder, showing sandblasted and lithichromed graphic and text.
3. Manufacturer's Literature: Submit manufacturer's material descriptions, color chips and/or installation instructions lithichrome stone paint for engraving

## **QUALITY STANDARDS**

Workmanship and finish shall be equal to the best practice of modern shops for each item of work. Exposed surfaces shall have a smooth finish and sharp, well defined lines and arises. Sections shall be well formed to shape and size with sharp lines and angles; curved work shall be sprung evenly to curves.

## **DELIVERY, STORAGE AND HANDLING**

Deliver and store work under this Section in a manner to prevent wracking or stress of components, and to prevent mechanical damage or damage by the elements.

Deliver work to the site in sufficient time to avoid delay in job progress and at such times as to permit proper coordination of the various parts.

## **GUARANTEE**

Furnish and deliver standard written manufacturer's guarantee in Owner's name covering all materials and workmanship under these Items.

Supplier shall pay for repairs of any damage to any part of the project caused by defects in his/her work and for any repair to the materials or equipment caused by replacement. All repairs are to be done to the satisfaction of the Engineer.

Any part of the work installed under this contract requiring excessive maintenance shall be considered as being defective, and shall be replaced by the Supplier during the one year period at no cost to the Owner.



## **ITEM 724.002** (Continued)

### **MATERIALS**

#### **Engraving and Lithichrome Painting**

The exposed surface of the granite engraving area for silhouette shall be lightly sandblasted 1/16" deep. Background for the silhouette shall receive a heavy 1/8" depth sandblast. Letters and linework shall also be carved or sandblasted 1/8" deep. Text letters, lines and background shall receive a high quality dark gray "Lithichrome" coating to be approved by the Engineer. Full size artwork will be provided by the Engineer.

"Lithichrome" coating for sandblasted engraving and lettering shall be stone paint specifically designed and manufactured for providing color-fast, ultra-violet light resistant pigments to granite. Chemical carrier shall be monocyclic terpene composed of acrylic resin, methyl isobutyl ketone, ethyl acetate, and acetone.

#### **Engraved Boulder**

Boulder's size and material shall be as indicated on the Drawings, with a reasonably flat top surface to receive the interpretive image and text.

A full-size original drawing of the interpretive image and text will be supplied by Owner. Image and text are to be heavily sandblasted into the top surface of the boulder. Both image and text shall receive a "Lithichrome" coating as specified above in this Section under "Engraving and Lithichrome Painting". Color shall be black. Graphics for engraved bollards and granite pier follow.

#### **Protective Anti-Graffiti Sealer**

Re-engraved Granite Pier, Granite Pier and engraved boulder shall be treated with anti-graffiti, protective sealer.

Clear, penetrating protective anti-graffiti sealer shall be a clear, ready to use micro-emulsion concentrate of silanes and oligomeric alkyl alkoxy siloxanes. The protective anti-graffiti sealer shall comply with all known regulations limiting Volatile Organic Compounds (VOC) content. Upon reaction with the surface and humidity, it shall be chemically bonded into the substrate. Properly applied, it shall not produce a surface build-up, darkening or other effect on the natural color or texture of the surface.

Sealer and anti-graffiti coating shall exhibit the following physical properties or equivalents:

1. Form: Clear amber liquid
2. Specific Gravity: 1.000
3. Flash Point: 77 degrees F.
4. VOC: 318 grams/liter (ASTM D5095)
5. Solids: 100% concentrate.

### **CONSTRUCTION METHODS**

#### **Engraved Boulder**

Boulders shall be placed as indicated on drawings and as directed by Engineer. Boulders shall be placed using approved small machinery.

## **ITEM 724.002** (Continued)

Engraving on engraved boulders shall be approximately 15 inches by 15 inches, not including font.

### Protective Anti-Graffiti Sealer

Protective anti-graffiti sealer shall be applied to all granite piers and engraved bounders.

Surface Preparation: All caulking, patching and joint sealants shall be installed prior to application of the sealer. Surfaces shall be cleaned free of dust, surface dirt, efflorescence and contaminants. Surfaces to be treated shall be dry and absorbent to assure good penetration of the sealer.

Test each type of surface before overall application to ensure suitability and desired results. Apply anti-graffiti sealer in accordance with the manufacturer's instructions. Preferred method of application shall be with low pressure (20 PSI) airless spray equipment or with a heavily saturated brush or roller. Set sprayer to produce a wet stream. Avoid atomization of the material. When using brushes or rollers, care shall be taken to assure that enough solution is applied. Apply sufficient material to thoroughly saturate the surface, making sure to brush out excess material that does not penetrate. Apply solution of anti-graffiti sealer within eight hours of dilution. Dilution ratios shall be in accordance with the manufacturer's instructions.

1. Flat Surfaces: When applying to flat surfaces, sealer shall be applied in a single saturating application with sufficient material applied so that the surface remains wet for three minutes before penetration into the granite and concrete. Surface residues, pools and puddles shall be broomed out thoroughly until they completely penetrate into the surface. Excess material should be picked up within a few minutes to avoid a surface buildup. Protect surfaces from rainfall for a minimum of four hours. Sealer requires 72 hours to develop its full water repellent effectiveness.
2. Vertical Surfaces: When applying by spray, apply in a saturating application from the bottom up. Apply sufficient material to create a 4 inch to 8 inch rundown below the spray contact point. Allow the first application to penetrate the masonry surface for three minutes and then re-apply in the same saturating manner. Less material will be required for the second application. When using a brush or roller, apply uniformly using sufficient material to saturate the surface. Allow the sealer to penetrate the masonry surface for three minutes. Brush out heavy runs and drips that do not penetrate.

Coverage Rates: Porosity and texture of the masonry surfaces will affect the amount of material necessary for effective treatment. Always test on actual surface to get precise consumption rates. Actual application rates will be based on approved sample tests.

Limitations: Surface and air temperatures should be a minimum of 40° F. during application and expected to remain so for eight hours following. Surface and air temperatures shall not exceed 95° F. If cleaning is necessary, the surface should be thoroughly rinsed of cleaning compounds and residues and allowed to dry for a minimum of 24 hours.

**ITEM 724.002** (Continued)

Test application: A test application is necessary on each surface to be treated to insure compatibility and desired results. Tests shall be applied using the same equipment as for job application. Test areas shall be available for inspection by the Landscape Architect throughout the job application.

**MEASUREMENT AND PAYMENT**

Engraved Boulder shall be measured by each, complete in place.

Engraved Boulder will be paid for at the contract unit price per each unit, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, backfill, gravel borrow, crushed stone, concrete footings, anti-graffiti sealer, boulder, engraving and lithichrome painting or fine grading and compacting, but all costs in connection therewith shall be included in the Contract unit price bid.



Eastern Chipmunk  
*Tamias striatus*



Virginia Opossum  
*Didelphis virginiana*



Woodchuck  
*Marmota monax*

**ITEM 740. ENGINEERS FIELD OFFICE AND EQUIPMENT (TYPE A) MONTH**

The work under this item shall conform to the relevant provisions of Section 740. of the Standard Specifications. The field office/trailer shall be equipped according to Subsection 740.41 of the Standard Specifications and the following:

Two computer systems and a digital camera meeting the requirements set forth below including installation, maintenance, power, paper and other supplies shall be provided at the Resident Engineer's Office:

The Computer Systems shall meet the following minimum criteria or better:

Case:	Small form factor
RAM:	4 GB
Hard disk:	500GB, 7200RPM
Monitor:	24" LCD with Built-in speakers
DVD-RW/CD-RW:	Combo drive including DVD ± RW
Network Adapter:	10/100 Mbit/s
USB Ports:	8 high-speed USB ports
Mouse:	Optical mouse with scroll, mouse pad included
OS:	Windows with all security updates
Web Browser:	Internet Explorer with all security updates
Applications:	Latest MS Office Professional with all security updates Latest Adobe Acrobat Professional with all security updates Antivirus software with all current security updates.
Internet access:	High speed internet access.
Flash drives:	2 (two) – 8 GB USB
Multifunctional Printer:	Color laserjet printer, fax, scanner, and copier

A Digital Camera shall meet the following minimum criteria or better:

Resolution:	10 Megapixel
Optical Zoom:	10X
Memory:	8 GB SD card
USB Port:	USB 2.0 with PC cable
Screen:	2-inch LCD with scratch-resistance and anti-reflectance
Battery Power:	2 sets of rechargeable batteries with battery charger
Carrying Case:	Rain-proof with shoulder strap

The Engineer's Field Office and the equipment included herein including the computer systems and camera shall remain the property of the Contractor at the completion of the project.

Disks, flash drives, and card readers with cards shall become the property of the Department.

Compensation for this work will be made at the contract unit price per month which price includes full compensation for all services and equipment, and incidentals necessary to provide equipment, maintenance, insurance as specified and as directed by the Engineer.

**ITEM 748.**

**MOBILIZATION**

**LUMP SUM**

The work under this item shall conform to the relevant provisions of Section 748 of the Standard Specifications and the following:

**Measurement and Payment**

Mobilization shall be measured and paid for at the contract unit bid price per Lump Sum, which cost shall be full compensation for all labor, materials, and equipment required to complete preparatory work and operations and all costs in connection therewith.

No separate payment will be made for multiple mobilization operations, but all costs in connection therewith shall be included in the Contract unit price bid.



**ITEM 751.**

**LOAM BORROW**

**CUBIC YARD**

The work under this item shall conform to the relevant provisions of Section 751 of the Standard Specifications and the following:

The work shall include the furnishing and placing loam borrow on each side of the full depth pavement (Greenway) and at all location shown on the plans and as directed by the Engineer.

**MEASUREMENT AND PAYMENT**

Loam borrow will be measured and paid for at the contract unit price per cubic yard, complete in place, which price shall include all labor, materials, equipment and incidental cost required to complete the work. No overhaul allowance will be made for any kind of borrow.

Seed Type 1 will be paid for under item 765.4.

Seed Type 2 will be paid for under item 765.5.

Seed Type 3 will be paid for under item 765.6.

<b><u>ITEM 752.51</u></b>	<b><u>PLANTING SOIL – FOR TREES</u></b>	<b><u>CUBIC YARD</u></b>
<b><u>ITEM 752.52</u></b>	<b><u>PLANTING SOIL – FOR SHRUBS</u></b>	<b><u>CUBIC YARD</u></b>
<b><u>ITEM 752.53</u></b>	<b><u>PLANTING SOIL – FOR ORNAMENTAL GRASSES -</u></b>	<b><u>CUBIC YARD</u></b>

The work under this item shall conform to the relevant provisions of Sections 150, 170, 751 and 770 of the Standard Specifications and the following:

The work shall include planting soil and related items as indicated on the Drawings or specified herein, but is not limited to, testing, placing, spreading and grading seeding & planting media and related items.

**REFERENCES AND STANDARDS**

The following related terms are used herein and shall mean:

1. AOAC: Association of Official Agricultural Chemists.

**SAMPLES AND SUBMITTALS**

At least 30 days prior to ordering the below listed materials, submit certified testing results and representative samples to Engineer for selection. No materials shall be ordered or delivered until required samples, certifications, manufacturer's literature and test results have been reviewed by Engineer. Delivered materials shall closely match the approved samples. The Engineer reserves the right to reject, on or after delivery, any material that does not meet these Specifications.

The Contractor shall perform testing in two stages.

The Contractor shall sample and test Base Loam and Sand for mechanical gradation, percent organics and chemical analysis as follows:

The Contractor shall provide one cubic foot representative samples from each proposed source of Base Loam and Sand for testing and analysis at the Contractor's own expense. Contractor shall deliver samples to testing laboratories and shall have the testing report sent directly to the Engineer. Tests for gradation and organics shall be performed by a private testing laboratory approved by the Engineer. Tests for soil chemistry and pH may be performed by a public agricultural extension service agency. All tests shall be performed in accordance with the current standards of the Association of Official Agricultural Chemists. See Soil Testing requirements in this Section for required tests and recommendations.

In addition to soil testing of Base Loam and Sand, submit the following:

Compost: Submit a one quart-size sample.

Contractor shall provide a written certification from the supplier that compost contents shall meet all requirement of the specification.

## **ITEM 752.51 through 752.53** (Continued)

Limestone: Submit supplier's certification that the limestone being supplied conforms to these Specifications

Acidulant: Submit supplier's certification that the acidulant being supplied conforms to these Specifications

### Soil Testing

Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System. Sieve analysis shall be by combined hydrometer and wet sieving using sodium hexametaphosphate as a dispersant in compliance with ASTM D 422 after destruction of organic matter by H<sub>2</sub>O<sub>2</sub>. To facilitate review and approval of sieve analysis, provide a computer generated gradation curve from UMASS Soil & Plant Tissue Laboratory.

Percent of organic matter shall be determined by the loss on ignition of oven-dried samples. Test Samples shall be oven-dried to a constant weight at a temperature of 230 degrees Fahrenheit, plus or minus 9 degrees F.

Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Iron, Manganese, Copper, Zinc, extractable Aluminum, Soluble Salts, and acidity (pH) and buffer (pH). Nutrient levels shall be measured in parts per million (PPM). Cation Exchange Capacity shall be measured.

Soil analysis tests shall show recommendations for fertilizers to nutrient deficiencies as necessary for (species of plants) (and) (lawn planting) on the construction site.

Recommendations for fertilization shall indicate NPK proportions, secondary and micro-nutrients and rates of application in either gallons or pounds per 1,000 square feet.

## MATERIALS

### General

The planting soil mix shall be manufactured from three base components: Base Loam, Sand and Compost, in proportions to meet the requirements specified herein.

### Base Loam

Base Loam shall be existing topsoil stripped and stockpiled at the site or shall be imported. Stripped topsoil shall be sampled and tested for grain size distribution and organic content according to tests as specified. Test results shall be reported to the Engineer, who may recommend minor adjustments to specified approximate mixing ratios and mix requirements for each mix type. Stripped topsoil which has been contaminated by incorporation of subsoil shall not be acceptable for use and shall be replaced with imported topsoil meeting specification requirements at no cost to the Owner.

Base Loam as required for the work shall be free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Base Loam shall also be free of quack-grass rhizomes, Agropyron Repens, and the nut-like tubers of nutgrass, Cyperus Esculentus,

**ITEM 752.51 through 752.53** (Continued)

and all other primary noxious weeds. Base Loam shall not be delivered or used for planting while in a frozen or muddy condition. Base Loam for mixing shall conform to the following grain size distribution for material passing the #10 sieve:

Percent Passing U.S. Sieve Size Number	Minimum	Maximum
10	---	100
18	85	100
35	70	95
60	50	85
140	36	53
270	32	42
0.002mm	3	6

The ratio of the particle size for 80% passing (D80) to the particle size for 30% passing (D30) shall be 8 or less. (D80/D30 < 8)

Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.

The organic content shall be between 4.0 and 8.0 percent

**Sand**

Sand: for mixing with base loam to meet specification requirements shall be uniformly graded coarse sand consisting of clean, inert, rounded grains of quartz or other durable rock and free from loam or clay, surface coatings, mica, other deleterious materials with the following gradation.

Percent Passing U.S. Sieve Size Number	Minimum	Maximum
10	100	---
18	65	90
35	35	60
60	15	30
140	0	8
270	0	3
0.002mm	0	0.5

Maximum size shall be one inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.

The ratio of the particle size for 70% passing (D70) to the particle size for 20% passing (D20) shall be 3.0 or less. (D70/D20 <3.0)

## **ITEM 752.51 through 752.53** (Continued)

### Compost

Compost for amending seeding and planting media: stable, humus-like material produced from the aerobic decomposition of organic residues consisting of Leaf or Yard Waste Compost which shall be composted for a minimum of one year (12 months). Compost shall be free of debris such as plastics, metal, concrete or other debris and stones larger than 1/2", larger branches and roots and wood chips over 1/2" in length or diameter. Compost shall be a dark brown to black color and be capable of supporting plant growth with appropriate management practices in conjunction with addition of fertilizer and other amendments as applicable, with no visible free water or dust, with no unpleasant odor, and meeting the following criteria as reported by laboratory tests.

1. The ratio of carbon to nitrogen shall be in the range of 12:1 to 25:1
2. Stability shall be assessed by the Solvita procedure. Protocols are specified by the Solvita manual (version 4.0). The compost must achieve a maturity index of 6 or more as measured by the Solvita scale.
3. Pathogens/Metals/Vector Attraction reduction shall meet 40 CFR Part 503 rule, Table 3, page 9392, Vol. 58 No. 32, and Commonwealth of Massachusetts 310 CMR 32.00 (for applications to soils with human activity).
4. Organic Content: at least 20 percent (dry weight). One hundred percent of the material shall pass a 3/8-inch (or smaller) screen. Debris such as metal, glass, plastic, wood (other than residual chips), asphalt or masonry shall not be visible and shall not exceed one percent dry weight. Organic content shall be determined by weight loss on ignition or H<sub>2</sub>O<sub>2</sub> for particles passing a Number 10 sieve according to procedures performed by the West Experiment Station at the University of Massachusetts, Amherst or equivalent. For loss by ignition, a 50-cc sub-sample of the screened and mixed compost is ground to pass the number 60 sieve. Two to three grams (+ 0.001g) of ground sample, dried to a constant weight at 105 degrees C is placed into a muffle furnace. The temperature is slowly raised (5C/minute) to 450C and maintained for three hours. The sample is removed to an oven to equilibrate at 105C and the weight is taken. Organic matter is calculated as loss on ignition.
5. pH: shall be 6.5 to 8.0, as determined from a 1:1 soil-distilled water suspension using a glass electrode pH meter - American Society of Agronomy Methods of Soil Analysis, Part 2, 1986.
6. Salinity: Electrical conductivity of a one to five soil to water ratio extract shall not exceed 2.0 mOhms/cm (dS/m).
7. Compost shall be screened to 1/2 inch maximum particle size and shall contain not more than 3 percent material finer than 0.002mm as determined by hydrometer test on ashed material.
8. Nutrient content shall be determined by the University of Massachusetts Soil Testing Laboratory or equivalent laboratory and utilized to evaluate soil required amendments for the mixed soils. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium

**ITEM 752.51 through 752.53** (Continued)

Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Chromium, Iron, Manganese, Lead, Soluble Salts, Cation Exchange Capacity, soil reaction (pH), buffer pH, and micronutrients.

