

## **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  
10 PARK PLAZA, SUITE 6620, BOSTON, MA 02116  
PHONE: 617-626-1250  
[www.mass.gov/dcr](http://www.mass.gov/dcr)**

Contract No. P25-3586-C2A  
Title: Crow Hill Pond Beach Improvements  
Location: Westminister, Massachusetts – Worcester County

GENERAL BID proposals shall be submitted on a form furnished by the Department and will be received until 12:00 PM on Thursday July 31, 2025 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 at Crow Hill Pond.  
Address: 264 Fitchburg Rd, (MA-31), Westminister, Massachusetts 01473 Thursday July 10, 2025, at 11am.

Questions are due by Thursday July 17, 2025, at 12:00PM

The Crow Hill Pond Beach Improvements project consists of beach restoration, stone retaining wall and staircase reconstruction, green infrastructure installation, installation of rain gardens, native plantings and turf, installation of universally accessible paths and picnicking, and the installation of a pond overlook structure.

The estimated project cost is **\$1,190,623.00**

The work is to be accomplished within 633 calendar days of a notice to proceed. Liquidated damages in the amount of \$500 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 RECREATIONAL FACILITIES 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 requirement of 6% for MBE (Minority Business Enterprise) 10% for WBE (Women Business Enterprise) and 3% VOBE requirement (Veteran-Owned Business Enterprise).

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%.

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.

Brian M. Arrigo, 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  
10 Park Plaza, Suite 6620,  
Boston, MA 02116  
Telephone: 617-626-1250

DCR Contract No.: P25-3586-C2A

Title: Crow Hill Pond Beach Improvements

Project Scope: The Crow Hill Pond Beach Improvements project includes: beach restoration, stone retaining wall and staircase reconstruction, green infrastructure installation, installation of rain gardens, native plantings and turf, installation of universally accessible paths and picnicking, and the installation of a pond overlook structure.

Deadline for filing general bids is 12:00 P.M. on July 31, 2025.

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, Women & Veterans 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: Joseph Silveira PLA, Project Manager  
Department of Conservation and Recreation  
10 Park Plaza, Suite 6620,  
Boston, Ma 02116  
Email (preferred): [Joseph.Silveira@mass.gov](mailto:Joseph.Silveira@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 10 Park Plaza, Suite 6620, Boston, MA 02116 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 originals of each certificate of insurance, acceptable to the DCR, simultaneously with the execution of this Contract. Certificates shall include:

**"Notwithstanding any policy terms or endorsements: DCR Contract Number /Project Name & \*DCR is an additional insured as to all policies of insurance, with the exception of workmen's compensation. In addition, none of the above-referenced insurance coverages shall be cancelled, terminated, or materially modified in any way unless and until 10 (Ten) days advance written notice is given to the DCR. The contractor has paid all premiums.**

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 contractual liability coverage, and the Contractor's Protective Liability coverage is in force. Certificates shall include specific acknowledgment that the coverage 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 fifty feet of a railroad, any exclusion for liability assumed under contract for work within fifty 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 MBE,WBE & VOB 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 MBE,WBE & VOB 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 MBE,WBE & VOB availability, (ii) the geographic location of the project to the extent related to MBE,WBE & VOB availability, (iii) the scope of the work, (iv) the percentage of work available for subcontracting to MBE,WBE & VOBs and/or (v) other relevant factors, including a **documented** inability by the prospective Bidder to obtain commitments from MBE,WBE & VOB subcontractors sufficient to meet the MBE,WBE & VOB 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 MBE,WBE & VOB 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 MBE,WBE & VOBES. 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 MBE,WBE & VOBES. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into units capable of being performed by MBE,WBE & VOBES.

-- 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 MBE,WBE & VOBES qualified to perform such work. The Bidder shall identify (i) each solicited, and (ii) each MBE,WBE & VOBES 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 MBE,WBE & VOBES with telephone calls or personal visits to determine with certainty whether the MBE,WBE & VOBES were interested in performing the work. Phone logs or other documentation must be submitted.

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

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

The Bidder may also submit any other information supporting its request for a waiver or reduction in the MBE,WBE & VOBES 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 MBE,WBE & VOBES, and/or sent written notification to MBE,WBE & 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 MBE,WBE & VOBES. The Bidder shall also submit any other information requested by the Awarding Authority to show that the Bidder has taken all actions that could be expected to achieve the MBE,WBE & VOBES participation.