**Planting Soil Mix - General**

Planting soil mixes shall be free of plants and their roots, debris and other extraneous matter. They shall be uncontaminated by salt water, foreign matter and substances harmful to plant growth. The electrical conductivity (EC2) of a 1:2 soil-water suspension shall be equal to or less than 1.0 millimhos/cm. (Test minus sieve #4 material).

**Loam Borrow**

Loam borrow shall be a blended mix of base loam, sand and compost to create a planting soil medium for use in for seeding areas and planting beds and as specified herein.

Base Loam, Sand and Compost, each as specified above, shall be combined in an approximate mix ratio of two parts by volume Sand to one and one half parts by volume Base Loam to one part by volume Compost (2S:1.5L:1C) to create a uniform blend which meets the following requirements.

Gradation for Material Passing the Number 10 Sieve:

Percent Passing

U.S. Sieve

Size Number	Minimum	Maximum
10	100	---
18	70	90
35	45	72
60	26	40
140	15	22
270	11	14
0.002mm	2	5

Maximum size shall be one inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample

Ratio of the particle size for 80% passing (D80) to the particle size for 30% passing (D30) shall be 5.5 or less. (D80/D30 <5.5)

Saturated hydraulic conductivity of the mix: not less than 3 inches per hour according to ASTM D5856-95 (2000) when compacted to a minimum of 88% Standard Proctor, ASTM 698

Organic content: between 4 and 5.5 percent by weight.

## **ITEM 752.51 through 752.53** (Continued)

### Amendments to Modify pH of Planting Soil Mixes

Ground limestone for adjustment of loam pH shall be in accordance with the requirements of Section M6.01.0 of the Standard Specifications.

Sulphur for adjustment of loam pH shall be commercial or flour sulphur, unadulterated, and shall be delivered in containers with the name of manufacturer, material analysis, and net weight appearing on each container.

## CONSTRUCTION METHODS

All areas to receive Planting Soil shall be inspected by the Contractor before starting work and any defect such as incorrect grading shall be reported to the Engineer prior to beginning this work.

### Amendments

Incorporate amendments to modify pH, per recommendations of test reports, to meet the requirements of this Specification. Soil amendments shall be spread and thoroughly incorporated into the layer of planting soil media by harrowing or other methods reviewed by the Engineer.

### Filling and Compacting Planting Soil Mix

Perform percolation tests on existing, in place sub-soils or placed fill prior to placing and spreading planting soil media. Testing shall be conducted after the requirements of Item 120 Earth Excavation have been met.

1. Perform percolation testing of subsoil or placed fills to determine whether or not the sub-grade, sub-soils, and placed fills drain properly. Perform percolation tests for each lift as specified in herein.
2. In the event that percolation testing indicates that the sub-grade, subsoil, placed fills have been over compacted and do not drain, the Contractor shall loosen up the top sixteen (16") inches of the compacted layers by ripping or other mechanical means. Re-compact the borrow by driving a small, tracked bulldozer over the area at low speeds so that the tracks of the bulldozer pass over the affected area and the soil is compacted to a density that shall percolate as specified under the work herein. Under no circumstances shall wheeled vehicles be driven over subsoil, placed fills or ordinary borrow that have been shown to percolate or subsoil, placed fills or ordinary borrow that has been loosened and shown to percolate. The work of loosening the top sixteen (16") inches of soil and re-compacting the soil shall be as specified, performed and paid for under Item 120 Earth Excavation.
3. Perform sufficient percolation tests in areas of poorly draining or compacted subsoil or compacted placed fills as required by the Engineer to ensure that these underlying soils drain. Likewise, perform sufficient percolation tests after ripping and loosening to ensure that the soils are no longer too compact to drain.

**ITEM 752.51 through 752.53** (Continued)

All areas to be spread with any of the three planting soil media shall be free of construction debris, refuse, compressible or decayable materials and standing water. Do not place planting soil media when soil materials are frozen. No soil material containing ice or frozen lumps shall be used.

Protect existing trees in areas to be spread with planting soil media. Avoid compacting any existing soil, subsoil, subgrade or planting soil media in the vicinity of existing tree roots and do not use heavy equipment within the drip line of existing trees. Placement of lifts of any of the three planting soil media shall not exceed 6 inches in depth over existing tree roots and no fill shall come in contact with existing tree trunks. Filled areas around existing trees shall be graded to drain away from existing trees at a minimum slope of 2 percent.

The Contractor shall notify the Engineer when areas to be filled are ready for formal inspection. Placement of fill material shall not begin until Engineer has approved sub-grade.

The Engineer shall reject the use of the Contractor's compaction equipment if, in the opinion of the Engineer, the equipment is unsuited to or inadequate for compacting materials to the specified densities within a reasonable length of time, or if equipment or procedures are likely to damage underlying materials.

All fill material is to be placed "in-the-dry" to which dewatering may be required. Spreading and drying of each layer may also be required.

Conversely, if the testing laboratory determines that the fill material is too dry for proper compaction, water shall be added to provide the specified optimum moisture content, as necessary for proper compaction.

Compaction of each lift shall be done with hand-operated equipment, as specified herein and as determined by ASTM Test, D1556. Fill shall be placed in successive horizontal lifts no thicker 6 inches and compacted to required density as specified herein. Maximum dry density shall be determined in accordance with ASTM D1557, Method D. Maximum dry densities for planting soil media shall be between 86 and 88 percent.

In planting areas, compaction requirements for planting soil media shall be considered minimums and maximums within the density percentages called for, and any over-compaction of existing soils or fills which would be detrimental to planting objectives shall be corrected by tilling or other means and re-compacting to specified compaction limits at no additional cost.

**Fine Grading**

Planting soil media shall be spread in accordance with these specifications over approved areas to a depth sufficiently greater than shown on the drawings so that after required compaction, the planting soil media depth shall equal that which is required by the Drawings.

Select equipment and otherwise phase the installation of the planting soil media to ensure that wheeled equipment does not travel over subsoil, placed fills or ordinary borrow or already installed planting



**ITEM 752.51 through 752.53** (Continued)

soil media. Movement of tracked equipment over said soils shall be reviewed and considered for approval by the Engineer. If it is determined by the Engineer that wheeled equipment must travel over already installed soil, provide a written description of sequencing of work that ensures that compacted soil is loosened and recompactd as the work progresses. Alternatively, place one-inch thick steel plate ballast (or equivalent ballast approved by the Engineer) over the length and width of any travel way to protect planting soils from compaction.

After initial filling, Contractor shall request approval of rough grading by Engineer.

Following approval of rough grading, Contractor shall supply additional planting soil media as necessary so that following finish grading and compaction, the depth of the planting soil media fill shall conform to the depth required.

No soil shall be placed in a wet or frozen condition.

Sufficient grade stakes shall be set for checking the finished grades. Deviation from elevations shown on Drawings that are greater than one-tenth of a foot shall not be permitted. Connect contours and spot elevations with an even slope. Finish grades shall be smooth and continuous with no abrupt changes at the top or bottom of slopes.

After seeding and planting media has been spread, it shall be carefully prepared by hand raking.

Contractor shall obtain Engineer's written approval of fine grading and bed preparation before doing any planting.

**MEASUREMENT AND PAYMENT**

Planting Soil will be measured and paid for at the contract unit price per cubic yard, complete in place, which price shall include all labor, materials, equipment and incidental cost required to complete the work.

No separate payment will be made for filling operations to establish sub-grade or subsoil elevations or fine grading and compacting, but all costs in connection therewith shall be included in the Contract unit price bid.

**ITEM 756. NPDES STORMWATER POLLUTION PREVENTION PLAN LUMP SUM**

This Item addresses the preparation and implementation of a Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System (NPDES) and applicable Construction General Permit (CGP) issued by the U.S. Environmental Protection Agency (EPA).

Pursuant to the Federal Clean Water Act, construction activities which disturb one acre or more are required to apply to the EPA for coverage under the NPDES General Permit for Stormwater Discharges from Construction Activities. On February 16, 2012 (77 FR 12286), EPA issued the final NPDES Construction General Permit (CGP) for construction activity. The Contractor shall be fully responsible for compliance with the CGP. Should a fine or penalty be assessed against it, or DCR, as a result of a local, state, or federal enforcement action due to non-compliance with the CGP, the Contractor shall take full responsibility.

The NPDES CGP requires the submission of a Notice of Intent (NOI) to the EPA prior to the start of construction (defined as any activity which disturbs land, including clearing and grubbing). There is a fourteen (14) day review period commencing from the date on which EPA enters the Notice into their database. The Contractor is advised that, based on the review of the NOI, EPA may require additional information, including but not limited to, the submission of the Stormwater Pollution Prevention Plan (SWPPP) for review. Work may not commence on the project until final authorization has been granted by EPA. Any additional time required by EPA for review of submittals will not constitute a basis for claim of delay.

In addition, if the project discharges to an Outstanding Resource Water, vernal pool, or is within a coastal ACEC as identified by the Massachusetts Department of Environmental Protection (DEP), a separate notification to DEP is required. DEP may also require submission of the Stormwater Pollution Prevention Plan for review and approval. Filing fees associated with the notification to DEP and, if required, the SWPPP filing to DEP shall be paid by the Contractor.

The CGP also requires the preparation and implementation of a SWPPP in accordance with the afore-mentioned statutes and regulations. The Plan will include the CGP conditions and detailed descriptions of controls of erosion and sedimentation to be implemented during construction. It is the responsibility of the Contractor to prepare the SWPPP to meet the requirements of the most recently issued CGP. The Contractor shall submit the Plan to the Engineer for approval at least four (4) weeks prior to any site activities. It is the responsibility of the Contractor to comply with the CGP conditions and the conditions of any state Wetlands Protection Act Order, Water Quality Certification, Corps of Engineers Section 404 Permit and other environmental permits applicable to the project and to include in the SWPPP the methods and means necessary to comply with applicable conditions of said permits (reference to Part 9.1.1 of the 2012 CGP).

**ITEM 756.** (Continued)

It is the responsibility of the Contractor to complete the SWPPP in accordance with the EPA CGP, provide all information required, and obtain any and all certifications as required by the CGP. Any amendments to the SWPPP required by site conditions, schedule changes, revised work, construction methodologies, and the like are the responsibility of the Contractor. Amendments will require the approval of the Engineer prior to implementation.

Included in the CGP conditions is the requirement for inspection of all erosion controls and site conditions on a weekly basis as well as after each incidence of rainfall exceeding 0.25 inches in twenty-four hours. For multi-day storms, EPA requires that an inspection must be performed during or after the first day of the event and after the end of the event. The CGP requires that inspections be performed by a qualified individual. DCR requires proof of completion of a 4 hour minimum sedimentation and erosion control training class current to the latest CGP. This individual can be, but not limited to, someone that is either a certified inspector, certified professional, or certified stormwater inspector. The documentation shall be included as an appendix in the SWPPP. The Engineer must approve the contractor's inspector. This individual shall be on-site during construction to perform these inspections. In addition, if the Engineer determines at any time that the inspector's performance is inadequate, the Contractor shall provide an alternate inspector. Written weekly inspection forms, storm event inspection forms, and Monthly Summary Reports must be completed and provided to the Engineer. Monthly Summary Reports must include a summary of construction activities undertaken during the reporting period, general site conditions, erosion control maintenance and corrective actions taken, the anticipated schedule of construction activities for the next reporting period, any SWPPP amendments, and representative photographs.

The Contractor is responsible for preparation of the Plan, all SWPPP certifications, inspections, reports and any and all corrective actions necessary to comply with the provisions of the CGP. Work associated with performance of inspections is not included under this Item. The Standard Specifications require adequate erosion control for the duration of the Contract. All Control measures must be properly selected, installed, and maintained in accordance with manufacturer specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or is no longer adequate, it is the responsibility of the Contractor to replace or modify the control for site conditions at no additional cost to the Department. Contractor must maintain all control measures and other protective measures in effective operating condition and shall consider replacement of erosion controls for each construction season.

This Item addresses acceptable completion of the SWPPP, any revisions/amendments required during construction, and preparation of monthly reports. In addition, any erosion controls beyond those specified in bid items elsewhere in this contract which are selected by the Contractor to facilitate and/or address the Contractor's schedule, methods and prosecution of the work shall be considered incidental to this item.

**ITEM 756.** (Continued)

The Contractor is advised The CGP provides specific requirements for temporary and final stabilization. This shall be incorporated into the project schedule. The permit defines specific deadline requirements for Initial Stabilization (“immediately”, i.e., no later than the end of the next work day following the day when earth-disturbing activities have temporarily or permanently ceased) and for Complete Stabilization Activities (no later than 14 calendar days after the initiation of stabilization). Stabilization criteria for vegetative and non-vegetative measures are provided in the CGP.

The CGP requires the submission of a Notice of Termination (NOT) from all operators when final stabilization has been achieved, as well as removal and proper disposal of all construction materials, waste and waste handling devices, removal of all equipment and construction vehicles, removal of all temporary stormwater controls, etc. . Approval of final stabilization by the Engineer and confirmation of submission of the NOT will be required prior to submission of the Resident Engineer’s Final Estimate. The permittee is required to use EPA’s electronic NOI system or “eNOI system” to prepare and submit NOT. The electronic NOT form can be found at <https://www.epa.gov/npdes/stormwater-discharges-construction-activities#ereporting> . If you are given approval by the EPA Regional Office to use a paper NOT, you must complete the form in Appendix K of the 2012 CGP.

**MEASUREMENT AND PAYMENT**

Payment for all work under this Item shall be made at the contract unit price, lump sum, which shall include all work detailed above, including Plan preparation, required revisions, revisions/addenda during construction, monthly reports and filing fees.

Payment of fifty (50) % of the contract price shall be made upon acceptance of the Stormwater Pollution Prevention plan. Payment of forty (40) % of the contract price shall be made in equal installments for implementation of the Stormwater Pollution Prevention plan. Payment of the final ten (10) % of the contract price shall be paid upon satisfactory submissions of a Notice of termination (NOT) when final stabilization has been achieved.

**ITEM 765.4**  
**ITEM 765.5**  
**ITEM 765.6**

**SEED TYPE 1 (LAWN MIX)**  
**SEED TYPE 2 (MEADOW MIX)**  
**SEED TYPE 3 (VIADUCT MIX)**

**LB**  
**LB**  
**LB**

The work under these items shall conform to the relevant provisions of Section 765 of the Standard Specifications and the following:

The work shall consist of seeding areas designated for loam and restoration seed, as shown on the plans. The work shall also include seeding previously cleared and grubbed areas as directed by the Engineer.

The seed mixture for areas designated restoration seed shall be “New England Erosion Control/Restoration Mix” as supplied by New England Wetland Plants, Inc. located at 820 West Street, Amherst MA 01002.

**MATERIALS**

**SEED MIX – SEED TYPE 1 (LAWN MIX)**

General Seed Mixture: Provide tall fescue, fine fescue and ryegrass varieties as follows:

Botanical Name Common Name (Variety)	Percentage by Weight of Pure Live Seed (PLS)	Min. Purity	Min. Germination
<i>Festuca arundinacea</i> Tall Fescue (3 varieties in equal proportion)	50%	97%	85%
<i>Festuca rubra</i> Strong Creeping Red Fescue (2 varieties in equal proportions)	35%	97%	85%
<i>Lolium perenne</i> Perennial Ryegrass (2 varieties in equal proportions)	15%	97%	85%

Tall fescue varieties shall exhibit strong spring green up, superior wear quality and resistance to disease.

Fine fescue varieties generally having strong spring green-up, high green cover and top disease resistance.

Perennial Ryegrass varieties having the best average turf quality.

Seeding rate 5 pounds per 1000 SF for hydroseeding.

**SEED MIX – SEED TYPE 2 (MEADOW MIX)**

**ITEM 765.4 through 765.6** (Continued)

It is an essential aspect of this contract that seed from grasses native to eastern New England be established on this Project. The following seed mix has been carefully selected for drought tolerance, pH, soil texture, and adaptability to EPA Ecoregions 59 Northeastern Coast Zone and 84 Atlantic Coastal Pine Barrens, and aesthetic value.

Approved seed suppliers include:

New England Wetland Plants, **820 West Street, Amherst, MA 01002 (413) 548-8000**

**Ernst Conservation Seed**, 8884 Mercer Pike, Meadville, PA 16335 (800) 873-3321

Pinelands Nursery & Supply, 323 Island Rd Columbus, NJ 08022 (800)667-2729  
Meadow Seed Mix

For use within areas designated on the plans, beyond 5 feet of trail edges:

Seed mix shall be composed of the following species:

Seed mix shall be composed of the following species:

<u>Botanical Name</u> Common Name	Percentage by Weight of Pure Live Seed (PLS)	Min Purity	Min Germination
<i>Agrostis perennans</i> Eastern New England Ecotype (Upland Bent Grass)	5%	95%	80%
<i>Agrostis scabra</i> Eastern U.S. Ecotype (Rough Bent Grass)	8%	95%	80%
<i>Andropogon gerardii</i> New England Ecotype (Big Bluestem)	12%	90%	80%
<i>Festuca glauca x brevipila</i> var. Little Bighorn (Blue/Hard Fescue)	19%	97%	85%
<i>Festuca rubra</i> Wendy Jean or equivalent (Strong Creeping Red Fescue)	25%	97%	85%

**ITEM 765.4 through 765.6** (Continued)

<i>Leymus mollis</i>	13%	95%	85%
Coastal Massachusetts Ecotype (American Dune Grass)			

<i>Schizachyrium scoparium</i>	13%	80%	70%
Northeastern U.S. Ecotype (Little Bluestem)			

<i>Trifolium repens</i>	5%	99%	85%
White Dutch Type (White Clover)			

Nurse Grasses for Slopes > 3:1

<i>Avena sativa</i> (Seed Oats)	+25 lbs/acre	98%	90%
<i>Hordeum vulgare</i> (Seed Barley)	+32 lbs/acre	98%	90%
<i>Lolium multiflorum</i> (Annual Rye)	+20 lbs/acre	98%	90%

Seeding rate for Meadow Seed Mix shall be 80 pounds of pure live seed mix per acre. Seeding rate is for Pure Live Seed; The Contractor shall be responsible for achieving the Pure Live Seeding rate based upon purity and germination of the seed mix supplied. When slopes exceed 3H:1V and seeding occurs beyond the seeding time period then add nurse grasses to the Grass Meadow Seed Mix at the pounds per acre specified. Application of seed oats, see barley and annual ryegrass is schedule specific.

This seed mix contains warm season grasses and cool season grasses.

Nurse Grasses: As noted above, use nurse grasses as a supplement to Grass Meadow Mix, for the conditions identified and during the months specified, seeding with annual seed mixtures for erosion control, beyond the seeding time period, shall be as approved by the Owner's Representative.

Nurse Grasses: For Use on Areas with Slopes 3:1 or greater

Botanical Name	Pounds per Acres of	Min	Min
Common Name	Pure Live Seed (PLS)	Purity	Germination

For Seeding Dates 3/25-5/15

A-1. <i>Avena sativa</i>	25	98 %	90%
Seed Oats (analysis tag required) Feed quality oats will <i>not</i> be accepted.			

For Seeding Dates 5/15-6/15

A-2. <i>Hordeum vulgare</i>	32	98%	90%
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**ITEM 765.4 through 765.6** (Continued)

Seed Barley (analysis tag required)

For Seeding dates 8/1 – 10/15

A-3. <i>Lolium multiflorum</i>	20	98%	90%
<i>Proprietary variety required</i>			
Turf-Type Annual Ryegrass- varietal			

Plant no nurse grass between: 6/15-8/15 and 10/15-3/25

SEED MIX – SEED TYPE 3 (VIADUCT MIX)

It is an essential aspect of this contract that seed from grasses native to eastern New England be established on this Project. The following seed mix has been carefully selected for drought tolerance, pH, soil texture, and adaptability to EPA Ecoregions 59 Northeastern Coast Zone and 84 Atlantic Coastal Pine Barrens, and aesthetic value.

Approved seed suppliers include:

New England Wetland Plants, 820 West Street, Amherst, MA 01002 (413) 548-8000

Ernst Conservation Seed, 8884 Mercer Pike, Meadville, PA 16335 (800) 873-3321

Pinelands Nursery & Supply, 323 Island Rd Columbus, NJ 08022 (800)667-2729  
Meadow Seed Mix

For use within areas designated on the plans, beyond 3 feet of trail edges on the viaduct portion of trail:

Seed mix shall be composed of the following species:

Seed mix shall be composed of the following species:

<u>Botanical Name</u> Common Name	Percentage by Weight of Pure Live Seed (PLS)	Min Purity	Min Germination
<i>Agrostis perennans</i> Eastern New England Ecotype (Upland Bent Grass)	5%	95%	80%
<i>Agrostis scabra</i> Eastern U.S. Ecotype (Rough Bent Grass)	8%	95%	80%
<i>Andropogon gerardii</i> New England Ecotype	12%	90%	80%



**ITEM 765.4 through 765.6** (Continued)

(Big Bluestem)

<i>Festuca glauca x brevipila</i> var. Little Bighorn (Blue/Hard Fescue)	19%	97%	85%
<i>Festuca rubra</i> Wendy Jean or equivalent (Strong Creeping Red Fescue)	25%	97%	85%
<i>Leymus mollis</i> Coastal Massachusetts Ecotype (American Dune Grass)	13%	95%	85%
<i>Schizachyrium scoparium</i> Northeastern U.S. Ecotype (Little Bluestem)	13%	80%	70%
<i>Trifolium repens</i> White Dutch Type (White Clover)	5%	99%	85%

Seeding rate for Meadow Seed Mix shall be 80 pounds of pure live seed mix per acre. Seeding rate is for Pure Live Seed; The Contractor shall be responsible for achieving the Pure Live Seeding rate based upon purity and germination of the seed mix supplied.

**METHOD OF CONSTRUCTION**

Lightly rake, or roll to ensure proper soil-seed contact. Best results are obtained with a Spring or late Summer seeding. Late Spring through Mid-Summer seeding will benefit from a light mulching of weed-free straw to conserve moisture. If conditions are drier than usual, addition watering will be required per Item 771.751 WATERING – PLANTS AND TURF.

Lightly water all areas during the first 4 (four) weeks of establishment per Item 771.751 WATERING – PLANTS AND TURF. Do not disturb the soil or wash out seeding. Any such disturbances shall be repaired by the Contractor at no additional cost.

Fertilization is not required unless the soils are particularly infertile. Preparation of a clean weed free seed bed is necessary for optimal results.

**MEASUREMENT AND PAYMENT**

Seed Type 1 (Lawn Mix), Seed Type 2 (Meadow Mix) and Seed Type 3 (Viaduct Mix) shall be measured by pound, complete in place.

**ITEM 765.4 through 765.6** (Continued)

Seed Type 1 (Lawn Mix), Seed Type 2 (Meadow Mix) and Seed Type 3 (Viaduct Mix) will be paid for at the contract unit price per pound, which price shall include all labor, material, equipment and incidental costs required to complete the work.

When a satisfactory stand of grass has not been established at the time of acceptance, no payment for seeding shall be allowed at the time of acceptance. At the time the final estimate is ready to be forwarded to the Contractor the seeded areas will again be inspected by the Engineer and if a satisfactory stand of grass has been established, the seeded areas with a satisfactory stand of grass will be included for payment.

## ITEM 767.12

## COMPOST FILTER TUBES

## FOOT

The purpose of this item is to provide a linear, compost-filled tube for filtering suspended sediments from storm water flow. This item shall conform to the requirements of Section 751 and 767 of the Standard Specifications and the following.

### MATERIALS

Material for the filter tubes shall be compost meeting M1.06.0, except that no manure or bio-solids shall be used. In addition, no kiln-dried wood or construction debris shall be allowed. Particle size analysis: 98% shall pass through a 3-inch sieve; 30-50% shall pass 3/8 inches sieve.

Compost filter tubes filters shall be a minimum of 12 inches, a maximum of 18" in diameter. Tube material shall be a knitted mesh with 1/8" - 3/8" openings, and made of biodegradable (cotton or jute) materials. **Photodegradable fabric may be used; however, photodegradable fabric must be removed and disposed of by the Contractor, at the Contractor's expense, at the end of the contract.** Additional tubes shall be used at the direction of the Engineer.

Stakes for anchors, if required, shall be nominal 2 x 2 stakes.

### CONSTRUCTION METHODS

Compost filter tubes may be filled on site or shipped. Tubes shall be placed, filled and staked in place as required to ensure stability against water flows. All tubes shall be tamped to ensure good contact with soil.

The Contractor shall ensure that the filter tubes function as intended at all times. Tubes shall be inspected after each rainfall and at least daily during prolonged rainfall. The Contractor shall immediately correct all deficiencies, including, but not limited, to washout, overtopping, clogging due to sediment, and erosion. The Contractor shall review location of tubes in areas where construction activity causes drainage runoff to ensure that the tubes are properly located for effectiveness. Where deficiencies exist, such as overtopping or wash-out, additional staking or compost material shall be installed as directed by the Engineer. Contractor shall remove sediment deposits as necessary to maintain the filters in working condition. The functional integrity of filter tubes shall be maintained in sound condition at all times. Filter tubes that are decomposing, cut, or otherwise compromised shall be repaired or replaced as directed by the Engineer and be incidental to this item.

Filter tube fabric and stakes shall be removed by the Contractor when site conditions are sufficiently stable to prevent surface erosion, and after receiving permission to do so from the Engineer. All biodegradable tube fabric shall be cut and laid flat in place to decompose on-site at the direction of the Engineer. Tube fabric that is not decomposing satisfactorily shall be removed and disposed off-site by the Contractor. At the direction of the Engineer, the Contractor may rake out and seed compost so that it is no greater than 2 inches in depth on soil substrate.

**ITEM 767.12** (Continued)

**MEASUREMENT AND PAYMENT**

Measurement for this item shall be by the Foot of Compost Filter Tube installed, approved, and maintained in place. Payment shall be the bid price and shall be compensation for all labor equipment and materials necessary to complete the work specified above, including, but not limited to, stakes and tube fabric, compost mulch wedge along top of tubes, removal and disposal of fabric and stakes, raking and seeding of compost.

**ITEM 767.71**  
**ITEM 767.72**

**COIR MAT EROSION CONTROL FABRIC**  
**SINGLE COURSE COIR LOG**

**SQUARE YARD**  
**FOOT**

The work under these items shall consist of providing all material, labor, equipment, and incidentals required to construct bioengineering treatment as indicated on the Drawings and or as specified herein. Items included in this section include coir mat and both single course and double course coir log installation.

The work of this section shall be considered part of Contingency 1 and Contingency 2 as described in Contingency Construction Scope of this special provisions specification. (Supplementing Subsection 4.06)

**Quality Assurance:**

The Installer shall provide certification that they have successful experience with a minimum of five (5) bank or shoreline excavation or stabilization projects. The Contractor shall demonstrate proficiency in practicing effective erosion and sediment control practices during project implementation.

**Delivery, Storage and Handling:**

Materials: Protect materials from deterioration during delivery, and while stored at site.

**Installation Supervision:**

Installation of all bioengineering materials shall be supervised on-site by the Engineer and Landscape Architect Consultant.

**MATERIALS**

**Coir Log**

Coir Log shall be biodegradable coir fiber cylindrical bundles with a diameter of 16 inches with the length of each log module at 20 feet or 10 feet as needed to meet the layout requirements as indicated on the Contract Documents. Inner Core shall be 100% unsorted, well-cleaned, coir fiber uniformly distributed along the length of the log. The stuffed density of the coir fiber shall be a minimum of 9 lbs/cubic foot. Outer netting shall be constructed from a minimum 3-ply high strength coir bristle twine or yarn. The netting shall have 2 inch x 2 inch rhombic openings with hand-knotted junctions. The average breaking strength of the coir twine or yarn shall be a minimum of 90 lbs. Minimum diameter of the coir twine or yarn shall be 3/8 inch. Production tolerance for all the above parameters shall not exceed plus or minus 10%.

**Coir Mat Erosion Control Fabric**

Coir Mat Erosion Control Fabric shall be a woven matting of 100 percent coir with a natural/earth tone appearance and made from high strength coconut fiber. Coir Mat Erosion Control Fabric shall meet the following criteria at a minimum:

<u>Property</u>	<u>Test Method</u>	<u>Typical Value</u>
Thickness	ASTM D 5199	0.30 in
Mass per unit area (min.)	ASTM D 5261	26 oz/sq yd

**ITEM 767.71 through 767.72** (Continued)

Wide Width Tensile Strength – Dry (MD x CD)	ASTM D 4595	1968 x 1416 lbs/ft
Maximum Elongation – Dry (MD x CD)	ASTM D 4595	46% x 34%
Wide Width Tensile Strength – Wet (MD x CD)	ASTM D 4595	1260 x 768 lbs/ft
Maximum Elongation – Wet (MD x CD)	ASTM D 4595	43% x 36%
Flexural Rigidity (Stiffness)	ASTM D 1388	14019 x 9329 mg-cm
Water Absorption	ASTM D 1117	132%
Water Velocity	Flume Tests	16 ft/sec
Shear Stress	Flume Tests	5.0 psf
“C” Factor	Flume Tests	0.003
Open Area	Measured	39%

Coir Mat Erosion Control Fabric roll size shall be 6.6 feet wide x 165 feet long.

Large Wood Stakes

Large Wood Stakes: Oak or Southern Yellow Pine stakes 2-inch diameter, 4.5-foot length as indicated on Contract Documents, free from knots and other defects which would cause splitting.

Small Notched Wood Stakes:

Oak or Southern Yellow Pine stakes, 3/4 x 2 inch average width, wedge-shaped, 12 inches in length, with a downward-angled notch cut near the top, 1/8 inch wide and 3/4 inch deep.

Coconut Fiber Cord

Coconut fiber cord shall be two-ply braided cord with a breaking strength of 80 pounds, minimum 0.25-inch diameter.

CONSTRUCTION METHODS

Coordination

Planting Soil shall be installed as per requirements of Item 752.5 Planting Soil.

Complete rough grading installation and secure Engineer’s acceptance before beginning installation coir logs and Coir Mat Erosion Control Fabrics.

Furnishing and installing plant material shall be in accordance with the provisions of Items 772 through 796 PLANTING. Coordinate planting schedule with installation coir logs and Coir Mat Erosion Control Fabrics.

Layout bioengineering treatment locations through staking and outlining and secure Engineer and Landscape Architect Consultant’s acceptance before start of installation. Notify the Engineer no less than three (3) days prior to the desired date of inspection of staking to schedule site visit.

## **ITEM 767.71 through 767.72** (Continued)

### Coir Log Installation

Large wood stakes shall be driven on both sides of the coir log, three feet on center. Insert stake through netting of the coir logs. The lengths of coir logs shall be placed in position adjacent to the row of stakes, between the bank and stakes.

The coir logs shall be laced together end-to-end with cord to create a continuous length. End-to-end lacing may be completed before or after placement on slope, to facilitate handling.

The ends of the coir logs shall be buried 2 to 4 feet laterally into the bank.

Excavation and fill work shall be completed as necessary on the bank above the coir log only after it is fully installed. Contractor shall shape bank according to Contract Documents and as required by the Engineer. The gap between the log and the bank shall be backfilled with loam as needed. Care shall be taken to disturb as little soil as possible outside the work area, and to avoid damage to any existing trees and shrubs on or near the bank. All topsoil excavated from the project shall be stored on site and reapplied as a surface layer over any cut and fill work.

The coir logs closest to the bottom of slope shall be installed first, then backfilled, followed by the next coir log tier up the slope, which is then backfilled and finally followed by the installation of the coir mat erosion control fabric and woody seedlings.

### Coir Mat Erosion Control Fabric Installation

#### General Installation

1. After backfill and loam is spread above each tier of coir logs install coir pads. Small wood stakes shall be driven through the pad, one at each corner and then in a triangular offset pattern approximately two (2) feet on center for the entire length of the pad. The lengths of coir pads shall be placed in position adjacent to the rows of coir logs, above each tier of logs.
2. On the slopes the Coir Mat Erosion Control Fabric shall have woody seedlings installed in a triangular offset pattern with an on-center spacing according to the plant schedule and as shown on the drawings. Plants shall be planted directly into the planting soil through the pad. Plant species in the mats shall be as specified on the drawing. Plantings shall consist of randomly interspersed groups of species according to the Contract Documents.
3. After planting out pads apply fine layer of 0.5-inch of loam over the coir pads.
4. Lastly, water in planting soil and Ornamental Grass sufficiently so that the soil below the mat is moist to a depth of 3-inches minimum. Use a water spray fine enough not to cause erosion underneath the pads or anywhere else in the vicinity of the landscape work.

## **ITEM 767.71 through 767.72** (Continued)

### Coir Mat Erosion Control Fabric - Slope Installation

1. The area to receive coir log mat shall have been recently graded and shall have a smooth surface free from stones, clods or depressions.
2. Anchor Coir Mat Erosion Control Fabric in 12-inch deep x 12-inch wide initial anchor trench at top of slope and stake mat 18-inch on center with small notched wood stakes. Wrap 12-inch x12-inch soil volume in anchor trench with pad and stake on itself. Back fill loam borrow to cover pad of initial anchor trench.
3. The pad should not be stretched but should have full contact with the soil below.
4. Anchor Coir Mat Erosion Control Fabric using small notched wood stakes.
5. Overlap edges of adjacent parallel rolls by 6-inches and anchor with stakes at 24-inches on center.
6. When padding has to be spliced, place upper pad end over lower pad end (shingle style) with 12-inch overlap and anchor with two staggered rows of stakes at 12-inches on center.
7. Anchor, fill and compact ends of padding in 12-inch deep and 6-inch wide terminal anchor trenches. Anchor with stakes at 18-inches on center.

### Maintenance

Maintenance of the bioengineering shall include:

1. Repair of erosion problems.
2. Watering of plants until establishment in the absence of adequate rain for one full growing season.
3. Reinstall, re-stake or repair materials that become damaged, loose or unanchored.

### Guarantee

Contractor shall guarantee installed Coir Logs and Coir Mat Erosion Control Fabrics will remain in place and provide erosion control measures necessary to establish plantings for a minimum period of one (1) years.

Contractor shall replace all dead, dying, or non-acceptable Ornamental Grass as per requirements of Item 795 Ornamental Grasses and as determined by the Engineer at the end of the one (1) year period at no additional cost to the Owner.



**ITEM 767.71 through 767.72** (Continued)

**MEASUREMENT AND PAYMENT**

Placement and fine grading of Planting Soils will be measured and paid for under Item 752.5 Planting Soil.

Purchase,-installation and maintenance of Ornamental Grass within the Coir Mat Erosion Control Fabric will be paid for under Item 795 Ornamental Grasses.

Item 767.71 Coir Mat Erosion Control Fabric will be measured for payment by SQUARE YARD, complete in place as measured across the surface of grade; any overlaps shall be measured as a single layer of fabric. Item 767.71 shall be considered part of Contingency 1 and will only be required under conditions described in Contingency Construction Scope (Supplemental to Subsection 4.06).

Item 767.72 Single Course Coir Log will be measured for payment by FOOT of one (1) course, complete in place. Item 767.71 shall be considered part of Contingency 2 and will only be required under conditions described in Contingency Construction Scope (Supplemental to Subsection 4.06)

Item 767.71 Coir Mat Erosion Control Fabric will be paid for at the Contract unit price per SQUARE YARD, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

Item 767.72 Single Course Coir Log will be paid for at the Contract unit price per FOOT, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

**ITEM 767.731**

**JUTE MESH EROSION CONTROL FABRIC**

**SQUARE YARD**

The purpose of this item is to protect 2H:1V slopes and over the grass swales to prevent erosion of the swales and the loss of seeding. The fabric shall protect the soil surface and ensure germination of seed.