**8.3** Any reduction or waiver of the MBE,WBE & VOBES participation for this Contract will be made by written addendum via Bid Express 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 participation in amounts equal to or exceeding the MBE,WBE & VOB requirements for this Contract, (ii) a completed Letter of Intent in the form provided by the Awarding Authority for each MBE,WBE & VOB listed in the Schedule for Participation, and (iii) a current SDO certification letter for each MBE,WBE & VOB listed in the Schedule of MBE,WBE & VOB Participation showing that the MBE,WBE & VOB 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 (the "MBE,WBE & VOB Work") with enough specificity to permit the Awarding Authority to identify the items of contract work that the MBE,WBE & VOB will perform for participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the MBE,WBE & VOB 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 MBE,WBE & VOB 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 MBE,WBE & VOB and appropriate Letters of Intent and SDO certification letters establishing that the MBE,WBE & VOB 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 MBE,WBE & VOB Participation of the issuance of the Notice to Proceed by the Awarding Authority.

## **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 require in connection with the Contractor's execution of the Contract.

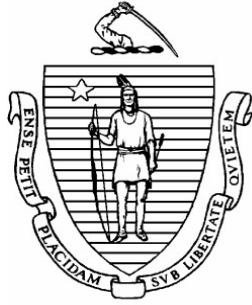
**10.2 Please note that no part of the Contractor's work may be subcontracted without the prior written approval of the Awarding Authority.** The Contractor must complete a minimum of 51% of the scope of this contract by his own work force. If the Contractor desires to subcontract any part of the Work, 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**

**To be supplied after bid opening.**

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 10 Park Plaza, Suite 6620, Boston, MA 02116, 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:



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 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 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 another 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 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:

- 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 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 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 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 attend 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 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 determining whether 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 enough 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, because 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 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 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 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 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 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 more than 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 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, if 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. After 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 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 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 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 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 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 soon 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 because 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 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 because 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 if 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 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 incompleteness have been completed (except for 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 because 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 because 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 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 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 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 more than 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. If 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, after 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 Warranties.**

**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 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 Accountant" 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 regarding 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 based on 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 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 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 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 after 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 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 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 if 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 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 fully ensure 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 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. If 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 can 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 can 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 can demonstrate that it follows 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 complies. 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 the terms and conditions of this Article, which include the provisions pertaining to M/WBE participation set forth in the Owner – Contractor Agreement 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 performed by each MBE or WBE subcontractor or sub-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 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 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 or 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.

## **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 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 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, 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 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 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 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 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 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 or non- VOB general Bidder to meet the goals established for this Contract based upon any or all the following:
- a) actual VOB 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 VOBs; and/or
  - e) other relevant factors, including a **documented** inability by the prospective Bidder to obtain commitments from VOB subcontractors sufficient to meet the VOB goals 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:
    - A list of all items of work under the Contract that the Bidder made available for subcontracting to VOBs. 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 VOBs. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into units capable of being performed by VOBs.
    - 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 VOBs qualified to perform such work. The Bidder shall identify each VOB 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 solicited, including the reason for rejecting and VOB who submitted a bid or proposal.
    - Evidence that the Bidder made reasonable efforts to follow up on the written notices sent to VOBs with telephone calls or personal visits to determine with certainty whether the VOBs 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 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.**

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

**SPECIAL GOOD FAITH REQUIREMENTS FOR PARTICIPATION BY VETERAN OWNED  
BUSINESS ENTERPRISES  
(Implementing Executive Order No. 638, Promoting the Equitable Participation of Women  
and Underrepresented Groups in Construction)**

**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.

Pursuant to Executive Order No. 638: Promoting the Equitable Participation of Women and Underrepresented Groups in Construction ("EO No. 638"), bidders shall include in their bid submission a Plan of the how they plan to:

1. encourage the use of registered apprentices for the performance of the Work.
2. develop strong workforce equity practices.
3. partner with worker-serving organizations with a track record of reaching women and underrepresented groups; and
4. provide support services, including childcare, to facilitate the participation of women and underrepresented groups on the Work to be performed under the contract.

In addition, bidders are hereby notified that the contract shall include, and it shall be a requirement that any subcontract shall include, the following data collection and reporting obligations, at appropriate intervals, required by EO No. 638:

1. workforce needs, which may include the expected number of jobs, job hours, and job hours by occupation.
2. workforce demographics, consistent with but not limited to the requirements of M.G.L. c. 7C, §6 and M.G.L. c. 149, §44A, which may include race, gender, zip code, and other workforce characteristics.
3. benefits and supportive services provided to workers.
4. Hours worked by all employees, including women and people of color, by trade and position; and
5. Apprenticeship participation and pre-apprenticeship program completion statistics.

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 the Contractor has complied with any of the provisions of this Article.