**MATERIALS**

Erosion control mat shall be jute mesh, meeting at least the minimum performance requirements below.

Minimum average roll values (MARV) for channels shall conform to the following:

Limiting Shear Stress (unvegetated)	min. 1.75 lb/sf
Tensile Strength	min. 75 lb/ft

Anchoring devices shall consist of minimum 8” bio-degradable stakes. Longer stakes shall be used where loose soils or other conditions require, as directed by the Engineer.

**CONSTRUCTION METHODS**

Alternate construction methods, if required, must be approved by the Engineer prior to construction. All areas shall be final graded with loam, or Compost Topsoil as specified, and seeded prior to placing mat.

Place slope mat over all areas of exposed soil and as directed by the Engineer.

Dig anchor trenches at the top and bottom of all slopes with fresh loam, or Compost Topsoil as specified, and seed. Bury the ends of the mat at the top and bottom of the slopes.

Mat shall be placed in such a way as to ensure continuous contact with soil without folds or wrinkles. Provide a minimum 6 inch overlap. Place staples at 12 inch intervals along the top of the slope and in staggered courses along the face of the slope to achieve a minimum of 3 staples per square meter.

Reseed all backfill and disturbed areas and as directed by the Engineer.

**MEASUREMENT AND PAYMENT**

Jute mesh erosion control fabric will be measured for payment by the square yard, installed and complete in place, as measured across the surface of grade, and does not include buried or overlapped portions.

Jute mesh erosion control fabric will be paid for Payment for this item shall include all labor and materials including trenching, reseeding, placement and stapling of erosion control mat for channels as specified above.

**ITEM 771.**

**ROOT TRIMMING**

**FOOT**

The work under this item shall consist of the trimming of vegetation roots located along the limits of grading as stated on the plans and as directed.

The Contractor is cautioned that within the limits of any project, buried utility cables, which may be energized, may be present.

**MEASUREMENT AND PAYMENT**

Root Trimming will be measured by the foot of trimming completed.

Root trimming shall be paid for by the contract unit price per foot, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

**ITEM 771.751****WATERING – PLANTS AND TURF****MGL**

The work to be done under this item consists of watering of all plants and turf areas per requirements of Item 765.4 SEED TYPE 1 (LAWN MIX), Item 765.5 SEED TYPE 2 (MEADOW MIX), 765.6 SEED TYPE 3 (VIADUCT MIX), and Items 772 through Item 795 PLANTS.

Included in this item is providing all necessary materials, equipment and incidentals required to complete the work to establish plant material and turf areas.

**SUBMITTALS**

1. Description of watering method
2. Metered record of water use
3. Field log report, equivalent to copy of planting plan sheets indicating date of watering, areas and plants watered, and quantity of water used.

**MATERIALS****Water**

Water shall be potable water from an approved source.

Water shall be suitable for irrigation and free from ingredients harmful to plant life. All work injured or damaged due to the lack of water, or the use of too much water, shall be the Contractor's responsibility to correct.

**CONSTRUCTION METHODS**

Watering method shall not damage plants or seeded areas or cause erosion.

**Seeding**

Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 2 inches.

Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.

Water lawn with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate. In drought condition, water lawn at a rate of 1.5" per week.

**Trees and Shrubs**

Watering shall consist of keeping the plants in a healthy growing condition and shall include but is not limited to watering and maintaining the planting saucer.

Plants shall be inspected for watering needs at least twice each week and watered to promote plant growth and vitality. The following watering rates assume that the soil is free draining. If the on-site conditions do not ensure a free draining soil, then notify the Landscape Architect in writing of

**ITEM 771.751** (Continued)

this condition. Watering rates for trees, shrubs, ground cover, woody seedlings, vines and perennials in free draining soils are presented here as guidelines to ensure that the top six inches of plant bed soil remains moist at all times. Actual watering rates may vary depending upon soil conditions. Guideline rates shall be as follows:

<u>Type of Plant/Size</u>	<u>Weekly Watering Rate</u>
Deciduous Trees:	
1 - 1-1/2 in. caliper	40 gallons
1-1/2 - 2 in. caliper	54 gallons
2 - 2-1/2 in. caliper	61 gallons
2-1/2 - 3 in. caliper	70 gallons
3 - 3-1/2 in. caliper	80 gallons
3-1/2 - 4 in. caliper	90 gallons
4 - 4-1/2 in. caliper	100 gallons
4-1/2 - 5 in. caliper	110 gallons
5 - 5-1/2 in. caliper	120 gallons
5-1/2 - 6 in. caliper	130 gallons
<u>Type of Plant/Size</u>	<u>Weekly Watering Rate</u>
Evergreen Trees:	
1 - 2 ft. height	25 gallons
2 - 3 ft height	30 gallons
3 - 4 ft. height	35 gallons
5 - 6 ft. height	40 gallons
6 - 7 ft. height	45 gallons
7 - 8 ft. height	50 gallons
8 - 9 ft. height	60 gallons
9 - 10 ft. height	70 gallons
10 - 11 ft. height	80 gallons
11 - 12 ft. height	90 gallons
Shrubs	
Up to 2 ft. height	10 gallons
2 - 4 ft. height	20 gallons
4 - 6 ft. height	30 gallons
6 - 8 ft. height	40 gallons
Woody Seedlings	5 gallons
Vines	5 gallons
Perennials	5 gallons

**ITEM 771.751** (Continued)

Wetland Plugs

5 gallons

Water shall be applied by 1-inch diameter hose with an attached metering gauge.

**METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

Watering of seeded and planting areas until establishment will be measured and paid for under Item 771.751 WATERING – PLANTS AND TURF.

Measurement for this item shall be by **mega-gallon MGL (1000 gallons)**, or fraction thereof, and shall be based on the required submittals indicated herein. Payment shall be for all labor and materials to complete the work specified.

<u>ITEM 772</u>	<u>EVERGREEN TREE</u>	<u>EACH</u>
<u>ITEM 775</u>	<u>DECIDIOUS TREE</u>	<u>EACH</u>
<u>ITEM 780</u>	<u>FLOWERING TREE</u>	<u>EACH</u>
<u>ITEM 790</u>	<u>SHRUB</u>	<u>EACH</u>
<u>ITEM 795</u>	<u>ORNAMENTAL GRASSES</u>	<u>EACH</u>

The work under these items shall conform to the relevant provisions of Sections 150, 170, 751, 770 and 771 of the Standard Specifications and the following:

The work of this Section consists of amendment of soils, planting mix, staking and guying, planting trees, shrubs, ornamental grasses, plant maintenance, guarantee of plants and related items as indicated on the Drawings or specified herein.

REFERENCES AND STANDARDS

The following related terms are used herein and shall mean:

1. Standard Specification: State of Massachusetts, City of Public Works Standard Specification for Highways and Bridges, latest edition.
2. ASNS: "American Standard for Nursery Stock," ASNS 260.1, latest edition, published by the American Association of Nurserymen, (AAN).
3. SPN: "Standardized Plant Names," latest edition, by the American Joint Committee on Horticultural Nomenclature.
4. AOAC: Association of Official Agricultural Chemists.
5. Pruning Standards: The "Standards for Pruning Shade Trees" of the National Arborist Association, 174 Route 101, Bedford, NH 03102.

Samples and Submittals

At least 30 days prior to ordering the below listed materials, submit certified testing results and representative samples to Engineer for selection. No materials shall be ordered or delivered until required samples, certifications, manufacturer's literature and test results have been reviewed by Engineer. Delivered materials shall closely match the approved samples.

A detailed schedule of planting procedures shall be provided as part of the formal submittal process. Schedule shall include anticipated season/months of planting, planting duration, level of project completion/necessary phasing based on General Contractor project completion schedule.

Contractor shall provide planting as-builts of installed plant material following completion of planting installation. As-builts shall locate on the Planting Plans bid documents all species and quantities installed during planting installation efforts. These drawings shall be clear and legible for Client and Engineering review and record. All as-builts shall be provided in electronic and full size bond paper format. These record plans will assist in facilitating complete payment for individual payment items as well as warranty replacements identification during follow-on site walks.

Fertilizer

Submit one sample packet of planting fertilizer  
Ant desiccant: Submit manufacturer's literature.

**ITEM 772. through 795.** (Continued)

Examination of Conditions

All areas to be planted, shall be inspected by the Contractor before starting work and any defect such as incorrect grading shall be reported to the Engineer prior to beginning this work.

The Contractor shall be solely responsible for judging the full extent of work requirements involved, including but not limited to the potential need for storing and maintaining plants temporarily and re-handling plants prior to final installation.

MATERIALS

Plant Materials

The Contractor shall furnish all plants shown on the Drawings, as specified, and in quantities listed on the PLANT SCHEDULE. No substitutions will be permitted. All plants shall be nursery grown. Plants shall be in accordance with the ASNS Standards of the American Association of Nurserymen (AAN) as a minimum requirement for acceptance. Plants designated as "Specimen Quality" on the Drawings shall have a form of higher quality (as determined by the Engineer), than typical plants of their species and shall be selected in the nursery by the Engineer. Botanical plant names shall be in accordance with plant designations included in Standardized Plant Names.

All plants other than those designated on the Drawings as "Specimen Quality" shall be typical of their species or variety and have a normal habit of growth. All plants including "Specimen Quality" shall be legibly tagged with the proper name. Only plant stock grown within hardiness Zones 1 through 5, as established by the Arnold Arboretum, Jamaica Plain, Massachusetts, will be accepted. The Contractor's suppliers must certify in writing that the stock has actually been grown under Zone 5 or hardier conditions. Plants not so certified will not be accepted.

The root system of each plant shall be well provided with fibrous roots. All parts shall be moist and show active green cambium when cut. They shall be sound, healthy, and vigorous, well-branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs, or larvae.

All plants must be moved with the root systems as solid units with balls of earth firmly wrapped with untreated 8 ounce burlap, firmly held in place by a stout cord or wire in containers of a size as specified or of adequate size to allow root development for the plant size as per ASNS requirements. Plants prepared with plastic or other non-biodegradable wrappings will not be accepted. The diameter and depth of the balls of earth on balled and burlapped plants must be sufficient to encompass the fibrous root feeding system necessary for the healthy development of the plant. No plant will be accepted when the ball of earth surrounding its roots has been badly cracked or broken prior to, or during the process of planting or after the burlap, staves, ropes, container or platform required in connection with its transplanting have been removed. The plants and balls shall remain intact during all operation. All balled and burlapped plants that cannot be planted at once must be heeled in by setting in the ground and covering the balls with soil and watering.



**ITEM 772. through 795.** (Continued)

**DECIDUOUS TREES**

All deciduous trees shall meet the following standards:

Trees shall have a single, straight trunk, well formed, and sturdy. No part of the trunk shall be conspicuously crooked as compared with normal trees of the same variety.

Trees with multiple leaders shall conform to all standards noted in this Section, for single leader trees and shall be accepted only as noted on the PLANT SCHEDULE.

All pruning wounds shall show vigorous bark on all edges at the time of harvest. Trees shall be free from all signs of pest and disease damage. The trunk shall be free from sun scald, frost cracks, and wounds resulting from abrasions, fire, animal damage, or other causes. Pruning scars within the crown of any tree shall be clean cut and shall leave no protrusion beyond the branch collar.

All trees shall have healthy, vigorous leaves or needles of normal size, color, shape, and texture for the particular species and variety.

Deciduous shade trees and deciduous flowering trees shall have fall color typical for their species and variety.

Unless otherwise indicated on the PLANT SCHEDULE, the height and spread of deciduous shade trees shall be the minimum requirements.

Take caliper measurements for deciduous trees 6 inches above ground level up to and including 4 inches caliper size and 12 inches above ground for larger sizes.

No deciduous tree shall be pruned after the Engineer has tagged the plant in the nursery except as directed by the Engineer.

Unless otherwise noted on the PLANT SCHEDULE, shade trees for use in paved areas shall have no branches lower than 6.5 feet from finish grade and no higher than 7.5 feet from finish grade. Flowering trees for use in areas away from pedestrian traffic shall have the first branch of their crowns no higher than 4 feet from finish grade.

Branching of all deciduous trees shall be best quality representatives of the species, cultivar or variety with lateral branching around the entire trunk to form a symmetrical tree for 80 percent to 100 percent of the tree's outer perimeter. All branches on deciduous trees shall meet the trunk at angles no less than 30 degrees and no greater than 90 degrees from the vertical.

**EVERGREEN TREES**

Evergreen trees shall meet the following standards:

**ITEM 772. through 795.** (Continued)

The height of the evergreen trees (measured from the trunk flair at the natural ground line of the tree to the midpoint of the terminal leader) shall be not less than the minimum size designated on the PLANT SCHEDULE.

No trees with double-leaders or twin-heads will be permitted.

Evergreen trees shall be of specified height with spread in proportion to height, as designated in ASNS Standards, and shall be well-branched to the ground.

All pruning wounds shall show vigorous bark on all edges at the time of harvest.

Terminal and top whorl buds of all evergreen trees shall be in healthy and whole condition at the time of harvest.

No evergreen tree shall be pruned after the Engineer has tagged the tree in the nursery except as directed by the Engineer.

All trees shall have healthy, vigorous leaves or needles of normal size, color, shape, and texture for the particular species and variety.

**SHRUBS**

All shrubs shall meet the following standards:

All shrubs shall be healthy and vigorous plants which are very well shaped, heavily branched, densely foliated, and true to form for the variety.

Canes or Trunk(s) and Branches:

1. Well-formed and sturdy.
2. Branching shall be uniformly distributed close to the ground.
3. Scars shall be free of rot and not exceed 1/4 the diameter of the wood beneath in greatest dimension unless completely healed (except pruning scars).
4. Pruning scars shall be clean cut and shall leave little or no protrusion from the trunk or branch.
5. Graft unions shall be completely healed.
6. No suckers or water sprouts.
7. Contain no dead wood.
8. Free of cracks, splits, or cambium peeling.

No shrub with pest or mechanical damage will be accepted.

Shrubs shall show no signs of frost or winter damage to the foliage. Foliage shall not be in a state of drought stress. Leaves or needles shall show no signs of wilt or desiccation due to weather

**ITEM 772. through 795.** (Continued)

stress at any season of the year.

Perennials

All perennials shall meet the following standards:

Perennials shall be potted 3 year stock, field grown clumps, and all clumps shall have not less than 6 buds, eyes or crowns.

Perennials shall be healthy and well cared for, with no evidence of insects or diseases present. Insect-ridden or diseased plants shall be rejected. Plants shall have a deep green foliage and dense, compact growth. Perennials shall have multi-stemmed bases and shall be two year potted stock minimum, one year in cutting bench and one year in pots.

Container Grown Stock

Each plant shall have an extensive, symmetrically balanced fibrous root system. Any root ball which shows signs of asymmetry, injury, or damage to the root system shall be rejected.

Curling or spiraling of the roots along the walls of rigid containers will not be accepted.

All parts of the fibrous root system of all plants shall be moist and fresh with a white color when washed of soil. When the plant is removed from the container, the visible root mass shall be healthy with white root tips. The root systems of all plants shall be free of disease, insect pests, eggs, or larvae.

All trees, and all shrubs which are not grown in containers must be moved with the root systems as solid units with balls of earth firmly wrapped with untreated 8 ounce natural, biodegradable fabric burlap, firmly laced with stout, natural biodegradable cord or twine. The base of the tree trunks shall be wrapped with a protective burlap layer, surrounded by a cardboard trunk protector, and loosely tied with twine.

The diameter and depth of the balls of earth must encompass the fibrous and root feeding system necessary for the healthy recovery of the plant. Minimum root ball diameters and depths shall be in accordance with ASNS standards.

No plants shall be loose in the container.

Container grown plants which have roots growing out of the container will be rejected.

Plants delivered by truck and plants requiring storage on site shall be properly wrapped and covered to prevent wind-drying and desiccation of branches, leaves or buds; plant balls shall be firmly bound, unbroken, reasonably moist to indicate watering prior to delivery and during storage and tree trunks shall be free from fresh scars and damage in handling. No trees with double-leaders or twin-heads will be acceptable without the written approval of the Engineer. No plant material from cold storage will be accepted.

## **ITEM 772. through 795.** (Continued)

### Planting Fertilizer

Fertilizer shall be provided for each plant through the use of slow-release fertilizer packets which are designed and certified by the manufacturer to provide controlled release of fertilizer over a minimum 3 year period. Each packet shall consist of at least 4 ounces of water soluble fertilizer with a minimum guaranteed analysis of available elements as follows:

16% Nitrogen, 8% Phosphoric Acid, and 16% Potash

Bone meal shall be fine ground, steam-cooked, packing house bone with a minimum analysis of 23 percent phosphoric acid and 1.0 percent of nitrogen.

### Planting Mix

Planting mix shall be approved loam which has been pH adjusted according to particular planting applications and improved through the addition of organic matter as directed below. Planting loam shall conform to the following pH levels:

1. For ericaceous plants and broad-leaved evergreens requiring an acid soil, planting loam shall have a true pH of 4.5 to 5.5. If it does not, it shall be amended by the Contractor to the proper pH range by mixing with sulfur as specified herein.
2. Planting loam for general planting of non-acid loving plants shall have a true pH value of 5.5 to 6.5. If it does not, it shall be amended by the Contractor to the proper pH range by mixing with dolomitic limestone as specified herein.
3. The amount of either sulfur or limestone required to adjust the planting loam to the proper pH range (above) shall be approved by the Engineer on the basis of soil tests as specified herein. It is not possible to safely add more than two hundred pounds (200 lbs.) of limestone/one thousand (1,000) square feet of loam, incorporated into the soil, or fifty pounds (50 lbs.) of limestone/one thousand (1,000) square feet of loam, surface application, within a single season. Therefore loam shall have a starting pH of no lower than 4.2 for ericaceous plants and broad-leaved evergreens, and a starting pH of no lower than 5.0 for general planting of non-acid loving plants.

Planting mix shall consist of pH adjusted loam which has been thoroughly premixed with organic material in the proportions of one (1) part organic matter, (leaf compost or peat), with five (5) parts of approved loam.

### Aged Pine Bark Mulch

Aged Pine Bark Mulch shall be pine bark mulch aged a minimum of six (6) months and not longer than two (2) years. The mulch shall be dark brown in color, free of pieces of wood thicker than one-quarter inch. Mulch must be free of stringy material over 4 inches in length, free of pieces over 3 inches in width and shall not contain, in the judgment of the Engineer, an excess of fine particles.

### Anti-desiccants

## **ITEM 772. through 795.** (Continued)

Anti-desiccants shall be emulsions or other materials which will provide a protective film over plant surfaces permeable enough to permit transpiration and specifically manufactured for that purpose. Manufacturer of anti-desiccant shall be subject to the Engineer's approval. Anti-desiccant shall be delivered in containers of the manufacturer and shall be mixed according to the manufacturer's instructions.

### Water

Per Item 771.751 WATERING – PLANTS AND TURF. The Contractor shall be responsible to furnish his own supply of water to the site at no extra cost to the Item 771.751 WATERING – PLANTS AND TURF. All work injured or damaged due to the lack of water, or the use of too much water, shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.

### Tree Staking

Tree staking: Tree stakes shall be a below-grade stabilizing system designed to secure root balls into subsoil, structural planting medium and planting soil back fill without use of above ground components.

1. Stakes shall be fabricated from steel pipe per ASTM A53 and flat bar stock per ASTM A36. Steel shall be lightly oiled to prevent scale and rust from forming prior to installation.
2. Stakes shall be as shown on the Contract Documents.
3. Stakes shall be sized to accommodate tree sizes noted herein. At a minimum below-grade stakes shall have long prong 42 inches in length, short prong 12 inches in length and connecting bar stock 12 inches in length.
4. Provide a minimum of three stakes per tree.

## **CONSTRUCTION METHODS**

### Planting

Furnishing and planting of plant material shall include, but shall not be limited to, the digging of the pits and plant beds, amendment of loam as required to produce planting soil mix, provision of soil additives required to adjust for pH requirements of specific plants, furnishing the plants as specified as well as the labor of removal of burlap, wrappings, metal cages, planting, fertilizing, mulching, guying, and plant maintenance.

The Contractor shall locate plant material sources and ensure that plants are shipped in timely fashion for installation.

Contractor shall locate all underground utilities within 10 feet of the proposed planting pits and notify the Engineer of any conflicts prior to digging plant pits.

Location for all trees and shrubs and outlines for groundcover and bulb planting areas shall be staked on the ground by the Contractor for approval by the Engineer before any plant pits or plant beds are

**ITEM 772. through 795.** (Continued)

dug. Notify the Engineer no less than 3 days prior to desired date of inspection of staking to schedule site visit.

Seasons for Planting:

Spring:           Deciduous materials - March 21 through May 1  
                  Evergreen materials - April 15 through June 1

Fall:             Deciduous materials - Oct. 1 through Dec. 1  
                  Evergreen materials - Aug. 15 through October 15

Certain trees, as shown on the Plant List on the Drawings, shall only be planted in the spring due to digging season constraints. Contractor shall arrange project schedule as necessary to allow for spring planting of these trees. Substitutions of other plants for the trees specified in order to perform fall planting will not be accepted.

Planting

At least one month prior to the expected planting date, the Contractor shall request that the Engineer provide a representative to select and tag stock to be planted under this Section. The Contractor shall pay for the transportation, subsistence, and overnight accommodations, if necessary, for the Engineer's representative during the period of time required to select and tag the plant material. Time spent to locate plant material shall be paid for by Contractor only if Engineer is sent to site where materials were not satisfactory to Engineer or cannot be located.

A representative of the Contractor shall accompany the Engineer on all plant material selection field trips, unless otherwise ordered by the Engineer.

All trees, a representative sample of each shrub species, and all plants designated as "specimen quality" on the Plant List shall be selected by the Engineer at the place of growth prior to digging for conformity to specification requirements as to quality, size, and variety. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work. Cost of replacement of materials rejected by the engineer at the site shall be borne by the Contractor.

All plants for the project shall be individually tagged prior to digging with the Engineer's seals. No plants shall be accepted for delivery to the site without such seals.

Tree trunks shall be protected during shipping by a heavy walled cardboard sleeve or other suitable material, then unwrapped for inspection by Engineer after installation. Trees shall then be rewrapped as specified herein unless instructed otherwise by Engineer.

All trees and shrubs shall be planted within 5 working days of arrival on site or shall be rejected by the Engineer. Container grown shrubs stored on site shall be shaded from direct sunlight at all times and shall not be stored on paved surfaces.

**ITEM 772. through 795.** (Continued)

Keeping Trees Plumb: Contractor shall keep trees plumb and upright at all times. Monitor plants on a regular basis and, if a tree is moved out of plumb, then straighten the tree to a vertical, upright condition.

All trees shall be firmly staked with approved below-grade stabilizing system at the time of planting. Stakes shall be installed as follows:

1. After trees have been backfilled but prior to forming saucer install below-grade staking system.
2. Place stakes so that the long prongs are set at 120 degree points around root ball. Long prongs shall be set against edge of rootballs but shall not pierce burlap of ball's vertical face.
3. Short prongs shall be placed in a counter clockwise rotation around top of rootball. Horizontal bar stock and short prongs shall be placed no closer than 4 inches from the trunk of the tree. In no circumstances shall horizontal bar stock press against visible root flares.
4. Drive long prongs into the subsoil, planting soil, structural planting medium to full depth so that horizontal bar is pressed firmly into burlap and top surface of rootball. Short prongs shall driven into rootball so that top of short prongs will not protrude above bark mulch.
5. Do not penetrate aeration piping with filter fabric sleeves when driving below-grade stakes.
6. Rake out planting soil around and above rootball to ensure a smooth surface with intact saucer.

Plant pits shall be excavated as shown on Drawings. Holes for trees and planting mix backfill shall be at least 4 feet greater in diameter than the ball and one foot deeper than the ball. Tree planting excavations shall extend a total of 6 feet from the center of each tree. The area greater than 2 feet from the tree's rootball shall be 18 inches deep. Shrub planting beds shall be excavated 2 feet below proposed finish grade and shall extend a minimum of 1 foot beyond the rootball of shrubs placed at the edge of the planting bed.

Loosen the perimeter roots on the rootball of all container-grown shrubs, groundcovers and perennials prior to planting, as directed by the Engineer.

Remove groundcovers and perennials from their pots immediately before planting. Handle plants carefully to prevent damaging roots. Place each plant in individual hole and firm the loam around the roots. Water thoroughly and mulch as shown on the Drawings. Groundcover plants may be planted after the bark mulch is placed.

All plant roots and earth balls must be damp and thoroughly protected from sun and wind from the beginning of the digging operation, during transportation and at the site until the final planting. Remove container plants from containers prior to planting. Trees and shrubs shall be placed in the center of plant pits, plumb with the crown of their roots exposed and located above the

**ITEM 772. through 795.** (Continued)

surrounding finish grade. After proper placement of trees and shrubs in their respective plant pits, remove rope, burlap and wire baskets from the top 2/3 of the root balls. Loam shall be backfilled in layers of not more than 6 inches and each layer watered sufficiently to settle before the next layer is put in place. Enough loam shall be used to bring the surface to finished grade when settled. A saucer shall be formed around each plant at a depth of 6 inches for trees and 4 inches for shrubs.

At the time of planting, install fertilizer packets at a depth of 6 to 8 inches equally spaced around the plant as it is being backfilled. Packets shall be placed approximately 3 inches away from the plant roots or plant ball. Packets shall not be cut, ripped or damaged. If it becomes necessary to remove and replace dead or unhealthy plants, any damaged or broken packets shall be replaced with new packets. The application rates for fertilizer packets shall be as follows:

<u>Type of Plant</u>	<u>Rate</u>
Deciduous Shade Trees	One packet for each inch of caliper
Evergreen and Small Flowering Trees	One packet for each 18 inches of height
Shrubs	One packet for each 12 inches of height or spread

All plants shall be watered immediately following planting as necessary to thoroughly moisten rootball and plant pit loam and thereafter shall be inspected frequently for watering needs and watered, as required, to provide adequate moisture in the planting pit. The Contractor shall inspect tree pits 24 hours after initial watering to confirm that they are draining properly. If surface water or excessively saturated plant pit soils exist, the Contractor shall immediately notify the Engineer. The Engineer shall recommend remedial measures based upon site conditions which shall be paid for as an extra to the contract.

Aged Pine Bark Mulch shall be placed in tree and shrub planting beds to a depth shown on the drawings, after settlement, no later than one week after planting. No pine bark mulch shall be placed in contact with tree trunks or shrub stems. No mulch shall be applied prior to the first watering of the plant materials.

Pruning

1. Trees and shrubs shall be pruned following planting in accordance with the American Nurserymen's Association Standards for Class I, fine pruning, to preserve the natural character of the plant, as directed by the Engineer.
2. Tree pruning as required, shall be undertaken to the full height of affected trees.



**ITEM 772. through 795.** (Continued)

3. All dead wood or suckers and all broken or badly bruised branches shall be removed. Never cut a leader.

Anti-desiccant shall be applied to all evergreen and other plants in the late fall as directed by the Engineer.

All trees shall be firmly guyed or anchored at the time of planting, unless otherwise approved or directed by the Engineer. Cables used for guying shall be secured to the tree by passing through an approved hose or nylon webbing to prevent chafing and injury to the trees. All cable ends at stakes, webbing, deadmen, turnbuckles, hose or anchor connections shall be formed with a looped connection secured with compressed malleable fittings as specified.

Absolutely no debris may be left on the site. Excavated material shall be removed as directed. Repair any damage to site or structures to restore them to their original condition as directed by the Engineer, at no cost to the Department.

**PLANT MAINTENANCE**

Contractor shall maintain all new plantings as indicated below. Maintenance shall begin immediately after each plant is planted and shall continue for a minimum of 90 days following the completion of all planting installations, or until the final acceptance of all planting work, whichever is a longer period of time. Planting installed in seasonal phases will not qualify for Certificate of Acceptance from the Engineer until all planting work is complete for the entire project.

Maintenance of new plantings shall consist of keeping the plants in a healthy growing condition and shall include but is not limited to watering, fertilizing, weeding, cultivating, pruning, re-mulching, removal of dead material, resetting plants to proper grades or upright position, and maintaining the planting saucer.

1. Plants shall be inspected for watering needs at least twice each week and watered as necessary to promote plant growth and vitality.
2. Planting beds shall be kept free of weeds, and mulch shall be maintained at the required depth. Beds and individual pits shall be neat in appearance with clearly defined edges and maintained to the designed layout.
3. Plants that die during the maintenance period shall be removed by the Contractor within one week of notification and replaced during that growing season.

Work of pruning, fertilizing, spraying, and similar activities shall be undertaken only by certified arborists and chemical applicators, as pertinent to the work being performed.

During the maintenance period, any decline in the condition of existing trees and new plantings shall require the Contractor to take immediate action to identify potential problems and undertake corrective measures. If required, the Contractor shall engage professional arborists and/or

**ITEM 772. through 795.** (Continued)

horticulturalists to inspect plant materials and to identify problems and recommend corrective procedures. The Engineer shall be immediately advised of such actions. Inspection and recommendation reports shall be submitted to the Engineer.

Clean Up

Absolutely no debris may be left on the site. Repair any damage to site or structures to restore them to their original condition, as directed, at no cost to the Department.

ACCEPTABLE STANDARDS

General:

1. Planting installed in seasonal phases will not qualify for Certificate of Acceptance/Start of Warranty Period from the Engineer until all planting work is complete for the entire project.
2. The Engineer will inspect the work upon the request of the Contractor upon completion of entire project. Requests for inspection shall be received by the Engineer at least ten days before the anticipated date of inspection.
3. The inspection dates shall follow the minimum maintenance periods called out for respective work items.
4. Upon acceptance of the work, the Engineer shall issue a written Certificate of Acceptance notice to the Contractor which will establish the start date of the plant warrantee period.

Planting:

1. At the time of inspection, if the plant materials and workmanship are acceptable by the Engineer, the date of the inspection shall establish the end of the maintenance period and the commencement of the required guarantee/warrantee period for planting work.
2. At the time of inspection or if, in the Engineer's opinion plant materials and/or workmanship is deficient, acceptance will not be granted until the Contractor's responsibility for deficiencies are corrected. All dead and unsatisfactory plants shall be removed promptly from the project. Replacement plants shall conform in all respects to the Specifications for the original plants and shall be planted in the same manner. Engineer's verification that all deficiencies/replacements have been completed will permit writing of Certificate of Acceptance notice to the Contractor and commence plant warrantee period.

PLANT MATERIAL WARRANTEE REPLACEMENTS

All trees, shrubs, woody seedlings, herbaceous plant plugs, vines, and groundcovers shall be inspected by the Engineer two years after Certificate of Acceptance date and shall be alive and in satisfactory growth at the end of that time.

Each plant shall show at least 75 percent healthy growth and shall have the natural character of a plant of its species as determined by the Engineer. Plants found to be unacceptable shall be removed promptly from the site and replaced immediately or during the next normal planting season, as permitted by the specifications, until the replaced plants live for two full years. A final replacement inspection will be made after the replacement plantings have lived through two full years.

**ITEM 772. through 795.** (Continued)

All replacements shall be plants of the species, variety and size specified in the PLANT SCHEDULE. The cost shall be borne by the Contractor, except for possible replacements due to vandalism or neglect on the part of others.

**MEASUREMENT AND PAYMENT**

The quantity of trees, shrubs, woody seedlings, herbaceous plant plugs and ground covers shall be measured by each, as specified on the PLANT SCHEDULES on the Contract Documents, complete in place.

Planting of trees, shrubs, woody seedlings, herbaceous plant plugs and ground covers will be paid for at the contract unit price per each, which price shall include all labor, plant materials, equipment and incidental cost required to complete the work.

For plants that do not show at least 75 percent healthy growth and that do not have the natural character of a plant of its species at the time of acceptance, no payment for planting shall be allowed at the time of acceptance. At the time the final estimate is ready to be forwarded to the Contractor the plantings will again be inspected by the Engineer and if replacement plants have been satisfactorily established, the plantings will be included for payment.

No separate payment will be made for fine grading and compacting, soil amendments, fertilizer, staking, or aged pine bark mulch or pruning, but all costs in connection therewith shall be included in the Contract unit price bid.

Clearing and grubbing will be paid for under Item 101.

Planting soil will be paid for under item 752.51, 752.52, or 752.53.

Seeding will be paid for under items 765.4, 765.5 and 765.6.

Watering – Planting and Turf will be paid for under item 771.751.

<u>ITEM 832.</u>	<u>WARNING-REGULATORY AND ROUTE MARKER – ALUMINUM PANEL (TYPE A)</u>	<u>SQUARE FOOT</u>
<u>ITEM 847.1</u>	<u>SIGN SUP (N/GUIDE+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL</u>	<u>EACH</u>

The work under this item shall conform to the relevant provisions of Sections 828 and 840 of the Standard Specifications and the following:

The work shall consist of fabricating, furnishing and erecting warning, regulatory and route signs on steel breakaway posts.

High intensity reflective sheeting shall be used for all signs. The Contractor shall refer to the FHWA “Standard Highway Signs, 2004 Edition” for text dimensions, as amended; the 1977 Masshighway Department Construction and Traffic Standard Details, as amended, for signs and supports; and the Masshighway Department sign listings 1993 edition, as amended.

Measurement and Payment

Warning-Regulatory and Route Marker – Alum. Panel (Type A) shall be measured by the square foot, complete in place.

Warning-Regulatory and Route Marker – Alum. Panel (Type A) will be paid for at the contract unit price per square foot, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

Breakaway steel post assemblies shall be measured and paid for per each, which price shall include all labor, materials, equipment, moving, removing and incidental costs required to complete the work.

No separate payment will be made for excavation, concrete, anchor bolts, etc but all costs in connection therewith shall be included in the unit price bid.

<u>ITEM 852.</u>	<u>SAFETY SIGNING FOR</u>	<u>SQUARE FOOT</u>
	<u>TRAFFIC MANAGEMENT</u>	
<u>ITEM 853.1</u>	<u>PORTABLE BREAKAWAY BARRICADE TYPE III</u>	<u>EACH</u>
<u>ITEM 853.2</u>	<u>TEMPORARY BARRIER (TL-2)</u>	<u>FOOT</u>
<u>ITEM 859.</u>	<u>REFLECTORIZED DRUM</u>	<u>DAY</u>

The work under these items shall conform to the relevant provisions of Section 850 of the Standard Specifications and the following:

Materials

Materials required under these items need not be new but must be in first class condition and acceptable to the Engineer. Any materials that in judgment of the Engineer are unsatisfactory in appearance and/or performance shall be removed and immediately replaced by acceptable units.

All materials provided by the Contractor under these items shall remain the property of the Contractor upon completion of the project.

Measurement and Payment

Safety signing for Construction operations shall be measured and paid for by the square foot, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

Portable Breakaway Barricade Type III shall be measured and paid for per each, which price shall include all labor, materials, equipment, moving, removing and incidental costs required to complete the work.

Temporary Barrier (TL-2) shall be measured and paid for per each, which price shall include all labor, materials, equipment, moving, removing and incidental costs required to complete the work.

Reflectorized drum will be measured by the unit day, or any portion of a day that the devices were actually used on the project.

Reflectorized drum shall be paid for at the contract unit price per unit day. The payment of this unit price shall be full compensation for all labor, equipment, replacement of non-functioning flashers, vehicles, reflectorized drums with flashers (Type A) and all incidental work required to properly execute the work to the complete satisfaction of the Engineer.

<u>ITEM 904.</u>	<u>4000 PSI, 3/4 INCH, 610 CEMENT CONCRETE</u>	<u>CUBIC YARD</u>
<u>ITEM 904.3</u>	<u>5000 PSI, 3/4 INCH, 685 CEMENT CONCRETE</u>	<u>CUBIC YARD</u>
<u>ITEM 910.1</u>	<u>STEEL REINFORCEMENT FOR</u> <u>STRUCTURES – EPOXY COATED</u>	<u>POUND</u>

The work under these items shall conform to the relevant provisions of Section 901 of the Standard Specifications and the following:

The work shall consist of the installation of 4000 PSI, ¾ inch, 610 cement concrete for the single span and 7-span viaduct base slabs.

The work shall consist of the installation of 5000 PSI, ¾ inch, 685 cement concrete for the single span and 7-span viaduct parapets.

Measurement and Payment

Cement concrete shall be measured and paid for by the cubic yard, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

Steel reinforcement for structures – epoxy coated shall be measured and paid for by the pound, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

**ITEM 904.4      4000 PSI, 3/4 INCH, 585 HP CEMENT CONCRETE      CUBIC YARD**

The work to be done under this Item shall conform to the relevant provisions of Section 901 of the Standard Specifications with current Supplemental Specifications, and the following:

**DESCRIPTION**

4000 PSI, ¾ IN., 585 HP Cement Concrete shall be used for repairs to vertical concrete surfaces on the outer faces of the viaduct, and at those areas on the underside of the arches and inside wall faces designated by the Engineer, and/or as designated on the Plans. This concrete shall conform to all material requirements contained in Subsection M4.06.1 of the Supplemental Specifications, except for the cementitious content, which shall be limited to a maximum of 585 pounds per cubic yard.

The Contractor shall remove existing concrete to the limits indicated on the Plans, or as required by the Engineer under Item 127.1. After the existing concrete has been removed and the surface has been prepared, Epoxy Bonding Compound shall be applied to existing surfaces to be repaired before placing 4000 psi, ¾ in., 585 HP Cement Concrete. Cost for furnishing and applying of Epoxy Bonding Compound shall be compensated under Item 964.1.

**SUBMITTALS**

- A. The Contractor shall submit a repair plan and procedure to the Engineer for approval prior to beginning work. The submission shall show the locations and quantities of repairs, describe the materials, equipment, and method and sequence of work to be completed, including proposed formwork and methods of temporarily attaching formwork to existing structure.
- B. Product Data: For each type of product indicated.
- C. Design Mixtures: For each concrete mixture.
- D. Material Certificates
- E. Material Test Reports
- F. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

The Contractor shall submit proposed formwork and attachment methods to the Engineer for acceptance before ordering or installing any related materials. Submittal shall include structural calculations showing compliance of all temporary works and connections with applicable codes. Structural calculations shall be prepared and sealed by a Professional Engineer licensed in Massachusetts.

**CONSTRUCTION METHODS**

The Contractor shall have the approval of the Engineer certifying that existing concrete has been removed to the required limits and requirements shown on the Plans, and as required by the Engineer, and that adequate surface preparation has been achieved before any concrete is placed.

#### **ITEM 904.4** (Continued)

The concrete shall be pumped or hand shoveled into the repair areas. Vibrators shall be of an approved design and shall be internal mechanical vibrators of a size suitable to the work at hand. If requested, the use of external vibrators attached to the forms will be permitted subject to the results obtained and approval by the Engineer. The amount of vibrating to be done will be subject to the direction of the Engineer, who will be guided by the quality of the results obtained, as evidenced after removal of the forms.

Formwork may be attached to the existing structure with steel anchor rods in a manner that will firmly secure the formwork and not damage the existing structure.

#### **Field Quality Control**

The contractor shall secure the services of a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures. The testing agency shall provide testing of concrete to document conformance with DCR requirements.

Concrete Tests: Testing of composite samples of fresh concrete obtained according to AASHTO T 141 shall be performed according to the following requirements:

- A. Testing Frequency: Obtain at least one composite sample for each 50 cu. yd. or fraction thereof of each concrete mixture placed each day.
  - 1. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
- B. Compression Test Specimens: AASHTO T 23.
  - 1. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
- C. Compressive-Strength Tests: AASHTO T 22; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
- D. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

#### **MEASUREMENT AND PAYMENT**

The work described under this Item shall be measured per cubic yard in-place and complete.

The work described under this Item shall be paid for at the contract unit price per cubic yard in-place and complete. Such payment shall be considered full compensation for all labor, tools, equipment, materials and incidentals required to complete the work as described herein and in a



**ITEM 904.4** (Continued)

satisfactory manner to the Engineer. Preparation of concrete surfaces, cleaning of existing reinforcing steel, new reinforcing steel where needed, and costs associated with concrete testing, are incidental to this item.

**ITEM 960.01****BOSTON PATTERN RAIL****FOOT**

The work under this Item shall consist of fabricating and installing new Boston Pattern Rail, and all preparation work required for the installations. The work shall also include protection and restoration of any damaged adjacent surfaces, materials or plantings, providing approved protective measure for the safety of workers and pedestrians and related items as indicated by the Engineer and/or as specified herein.

The work under this Item shall conform to the Standard Specifications, Section 960, and the Contractor shall also comply with applicable requirements of the following codes and industry standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. The following references are used herein and shall mean:

- A. ASTM - American Society for Testing and Materials:
  - A27 Steel Castings, carbon, for General Application
  - A36 Structural Steel
  - A47 Ferritic Malleable Iron castings
  - A48 Grey Iron Castings
  - A53 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
  - A123 Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strips
  - A153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware
  - A167 Stainless and Heat-Resisting Chromium Nickel Steel Plate, Sheet, and Strip
  - A307 Carbon Steel Externally Threaded Standard Fasteners
  - A312 Seamless and Welded Austenitic Stainless Steel Pipe
  - A325 High Strength Bolts for Structural Steel Joints
  - A386 Zinc Coating (Hot-Dip) on Assembled Steel Products
  - A666 Austenitic Stainless Steel, Sheet, Strip, Plate, and Flat Bar
- B. AWS - American Welding Society:
  - D1.1 Structural Welding Code – Steel
- C. AASHTO- American Association of State Highway and Transportation Officials
- D. ANSI/NFPA - American National Standards Institute. National Fire Protection Act
- E. SSPC - Steel Structures Painting Council.

Examine all other Items of the Special Provisions and Plans for the relationship of the Work under this Item and the Work of other trades. Cooperate with all trades and coordinate all Work under this Item herewith.

### **ITEM 960.01** (Continued)

Environmental and Hazardous Material Control: All metal components and coatings shall be fabricated and applied under environmental and job conditions according to all relevant environmental code requirements and by requirements of these Specifications. Contractor shall obtain all necessary and relevant permits before conducting any work. Provide approved schedule for protection of personnel, passers-by, land/water environment from contamination by all caustic and/or hazardous materials used in the operations and methods of construction indicated in this Section.

Exposed surfaces shall have smooth finishes and sharp, well defined lines and arises. Sections shall be well formed to shape and size with sharp lines and angles; curved work shall be sprung evenly to dimensioned radii curves. Castings shall have sharp corners and edges, and shall be clean, smooth, and true to pattern. Welding shall be in accordance with the AWS D1.1 Structural Welding Code - Steel. All welding, except as otherwise indicated, shall extend the entire length of joints. All welded face joints shall be ground flush and smooth. All welds shall be watertight. Ornamental metalwork shall be cut, drilled, countersunk, and tapped as required for the attachment of other work as shown on the Plans or when instructions for such work are given on the shop drawings. Ornamental metalwork to be built in with concrete or masonry shall be of the form required for anchorage, or shall be provided with suitable anchors or expansion shields.

Individual steel pieces shall be saw cut and carefully fit together. All connections shall be fully welded and ground flush and smooth. All fabricated steel items shall be fine sanded throughout to produce a high standard of surface smoothness. All surfaces and connections shall be without visible grinding marks, surface differentiation or variation.

Galvanizing Quality: Conform to the galvanizing criteria under "Materials" herein. Galvanized surfaces damaged by welding or other causes shall be wire brushed to remove all loose or cracked zinc coating and re-galvanized with a 95 percent zinc cold galvanizing coating prior to finishing.

Provide labels to each replacement-in-kind piece to facilitate field assembly. Assemble the new components to the greatest extent possible in the shop with minimum field assembly required.

### **SUBMITTALS**

Permits: Copies of all required and relevant permits shall be submitted to the Engineer prior to conducting any of the work in this Item.

Material samples: Submit samples for the following items before ordering or installation:

- A. All rail components (one unit)
- B. Paint sample (primer and two coats finish paint indicating final color and surface finish on one foot typical pipe for fence)

**ITEM 960.01** (Continued)

Manufacturers' product literature: Submit manufacturers' product data and information on all components, including, but not limited to:

- A. Iron casting
- B. Steel Pipe
- C. Galvanizing process and certificate
- D. Paint manufacturer's literature for primer and finish paint.

**Shop Drawings**

- A. Contractor shall submit shop drawings of every new Item. Include dimensioned drawings and schedules of all components with dimensions verified in the field where appropriate. Drawings shall show size and thickness of each member, type of material, method of connection and assembly, fabrication and erection tolerances for all connections, cuts, holes, bolts, welds, galvanizing and painting, and relation to finished grade along bottom of component.
- B. Verify all dimensions in the field, if required for fabrication to meet those conditions, before issuing shop drawings for review by Engineer.

**Galvanizing certification:**

- A. Furnish to the Engineer notarized certificates of compliance with ASTM and AASHTO requirements for each item specified in this section.
- B. Each certificate shall be signed by the galvanizer and fabricator and list a detailed description of all material and methods used, including shop conditions followed.
- C. Certification shall state that the galvanizing is at or above conformance with this Section.

**Warranty:**

Provide warranty that all materials furnished and work executed under this Section complies with Specifications and authorized changes.

**Structural certification:**

Provide written certification that structural requirements meet or exceed specified requirements included in "Performance Requirements" herein.

Schedule for Environmental and Hazardous Material Control: Provide to Engineer for approval a written schedule indicating:

- A. Any and all proposed operations and methods of construction that results in caustic or hazardous materials and/or byproducts that come in contact with personnel, passers-by, or the land/water environment.

**ITEM 960.01** (Continued)

B. All action and/or equipment that Contractor proposes to utilize as remedial.

Qualifications of Painter:

Contractor shall submit verification to the Engineer stating, at a minimum, the following:

- A. Painter is capable of producing the quantity of completed product required by the contract within the time allocated in the project schedule.
- B. Metal Fabricator shall have demonstrated experience in successfully producing metal fabrications similar to the fencing specified in comparable projects.
- C. Welders shall be certified and shall have passed the AWS Qualification Test within the past 12 months.

Mock-Ups:

Provide the following types of mock-ups. Mock-ups shall show the proposed complete new fabrication, including but not limited to all ground welds, fastenings, coatings and finishes.

- A. Boston Pattern Rail – One section

Redo sample installation as many times as necessary for approval before fabrication of remainder of railing. Construct all subsequent rail fabrications to conform to approved sample mock-up.

Approved sample mockup shall become part of the completed Work for the entire item.

Performance Requirements:

All steel and cast iron components and completed panels shall conform to the "Example Panel" where indicated on the Plans. All panels shall meet the Structural Performance for New Assemblies: provide completed assemblies which, when installed, comply with the following minimum requirements for structural performance without exceeding the allowable design working stress of the materials involved, including anchors and connections. Apply each load to produce the maximum stress in each respective component of each metal fabrication and record testing data.

- A. Rails: Rails shall be capable of withstanding at minimum the following loads applied as indicated: Concentrated load of 200 pounds applied at any point, non-concurrently, vertically downward or horizontally, and uniform load of 50 pounds per linear foot applied non-concurrently, vertically downward, or horizontally.
- B. Panel: Panels shall be capable of withstanding uniform side loads of 50 pounds per linear foot without compromising post anchorage. Panels shall also be capable of withstanding concentrated side loads of 200 pounds applied at any point, non-concurrently.

**ITEM 960.01** (Continued)

- C. Post Connection: Ensure that side rail/flange assembly provides maximum support (overlap) at post sleeves and still allow for line and grade adjustments, as well as expansion, at joint during field assembly.

**METAL MATERIALS**

All metal used in the fabrication indicated in this Section shall conform to the following specifications:

- A. Steel Pipe: conform to ASTM A 53, Schedule 80. As shown on the Plans, or as finalized in shop drawing structural calculations.
- B. Steel Bar Stock: solid steel flat bar stock shall conform to ASTM A36. As shown on the Plans, or as finalized in shop drawing structural calculations.
- C. Stainless Steel anchor bolts, elements and hardware shall conform to ASTM A666. AISI Type 304 conforming to the requirements of ASTM A193.
- D. Miscellaneous Bolts, Screws, and Fasteners: ASTM A307 (smaller than 5/8 inch) and ASTM A325 (greater than 5/8 inch).
  - 1. Bolts and Nuts: Regular hex Head extending 1/2 inch min. beyond nut when tight.
  - 2. Machine Screws: Flat Head, square drive.
  - 3. Plain Washers: Round.
  - 4. Lock Washers: Helical Spring type.
- E. Cast Iron: ASTM A 47, or ASTM A 48, Class 30 minimum. Components shall match existing, according to the Plans and as approved by the Engineer. Iron castings shall be primed and painted as specified herein, but shall not be galvanized.
- F. Galvanizing: New steel components shall be hot-dipped galvanized steel and shall conform to dimensions and shapes as indicated on the Plans, or per approved shop drawings. Components shall be primed and painted as specified herein. Cast iron components are not to be galvanized. All new steel to be galvanized shall be hot-dipped galvanized after fabrication, in accordance with the Standard Specifications and Supplemental Specifications, M7.10.0 and as indicated herein. Pickle steel surfaces before hot-dipped galvanizing in accordance with SSPC-SP8 - Pickling.
- G. General Surface Preparation:
  - 1. Treatment of Steel in the Field: SPC-SP1 solvent cleaning plus cleaning-SSPC-SP3 power tool cleaning.
  - 2. Treatment of Steel in the Shop: SSPC-SP1 solvent cleaning plus

## **ITEM 960.01** (Continued)

cleaning-SSPC-SP6 commercial blast cleaning.

3. Treatment of Galvanized Steel (or Aluminum) in the Shop: SSPC-SP1 solvent cleaning plus cleaning\* SSPC-PC-PT3 basic zinc chromate vinyl butyryl washcoat. Coating shall meet MassDOT Specifications M7.04.10.

\*alternate to wash primer - use in field: SP-1 to clean

Prime with TT-P-641G, Type II. Final Coats: IT-E-489F.

### Paint for Metal Components, including anchor bolts

All surface preparation, application and touch-ups shall conform to recommendations of the Manufacturer.

First coat (2.5 to 3.0 mils DFT): Tnemec 66 Hi-Build Epoxoline Primer, DuPont 823 HP; or Carboline 190 High Build Epoxy Primer, or approved equivalent.

Second and third coats: Aliphatic Polyester Polyurethane (4 mil thickness), for a total dry thickness of 8 mils. Coating materials of primer, intermediate, and finish paint coats shall conform to quality standards of Tnemec Co., Inc., or approved equivalent. Second and third (finish) coat color shall be black (Federal Standard Color # 27038) and have a gloss finish. All surface preparation, application and touch-ups shall conform to recommendations of the Manufacturer.

All hardware and anchor bolts shall be painted.

### CONSTRUCTION METHODS

Metal shall be fabricated and fastened as indicated on the Plans or per approved shop drawings. All rail shall be installed in a level, plumb condition, true to the lines and grades shown on the Plans.

Welding procedures shall conform to the current standards of the AWS D1.1 - AWS 01.4, as applicable. All welds shall be as designated on the Plans or shop drawings and shall be ground smooth and flush to a neat finish. All welds shall be watertight and care shall be taken to minimize distortion due to heat. Metal components shall not be galvanized or painted before welding. Cast Iron components shall not be welded, but affixed by an approved mechanical fastener.

Contractor shall be responsible for timing the delivery of all items so as to minimize on-site storage time prior to installation. All stored materials and items shall be protected from weather, careless handling and vandalism.

Contractor shall coordinate and furnish anchorage devices, setting drawings, diagrams, templates, instructions, and directions for installation of sleeves, bolts and other miscellaneous items to be embedded or attached to concrete work. Fabricator shall provide all coordination required with installers to ensure proper assembly and erection in the field.

### **ITEM 960.01** (Continued)

The Contractor shall undertake this work in consultation with the Engineer to ensure that the owners and operators of impacted facilities are informed of the intent and layout of the finished work.

The Contractor shall prepare and submit shop drawings of the proposed rail layout, based on the surveyed dimensions and coordination previously completed, to the Engineer for approval. Rail layout shall conform to the following guidelines:

1. Standardized panel dimensions shall be used to the maximum extent possible.
2. Panels shall be of non-standard, but equal, length on each side of a bearing change, or opening. Non-standard panel length shall be less than standard panel length. The typical picket and metal ring spacing shall be used to establish the length of nonstandard panels.
3. Specialty infill panels designed as cantilevered or fixed shall be incorporated into the shop drawings at all locations where railing other than Boston Pattern Rail is now present or where gaps are present.
4. There shall be no spaces within the rail or between the rail and any other new or existing structures or the concrete cap where a four-inch (4 inch) sphere passes. The minimum height of the rail shall not be less than 3'-6" at any location as measured from the highest point of the adjacent walking surface (or conform to current code requirements).

All metal components shall have surface preparation using specified solvents and mechanical means. Solvent manufacturer's recommended procedures shall be followed for surface preparation.

Shim all bolt connections as required and secure bolts. Exposed bolts shall be fastened with an accepted semi-permanent adhesive to protect against vandalism.

Contractor shall handle, pack, and ship items to avoid damage to the finish. Upon arrival at job site the Contractor shall take precautions while storing and moving to avoid damage to the finish. If damage occurs, suitable touch-up material shall be readily available to repair the damage immediately.

Individual steel pieces to be welded shall be saw cut and carefully fitted together. All connections shall be fully welded and ground flush and smooth. All fabricated steel items shall be fine sanded throughout prior to finishing to produce a high standard of surface smoothness. All surfaces and connections shall be without visible grinding marks, surface differentiation or variation.

Brace work rigid and secure to surrounding construction. Provide temporary bracing or anchors as required.

Field verify and adjust sections of the work prior to anchoring to ensure matching alignments and stability of members at abutting joints. Report to and submit field revision sketches to the Engineer for approval before installing any assemblies and field fittings that do not match expected conditions that will require field cutting, drilling, and/or alignments that do not match the Plans and design criteria specified.



**ITEM 960.01** (Continued)

Clean surrounding concrete surfaces and roughen if required to improve bonding. Clean bottom surface of leveling plates immediately prior to installation. Take tightening bolts to maintain pavement Integrity without cracking or breaking. All paving damaged during fence installation will be required to be repaired to acceptable condition at as required and approved by the Engineer.

Panels (Fixed): Install concrete caps or retaining walls as indicated on the Plans with anchorage plate and bolts in proposed locations, align post plates, set panels plumb and level, brace as required, secure anchor bolts using metal shims if required.

Touch-up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Touch-Up prime and paint following shop priming and painting requirements specified to required preparation, minimum dry film thicknesses of specified coatings, number of coats, environmental conditions, and drying time between coats.

All rails shall be cleaned after erection with a method approved by the Engineer.

**MEASUREMENT AND PAYMENT**

Boston Pattern Rail shall be measured by the foot.

Boston Pattern Rail will be paid at the contract unit price per linear foot complete in place and all costs in connection therewith shall be included. Payment shall include all labor and materials required to fabricate, finish, deliver, and install the respective items complete in place and accepted, including but not limited to fasteners, accessories, cleaning, one priming coat, and two finish coats of paint.

**ITEM 962.2**

**ANTI-GRAFFITI COATING**

**SQUARE FOOT**

The work to be done under this Item consists of applying anti-graffiti compound to all exposed concrete surfaces (existing, new, and repaired surfaces) of concrete viaducts after completion of concrete repairs and construction of new work.

**MATERIALS**

**Anti-Graffiti Compound**

The treatment may be applied using low-pressure spray, brush, or roller. The surface to be treated shall be prepared as recommended by the product manufacturer prior to the application of the treatment. All activities shall comply with relevant local codes and governmental regulations. Coatings shall comply with the latest Volatile Organic Compound (VOC) state requirements.

Manufacturer supplying the graffiti control treatment shall have been regularly engaged and specializing for the preceding ten (10) years in the formulation, manufacture and distribution of graffiti-control products for masonry substrates. A representative of the manufacturer of the graffiti-control treatment shall be present during preparation and application of all test areas.

Testing shall be conducted on an unobtrusive location on representative conditions. Test will include cleaning and surface preparation proposed for the project, followed by the application of the treatment. The Engineer shall approve all test areas and application procedures prior to beginning full-scale treatment. Adjacent surfaces not to be treated shall be tested for possible detrimental effect or aesthetic alteration created by exposure to the treatment and shall be protected as determined necessary.

Materials shall be delivered to the site in the manufacturer's original, unopened containers bearing the manufacturer's label. The Contractor shall store and handle the materials in accordance with the manufacturer's recommendations.

**MEASUREMENT AND PAYMENT**

Anti-Graffiti Coating shall be measured by the square feet of concrete surface coated.

Payment for work done under this Item will be made at the Contract unit price per square foot of anti-graffiti coating applied and shall include all materials, equipment, tools and labor necessary to accomplish the specified work.

**ITEM 964.1****EPOXY BONDING COMPOUND****SQUARE FOOT**

The work to be done under this Item consists of applying epoxy bonding compound to cleaned surfaces of existing concrete and reinforcement at all surfaces that are to be bonded to fresh concrete.

**MATERIALS**

The epoxy bonding compound shall contain corrosion inhibitors and shall be applied in accordance with the provisions of Section 901.68 C, in accordance with the Manufacturer's recommendations, and shall meet the requirements of Section M.4.05.5, Type II, Grade 2, Class B and C. Epoxy bonding compound used for specialized concrete or cementitious mortar to conventional concrete shall be in accordance with the specialized concrete or cementitious mortar manufacturer's recommendations.

The Contractor shall submit the products to be used for bonding, along with product testing results as required, to the Engineer for his review and approval. The Contractor shall have the Engineer's written approval before the Contractor begins his operations. Only those products previously approved for the purpose intended herein and listed on the Qualified Construction Materials List maintained by the MassDOT Research and Materials Section may be used.

Products to be used for this Item shall be approved by the Engineer before the Contractor begins his operations.

If the bonding compound prematurely hardens, additional bonding compound shall be applied if allowed by the bonding compound Manufacturer or the hardened bonding compound shall be addressed as per the bonding compound Manufacturer's recommendations.

**MEASUREMENT AND PAYMENT**

Epoxy Bonding Compound shall be measured by the square feet of concrete surface coated.

Payment for work done under this Item will be made at the Contract unit price per square foot of epoxy bonding compound applied and shall include all materials, equipment, tools and labor necessary to accomplish the specified work.

**ITEM 965.2**

**MEMBRANE WATERPROOFING FOR  
BRIDGE DECKS - SPRAY APPLIED**

**SQUARE FOOT**

**DESCRIPTION OF WORK**

The work under this Item shall conform to applicable sections of Section 965 of the Standard Specifications and the following:

The work to be performed shall consist of the furnishing and application of an approved cold liquid spray applied, seamless methyl methacrylate or polyurea membrane system and all concrete surface preparation work necessary to install the membrane system. The membrane system shall consist of the primer, the membrane, and aggregated keycoat layer.

**GENERAL**

Membrane waterproofing application shall be in accordance with the manufacturer's instructions. The Manufacturer's representative shall be present during the entire application and shall oversee surface preparation, installation and quality control testing. The handling, mixing, and addition of membrane components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations. All open flames and spark producing equipment shall be removed from the work area prior to commencement of application in accordance with the Manufacturer's recommendations. No smoking signs shall be posted at the entrances to the work. The Applicator shall be responsible for the protection of equipment and adjacent areas from overspray or other contamination.

Product approval shall require the demonstration, by the Manufacturer, that the membrane system meets the material specifications and that the entire membrane system is designed and tested as waterproofing for use on bridge deck applications. The Contractor and the Applicator shall agree upon a schedule for coordination between trades working in the areas that are to receive the membrane waterproofing system.

**SUBMITTALS**

The Contractor shall submit to the Engineer for approval the following documents:

1. Initial submission:
  - a. The membrane system material specifications including product performance data.
  - b. Certified independent test reports demonstrating conformance to Table 965.2-1.
    - i. The independent lab shall be recognized by the National Cooperation for Laboratory Accreditation (NACLA) in Construction Materials Engineering and Testing (CMET) or an equal program approved by the Engineer.
      - All testing shall be performed by one independent lab unless approved by the Engineer.
    - ii. Independent testing reports must be dated within two (2) years from the anticipated start of membrane installation.

## **ITEM 965.2** (Continued)

- Samples for all required testing shall be fabricated at the same time. Test reports shall denote the lot of material as well as the sample fabrication and testing dates.
  - c. Safety data sheets (SDS) for all components.
  - d. DCR shall perform prequalification testing on the membrane.
    - i. Two (2) 10 inch by 10 inch square samples of the proposed membrane with smooth surfaces (no primer or aggregate in the keycoat) shall be provided to the Engineer. The samples shall be a minimum of 80 mils thick or the thickness used to pass the crack bridging requirement found in table 965.2-1.
2. At the pre-application meeting:
- a. Manufacturer's written approval of the Applicator's qualifications
  - b. List of personnel performing the installation and the Manufacturer's representative performing the inspection and testing.
  - c. Installation procedure including storage and protection instructions as well as handling and mixing instructions.
  - d. List of application equipment to be used.
3. Upon completion of installation:
- a. All QC installation test results for the tests specified in the materials section, including the name, address and contact person of the laboratory that performed the tests and the date of the tests.
  - b. A Certificate of Compliance certifying that the membrane waterproofing system materials and installation meet the requirements of the Manufacturer and the contract specifications.

## **MATERIALS**

Only products pre-approved by the MassDOT Research and Materials section will be accepted for use. The membrane waterproofing system shall consist of:

- primer
- one or two coat rapid curing cold liquid spray applied seamless methyl methacrylate, polyurea, or polyurethane methyl methacrylate membrane
- aggregated keycoat layer

The total minimum base thickness for the membrane shall be 80 mils measured over peaks. The membrane shall easily accommodate the need for day joints and patch repairs. The membrane shall be able to bridge live cracks up to 1/8 inch in width and meet the criteria specified in Table 965.2-1.

The membrane waterproofing system shall be asbestos-free. The primer shall promote adhesion of the membrane to the concrete surface. The chemical composition of the primer, membrane, and aggregate keycoat that make up the membrane waterproofing system shall conform to the

## **ITEM 965.2** (Continued)

Manufacturer's specifications for the material. All components shall be approved by the Manufacturer as being compatible for use with the specified membrane. Cleaning solvents shall also be approved by the Manufacturer for use with the membrane.

### **APPLICATOR QUALIFICATION**

The waterproofing system shall be applied by an Applicator who is approved by the membrane waterproofing system Manufacturer. The Applicator shall be certified by the membrane waterproofing Manufacturer and have at least 2 years of experience in membrane installation. The Engineer shall receive the Manufacturer's written approval of the Applicator's qualifications at least fourteen (14) days prior to the application of any system component. This approval shall apply only to the named individuals performing the application.

### **MATERIAL DELIVERY AND STORAGE**

All components of the membrane system shall be delivered to the site in the Manufacturer's original packaging, clearly identified with the products type and batch number. The Contractor shall provide the Applicator with a storage area for all components. The area shall be cool, dry, out of direct sunlight, and comply with relevant health and safety regulations. Copies of material safety data sheets for all components shall be kept on site at the Contractor's field office.

### **PRE-APPLICATION MEETING**

A minimum of fourteen (14) days before the anticipated start of membrane application, the Contractor shall schedule and conduct a pre-application meeting at the site to review the approved submittals, and other pertinent matters related to the application including the schedule for coordination between trades. At a minimum, the Contractor, the Applicator, the Manufacturer's field representative and the Engineer shall be present at the meeting.

**ITEM 965.2** (Continued)

**Table 965.2-1: Spray Applied Waterproofing Membrane Material Properties**

<b>PROPERTY</b>	<b>TEST</b>	<b>REQUIREMENTS</b>
Solids Content		100%
Stability	ASTM C836	≥ 6 months
Crack Bridging (Neat Material + Aggregated Keycoat)	ASTM C1305*	Pass, no cracking
Extensibility after Heat Aging	ASTM C1522	For information only
Percent Elongation at Break	ASTM D638	≥ 130%
Tensile Strength	ASTM D638 Type IV @ 2 in/min	> 1,100 psi
Shore Hardness	ASTM D2240	≥ 40 D
Minimum Thickness (Membrane only)	ASTM D6132 or other approved method	≥ 80 mils minimum measured over peaks or ≥ thickness used to pass ASTM C1305 (Whichever thickness is greater)
Membrane Waterproofing System Adhesion to Concrete	ASTM D7234	≥ 100 psi minimum and failure in concrete
Water Vapor Transmission – Permeance	ASTM E96 Water Method Procedure B	≤ 1.0 perms [grains / (hr·ft <sup>2</sup> ·in. Hg)]
Notes: * ASTM C1305 shall be modified to 25 cycles at -15°F no failure at 1/8 inch per hour.		

**APPLICATION PROCEDURE**

The installation procedure shall consist of preparation of the concrete surface and application of primer, membrane, and aggregated keycoat layer. Special attention shall be paid to the bridge deck surface preparation prior to the membrane waterproofing system application.

## **ITEM 965.2** (Continued)

A representative from the membrane manufacturing company shall be present for the entire duration of the membrane system application and shall have the responsibility to ensure that the membrane system is installed in accordance with the Manufacturer's requirements. The Manufacturer's representative shall be also responsible for the field testing including but not limited to adhesion bond testing, deck moisture content measurement, and all other required documentation and reporting.

The membrane waterproofing system shall not be applied in either wet, damp or foggy weather, or when the ambient temperature is 40°F or below or is forecast to fall below 40°F during the application period. The temperature of the concrete deck surface shall also exceed the dew point by at least 5°F.

The membrane waterproofing on bridge decks shall not be placed until the Contractor is ready to follow within 24 hours with the first layer of hot mix asphalt pavement; a longer period of time will be allowed only with prior written approval from the Engineer.

Where the areas to be waterproofed are bound by a vertical surface including, but not limited to, a curb or a wall, the membrane waterproofing system shall be continued up the vertical as necessary. A neat finish with well-defined boundaries and straight edges shall be provided.

### **1. CONCRETE SURFACE PREPARATION**

Concrete surfaces which are to be waterproofed shall be screeded to the true cross section and sounded. All spalls and depressions shall be repaired prior to the application of the primer. Depressions shall be filled to a smooth flush surface with 1:2 mortar (1 part cement to two parts sand) or an approved rapid setting patching mortar that is compatible with the membrane waterproofing system. Other surfaces shall be trimmed free of rough spots, projections, or other defects which might cause puncture of the membrane so that the surface profile of the prepared concrete surface shall not exceed a ¼ inch amplitude, peak to valley.

The use of resin or wax-based deck curing membranes is not acceptable. Unless otherwise approved by the Engineer the concrete shall be cured for a minimum of seven (7) days and aged a minimum of 28 days including curing time, before application of the membrane waterproofing system. For precast, high early strength, or rapid setting concrete mixtures for closure pours the Engineer may consider a curing period less than 7 days. This consideration will be subject to the approval of the Manufacturer and the Engineer and may require a mockup simulating the anticipated construction schedule. If an expedited schedule is approved then results of moisture testing and adhesion testing performed on the actual bridge deck and closure pours by the Manufacturer's representative in accordance with these specifications must be performed and all results shall be submitted to the Engineer for approval prior to primer placement.

Immediately prior to the application of the primer, the concrete to which the membrane is to be applied shall be cleaned of all existing bond inhibiting materials in accordance with ASTM D4259 or as required by the Manufacturer. Dust or loose particles shall be removed using clean, dry, oil-



## **ITEM 965.2** (Continued)

free compressed air or industrial vacuums. The surface preparation shall produce a clean dry surface and insure that the concrete surface is free of bituminous product, surface laitance, oil staining, soiling, and dust.

Any exposed steel components to receive membrane waterproofing shall be blast cleaned in accordance with SSPC SP6 or as required by the Manufacturer and coated with the membrane waterproofing system within the same work shift.

### 2. APPLYING PRIMER

The primer shall only be applied when the temperature of the concrete deck surface exceeds the dew point by at least 5°F and when the concrete deck surface has a moisture content of 5% or less as confirmed by a portable electronic surface moisture meter supplied by the Contractor.

The primer shall be applied in a manner to ensure full coverage. The primer shall consist of one coat with an overall coverage rate of 125-175 ft<sup>2</sup>/gal unless otherwise recommended in the Manufacturer's written instructions. All components shall be measured and mixed in accordance with the Manufacturer's recommendations. The primer shall be spray applied using a single or multiple component spray system approved for use by the Manufacturer. If required by site conditions, brush or roller application shall be allowed. The primer shall be allowed to cure tack-free for a minimum of 30 minutes or as required by the Manufacturer's instructions, whichever time is greater, prior to application of the first lift of waterproofing membrane.

A second coat of primer shall be required if the first coat is absorbed by the concrete. The membrane shall be applied within the primer re-coat drying time allowed by the Manufacturer but in no case shall it exceed 24 hours. Beyond this period, the surface shall be prepared again and re-primed following the Manufacturer's recommendations prior to membrane application

### 3. APPLYING MEMBRANE

The waterproofing membrane shall be applied in a methodical manner. The Applicator shall follow the approved mixing and application procedure. Unless approved by the Engineer, the membrane shall be spray applied, with the mixing of the two components taking place at the nozzle, and shall be applied to the primed deck in accordance with the Manufacturer's instructions. The spray equipment shall be controlled so that the quantities applied may be monitored and shall allow for coverage rates to be checked.

Following the application of the membrane waterproofing system, the cured surface shall be visually inspected. If any defects or pinholes are found, an appropriate quantity of membrane material shall be mixed and repaired in accordance with Section 7 Repairs below. In all cases, the thickness of the repair shall be sufficient to bring the area up to the specified thickness. The thickness of the repair patch shall be a minimum of 80 mils, measured over peaks, or the thickness used to pass the ASTM C1305 Crack Bridging Test.

## **ITEM 965.2** (Continued)

### 4. APPLYING AGGREGATED KEYCOAT

Following the membrane application, an additional layer of membrane or resin, compatible with the membrane, shall be spray applied to a thickness of 30 to 40 mils into which an aggregate approved by the membrane Manufacturer shall be broadcast ensuring a minimum coverage of 95%. The coverage rate shall be designated by the Manufacturer. The broadcast aggregate shall be durable and shall have a minimum Mohs hardness rating of seven (7). Loose aggregate shall be removed with brooms or oil/moisture-free compressed air before completing the application and backfilling.

### 5. APPLYING POLYMER MODIFIED TACK COAT

Polymer modified tack coat shall not be used on this project.

### 6. REPAIRS

If an area of membrane requires repair or if the membrane becomes damaged, a patch repair shall be carried out to restore the integrity of the membrane waterproofing system. The damaged area shall be cut back to sound materials and wiped with a solvent up to a width of at least 6 inches beyond the periphery of the damaged area, removing contaminants. The concrete shall be primed as necessary, followed by the application of the membrane. A continuous layer shall be obtained over the concrete with a 6 inch overlap onto the existing membrane. The solvent shall be as approved by the membrane waterproofing manufacturer. Repairs shall comply with the Manufacturer's guidelines for any over-coating times.

Where the membrane is to be joined to existing cured material and at day joints, the new application shall overlap the existing membrane/day joint by at least 4 inches. The existing membrane/day joint shall be cleaned of all contamination to an edge distance of at least 6 inches and wiped with a solvent as approved by the membrane waterproofing manufacturer.

### 7. MOCKUP TO VALIDATE BOND STRENGTH

A mockup shall be performed for those projects where the available concrete cure time may adversely affect the required bond strength of the spray applied membrane waterproofing system. A mockup using the approved spray applied waterproofing membrane shall be required before and as close as possible to the intended date of the deck slab waterproofing placement to emulate actual placement conditions. The mockup shall take place offsite and be representative of the specified final bridge placement and shall include placement and surface preparation of the concrete and installation of membrane waterproofing system. The intent is to validate the adhesion tensile bond strength in accordance with ASTM D7234 using the membrane Manufacturer's primer and membrane.

Testing shall be performed as directed by the Engineer. Testing shall verify the adhesion bond strength and the moisture content on the deck. The moisture content shall be in accordance with

## **ITEM 965.2** (Continued)

Table 965.2-2. The mockup shall simulate the actual job conditions in all respects including air temperature, transit equipment, travel conditions, admixtures, forming, placement equipment, and personnel. If there are problems, the Engineer may require the Contractor to conduct more trial placements.

If weather conditions change between completion of trial testing and actual placement, adhesion bond testing and deck moisture testing shall be repeated as directed by the Engineer. Removal of the mockup concrete from the job site is the responsibility of the Contractor. In addition to the requirements contained herein, all weather and concrete temperature requirements contained in Subsection 901.64 shall be satisfied.

Acceptance of the mockup shall be the responsibility of the Engineer.

### **PROTECTION OF EXPOSED SURFACES**

The Contractor shall exercise care in the application of the waterproofing materials to prevent surfaces not receiving treatment from being spattered or marred. Particular reference is made to the face of curbs, copings, finished surfaces, substructure exposed surfaces, and outside faces of the bridge. Any material that spatters on these surfaces shall be removed and the surfaces cleaned to the satisfaction of the Engineer.

### **CONTRACTOR QUALITY CONTROL**

The following tests shall be conducted by the Manufacturer's representative and recorded on a test report form to be submitted to the Engineer. All test reports shall be submitted to the Engineer within 72 hours of the test completion. Testing shall be in accordance with Table 965.2-2.

- a. Deck moisture: The concrete deck surface moisture content shall be measured by the Manufacturer's representative. The representative shall determine if the deck moisture is suitable to allow for installation to proceed.
- b. Primer Adhesion: Random tests for adequate tensile bond strength shall be conducted in accordance with ASTM D7234 using the membrane Manufacturer's primer. Minimum bond strength of 100 psi and failure in the concrete will be required for acceptance.

Testing shall be at a frequency of 1 test per 5,000 square feet with a minimum of 3 tests per day. Areas smaller than 5,000 square feet shall receive a minimum of 3 tests.

- c. Film Thickness:
  1. Wet film thickness shall be checked every 300 square feet in accordance with ASTM D4414 using a gauge pin or standard comb type thickness gauge or a magnetic gauge. Film thickness checks shall be carried throughout the application process.

**ITEM 965.2** (Continued)

2. Dry Film Thickness: If the membrane waterproofing system cures too quickly to perform wet film thickness testing, dry film thickness shall be checked every 300 square feet in accordance with ASTM D6132 using magnetic or ultrasonic gauges, or using a destructive method. If a destructive method is used, areas shall be repaired in accordance with Section 10 Repairs.
  3. During the Final Review, the cured membrane film thickness shall be checked by a dial thickness gauge.
- d. Pin Hole/Holidays: The entire surface of the membrane shall be inspected for pin holes and/or holidays by the Manufacturer's representative. All pin hole/holidays shall be located, marked for repair, documented, and repaired in accordance with a repair procedure developed by the Manufacturer and approved by the Engineer.
  - e. Membrane Adhesion: Random tests for adequate tensile bond strength shall be conducted in accordance with ASTM D7234 using the membrane Manufacturer's primer and membrane. The portion of the membrane to be tested shall be separated from the rest of the membrane prior to performing the test so that only the portion under the dolly receives the tensile force. A minimum bond strength of 100 psi and failure in the concrete will be required for acceptance.

Testing shall be at a frequency of 1 test per 5,000 square feet with a minimum of 3 tests per day. Areas smaller than 5,000 square feet shall receive a minimum of 3 tests.
  - f. Coverage Rates: Rates for all layers shall be monitored by checking quantity of material used against the area covered.
  - g. Visual inspections shall be conducted throughout the application process. The Manufacturer's field representative shall take progress photos for incorporation with his final review report to the Engineer.
  - h. The Manufacturer's representative shall take a representative sample of the membrane from that day's installation. The samples shall consist of two (2) 10 inch by 10 inch square samples of the membrane with smooth surfaces. The primer and aggregate shall not be incorporated into the sample. The sample shall be sprayed separate from the bridge deck on a non-adhesive surface using the same application techniques used for the deck. These samples shall be provided to the Engineer to be tested by DCR.

**ITEM 965.2** (Continued)

**Table 965.2-2: Installation Quality Control Testing and Inspection Requirements**

<b>PROPERTY</b>	<b>TEST</b>	<b>FREQUENCY</b>	<b>REQUIREMENTS</b>
Deck Concrete Moisture	Manufacturer's recommendation	1 per 5,000 ft <sup>2</sup> and minimum of 3 tests	Manufacturer's recommendation
Primer Adhesion to Concrete	ASTM D7234	1 per 5,000 ft <sup>2</sup> and minimum of 3 tests	≥ 100 psi minimum and failure in concrete
Film Thickness	Wet: ASTM D4414 Dry: ASTM D6132 or other approved method	1 per 300 ft <sup>2</sup> and minimum of 3 tests	≥ 80 mils minimum measured over peaks or ≥ thickness used to pass ASTM C1305 (Whichever thickness is greater)
Pin Holes	Visual Inspection	Entire surface	No visible defects
Membrane Adhesion to Concrete	ASTM D7234	1 per 5,000 ft <sup>2</sup> and minimum of 3 tests	≥ 100 psi minimum and failure in concrete

**DCR ACCEPTANCE**

Acceptance of the membrane waterproofing system shall only take place once it is determined by the Engineer that the membrane has been installed in accordance with the special provisions and plans and that all necessary documentation has been submitted.

DCR shall perform visual inspection of the application and Quality Control during the installation of the membrane system. The two (2) 10 inch by 10 inch samples taken during installation shall be submitted to the Research & Materials section for verification testing.

**ITEM 965.2** (Continued)

**Table 965.2-3: DCR Verification Testing**

<b>PROPERTY</b>	<b>TEST</b>	<b>REQUIREMENTS</b>
Minimum Thickness (Membrane only)	ASTM D6132 or other approved method	$\geq 80$ mils minimum measured over peaks  or $\geq$ thickness used to pass ASTM C1305 (Whichever thickness is greater)
Percent Elongation at Break	ASTM D638	$\geq 130\%$
Tensile Strength	ASTM D638 Type IV @ 2 in/min	$> 1,100$ psi
Shore Hardness	ASTM D2240	$\geq 40$ D

FINAL REVIEW

The final review and visual inspection shall be conducted jointly by the Applicator, Contractor, Manufacturer's field representative and Engineer. Irregularities or other items that do not meet the requirements of the special provisions and the plans shall be addressed/repared at this time, at no additional cost to the DCR.

MEASUREMENT AND PAYMENT

Spray Applied Waterproofing Membrane shall be measured by the square foot of the membrane system complete in place and the quantity to be paid for shall be the number of square feet of surface covered with no allowance for overlapping or for edges turned up or carried into recesses for seals, except that the area of the full membrane turned down in back of the backwalls and extended into pockets in the face of the curb or under and in back of median curbs shall be included for payment.

Payment under this Item shall be made at the unit bid price per square foot, which shall include all labor, materials, equipment, safety devices, tools, inspections and incidentals necessary to complete all work specified under this Item including concrete surface preparation.

**ITEM 986**

**MODIFIED ROCKFILL**

**TON**

The work under this Item shall conform to the relevant provisions of Section 983 of the Standard Specifications and the following:

The work includes installing rock fill to a minimum thickness of 2 feet on a crushed stone layer wrapped in filter fabric. Rock excavated from the site shall be used for the formation of the rockfill slopes. Granite masonry rocks removed from the viaducts shall be used to form the slopes as shown on the landscape plans.

The sequence of construction for the installation of rock fill shall include excavation at the locations shown on the plans; installation of the geotextile fabric; placement of crushed stone; and installation of rock fill.

**MEASUREMENT AND PAYMENT**

ITEM 986, MODIFIED ROCKFILL will be measured for payment by the TON, complete in place.

Excavation necessary for the placement of the riprap shall be measured for payment separately by the CUBIC YARD.

Crushed Stone will be measured for payment separately by the TON.

Geotextile fabric will be measured for payment separately by the SQUARE YARD.

ITEM 986, MODIFIED ROCKFILL will be paid for at the Contract unit price per TON; which price shall include all labor, materials, equipment and incidental costs required to complete the work.

Crushed Stone bedding under the rock fill will be paid for separately under CRUSHED STONE, ITEM 156.

Geotextile fabric will be paid for separately under GEOTEXTILE FABRIC FOR SEPARATION, ITEM 698.3.

**ITEM 986.5**

**CUT SLOPE STONE EMBANKMENT -  
SALVAGED CLASS B ROCK**

**SQUARE YARD**

The work under this Item shall conform to the relevant provisions of Sections 144, 150 and 983 of the Standard Specifications and the following:

The work shall include the furnishing and install geotextile fabric, crushed stone base, and Salvaged Class B Rock ITEM 144. removed from existing viaduct spandrel and installed on a prepared slope as shown on the Plans. Salvaged Class B Rock shall be reused and installed in two parts, first by installing arched headstones which form the top arch of the embankment and secondly as vertically stacked sloped granite stone surfaces as shown on the Plans.

When insufficient quantities of Item 144 are available to complete both the arched headstone course and/or vertically stacked sloped granite stone contained in detail “Cut Slope Stone Embankment – Base Bid” refer to the CONTINGENCY CONSTRUCTION SCOPE (Supplemental Subsection 4.06), included in this special provisions specification.

**MATERIALS**

Cut Slope Stone Embankment-Salvaged Class B Rock shall conform to the provisions of Materials Section M2.06.0. Crushed Stone shall conform to the provisions of Materials Section M2.01.1.

The geotextile fabric shall conform to the provisions of Materials Section M9.50.0, Table I – Type I Geotextile Fabric for Separation. The selected fabric shall be non-woven.

The geotextile fabric shall be placed on a prepared subgrade and in intimate contact with the soils without wrinkles or folds and shall be anchored on a smooth graded surface approved by the Engineer. The geotextile fabric shall not excessively stretch or tear the geotextile when overlaying materials.

The crushed stone base shall be placed on the prepared subgrade/geotextile fabric and graded to provide the minimum thickness shown on the Plans. Additional crushed stone shall be placed as required to bed each riprap stone into the base layer.

Stone for Cut Slope Stone Embankment shall be placed on the prepared base with a minimum amount of voids and with the minimum thickness as shown on the Plans.

**MEASUREMENT AND PAYMENT**

Cut Slope Stone Embankment – Salvaged Class B Rock shall be measured by the surface area of the arched headstone and vertically stacked sloped granite stone surfaces; including bottom course of stone below grade, complete in place.

Cut Slope Stone Embankment – Salvaged Class B Rock shall be paid for at the Contract unit price per square yard, which payment shall be considered as full compensation for all labor, tools,



**ITEM 986.5** (Continued)

equipment, materials, and incidental work required to complete the work including, but not limited to, excavation, grading, crushed stone, geotextile fabric, and pea stone joint sweep.

No separate payment shall be made for excavation, crushed stone bedding, geotextile fabric, peastone joint sweep, and grading, but all costs in connection therewith shall be included in the unit price bid of this Item.

**ITEM 999.01**

**TRAFFIC POLICE**

**ALLOWANCE**

The Contractor shall furnish police services required to direct traffic on existing roadways where traffic is maintained.

The Contractor shall provide such police officers as may be deemed necessary by either the Engineer or the Town for the direction and control of all traffic traveling within and through the project area. The police officers shall be obtained from the Town Police Department as applicable. The police officers shall be paid by the Contractor at the prevailing rate of wages established by the Town.

An allowance of Sixty Two Thousand Five Hundred Dollars (\$62,500.00) for the furnishing of police services has been included in all bids.

**PAYMENT**

The quantity to be paid for under this item shall be the actual amount paid by the Contractor to provide satisfactory police services as stipulated and required. Any overhead costs shall be included in the prices bid for the other items of the Contract.

**ITEM 999.2**

**UTILITY POLE COORDINATION**

**ALLOWANCE**

This work consists of coordinating construction activities around the existing utility pole (and associated overhead wires) at Station 20+22, 24' left, adjacent to 7 Farnum Street. The Contractor shall coordinate with the utility pole owner, Verizon, and any other affected utility company to determine the disposition of the existing utility pole and wires during construction.

The Contractor shall meet with Verizon, any other affected utility company and the Engineer at least 4 weeks prior to Construction activities that would affect the existing utility pole and overhead wires.

If required by the utility company, the Contractor shall provide and install temporary supports or protective measures that will allow the work to be completed. All assembly and disassembly shall be included in this item.

An allowance of Ten Thousand Dollars (\$10,000.00) has been included in all bids.

**MEASUREMENT AND PAYMENT**

The quantity to be paid for under this item shall be the actual amount paid by the Contractor to provide satisfactory coordination, meetings, temporary utility supports and protective measures with Verizon and any other affected utility company. Any overhead costs shall be included in the prices bid for the other items of the Contract.

**ITEM 999.495**

**LIQUID ASPHALT  
ADJUSTMENT ALLOWANCE**

**ALLOWANCE**

This Contract contains a price adjustment for Liquid Asphalt. This price adjustment is modeled after existing, standard MassDOT practices utilizing bi-monthly price information available on the MassDOT website.

These average bi-monthly prices can be viewed at:

[www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction/PriceAdjustments](http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction/PriceAdjustments)

An allowance of Fifteen Thousand Dollars (\$15,000.00) has been included in all bids.

**OTHER PRICES**

It is brought to the Contractor's attention that the prices bid for the contract items, with the exception of items involving the use of liquid asphalt, shall remain in effect for the duration of the contract.

The Resident Engineer, or his designee, has the right to use a contract item that is specified for a particular location in another location.

The Engineer reserves the right to increase or decrease quantities from the estimate of the Contract, and to change location of work from one location to another location within the DCR, with no additional compensation allowed the Contractor.

The Contractor may be directed to do work associated with the Items of this Contract at various locations throughout the DCR, and the quantities of those relevant Items, whether small or large, shall not serve as a basis for additional compensation to the Contractor. All work associated with the Items of this Contract done under this Contract shall be paid for using the Contractor's bid prices of those Items.

**PRICE ADJUSTMENT FOR HOT-MIX ASPHALT MIXTURES**

This hot-mix asphalt mixture adjustment provision is inserted in the contract because the national and worldwide energy situation has made the future cost of liquid asphalt unpredictable. This adjustment will provide for either additional compensation to the Contractor or reduction in cost to the Commonwealth, depending on an increase or decrease in the average price of liquid asphalt.

This provision applies to all hot-mix asphalt mixtures containing liquid asphalt.

The price adjustment will be based on the variance in price for the liquid asphalt component only from the Base Price to the Period Price. It shall not include transportation or other charges.

The Base Price of liquid asphalt is a fixed price determined by the Massachusetts Department of Transportation (MassDOT), and found in Part I. – "Instructions to Bidders".

The Period Price of liquid asphalt for a month period will be determined by MassDOT by averaging the prices posted at the beginning, middle and end of each -month period by two or more suppliers. The year will be divided into twelve-month periods beginning January 1.

**ITEM 999.495** (Continued)

Price adjustments shall be determined as follows:

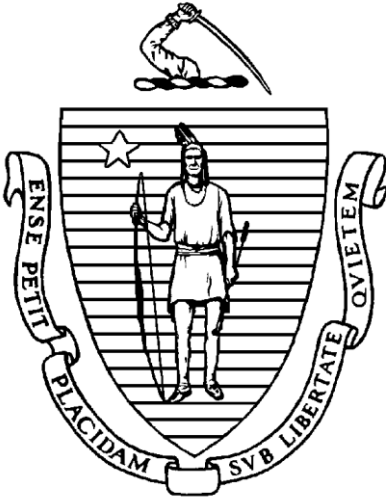
- 1.) The difference between the Base Price of liquid asphalt and the Period Price of liquid asphalt shall be calculated. The Period Prices for liquid asphalt shall be those set forth in MassDOT Price Adjustment information, which is posted on the MassDOT website at:  
[www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction/PriceAdjustments.aspx](http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction/PriceAdjustments.aspx)
- 2.) The total quantity of any Recycled Asphalt Pavement (R.A.P.) used in the hot-mix asphalt mixture (as authorized under the Specifications) for all line items shall be deducted from the quantity of the hot-mix asphalt mixture for all line items.
- 3.) The total quantity calculated in Step #2 shall be multiplied by five point five percent (5.5%) to calculate the estimated quantity of liquid asphalt used.
- 4.) The price differential calculated in Step #1 shall be multiplied by the quantity calculated in Step #3. The result is the price adjustment.
- 5.) **These adjustments shall be effected only if the variance from the base bid price is five percent (5%) or more for a duration of months.** The complete adjustment shall be paid in all cases with no deduction of the five percent (5%) from either upward or downward adjustments.

The contract price of the hot-mix asphalt mixtures will be paid under the respective items in the contract. The price adjustment, as herein provided, upwards and downwards, will be made as work is performed, using the most recent previous price adjustment item until the applicable Period Price is established. The price adjustment will be a separate payment item.

No adjustment will be paid for work done beyond the completion date of any contract, unless there is a Department-approved extension of time.

No additional funding for this contract is currently available. Therefore, reductions in contract items, quantities or deliverables may become necessary.

End of Special Provisions



## **BID PACKAGE**

### **PART V**

## **TECHNICAL SPECIFICATIONS**

No Technical Specifications