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

### **INDEX OF THE COMMONLY USED FORMS**

**(Forms used during bidding are 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**

**CONTRACTOR'S WEEKLY WORKFORCE REPORT**  
**THE COMMONWEALTH OF MASSACHUSETTS**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

DCR Project No. \_\_\_\_\_ Project Name \_\_\_\_\_ Project Location \_\_\_\_\_

Name of General Contractor \_\_\_\_\_ Minority Goal % \_\_\_\_\_ Women Goal %

Name of Contractor Filing Report \_\_\_\_\_ Address \_\_\_\_\_

Week Ending \_\_\_\_\_ Report No. \_\_\_\_\_ Date Work Began \_\_\_\_\_ Date work completed \_\_\_\_\_

NOTE:      **Min. = Minority**      **Wom. = Women**      ☐ Check here if this is a final report

Job Category	Number of Employees	Number of Employees Who Are		Total Weekly Workforce Hours	Total Weekly Workforce Hours		Weekly % Workforce Hours		Total Workforce Hours To Date	Total Workforce Hours to Date		% Of Workforce Hours to Date	
		Min.	Wom.		Min.	Wom.	Min.	Wom.		Min.	Wom.	Min.	Wom.
<b>TOTALS:</b>													

Mail with Weekly Payroll report to the assigned Project Manager at:

Department of Conservation & Recreation  
*Project Manager Name*  
 10 Park Plaza  
 Boston, MA 02116

The undersigned hereby certifies under pains and penalties of perjury that the above information is true and accurate.

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

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

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

**MINORITIES/WOMEN IN CONTRACTOR'S WEEKLY WORKFORCE REPORT**  
**THE COMMONWEALTH OF MASSACHUSETTS**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

DCR Project No. \_\_\_\_\_ Project Name \_\_\_\_\_

Name of General Contractor \_\_\_\_\_

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

Name of Contractor Filing Report \_\_\_\_\_

Address \_\_\_\_\_

Week Ending \_\_\_\_\_ Report No. \_\_\_\_\_

JOB CATEGORY	NAME OF EMPLOYEE	MINORITY GROUP	GENDER

**In contract Article XII, "Minority" refers to: Asian-Americans, Blacks, Western Hemisphere Hispanics, Native Americans, and Cape Verdeans**

**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*  
10 Park Plaza  
Suite 6620  
Boston, MA 02116

## 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 ,10 Park Plaza  
Suite 6620,Boston,MA 02116

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"/> VOB			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOB			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOB			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOB			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOB			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOB			\$	\$	\$	\$
<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> VOB			\$	\$	\$	\$

\* MBE, WBE and VOB 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, 10 Park Plaza, Suite 6620  
Boston, MA 02116

### **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 10 Park Plaza  
Suite 6620, Boston, MA 02116

**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

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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 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.

_____ Signature	by: _____ Designer	Title: _____	Date: _____ Authorized
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_____ 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).

_____ Contractor	by: _____ 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

## PART IV

### SPECIAL CONDITIONS OF THE CONTRACT

#### GENERAL

The General Contractor is responsible for coordinating all aspects of the **Crow Hill Pond Beach Improvements** project, located on **Fitchburg Road (Route 31), Westminster, MA**.

- **Respect for Park Users:** The Contractor and subcontractors must be respectful of park users within Leominster State Forest.
- **Working Hours:** Monday through Friday, from **7:00 AM to 3:00 PM**, unless otherwise approved by the Department.
- **Requests for Information (RFIs):** Any RFIs should be submitted electronically to the Department via email, with the project manager and landscape architect copied.

#### SEQUENCE OF CONSTRUCTION, SCHEDULE, AND RESTRICTIONS

- **Work Sequence:** The Contractor must follow and incorporate into the construction schedule the required site-specific restrictions and required work sequence outlined below. The Contractor's schedule for progress and completion will be reviewed by the Department of Conservation and Recreation (DCR).

The Contractor must ensure that all work methods are planned and executed to avoid any damage to existing structures, vegetation (to remain), trees (to remain), hardscapes (such as parking lots and nearby paths), drainage to remain, the bathhouse, retaining stone walls to remain, or wildlife habitat areas. These elements must be protected from any damage. Any damage to these areas or adjacent property caused by the Contractor's activities, whether directly or indirectly and determined by DCR, will be the Contractor's responsibility and repaired at their expense.

- **Construction Schedule:** The contractor must submit a construction schedule within **15 days of the NTP** to DCR. The schedule should outline the entire work sequence and phasing, incorporating the site-specific restrictions below, to include timeframes and preparation tasks like:
  - Erosion and sediment control installation
  - Tree protection
  - Demolition and site removals
  - Green infrastructure installation
  - Stone retaining wall and staircase reconstruction
  - Rain garden, split rail fence, screened beach sand installation
  - Major earth-moving activities

- Material delivery
- Overlook installation
- Hardscape and site furnishing installations
- Planting and plant maintenance
- Turf establishment
- Final sitework

The schedule must account for the following **site-specific restrictions**:

1. **2026 Swimming Season:** The facility is to be open, free of all construction and available for public use from **May 15, 2026**, to **September 7, 2026**, to accommodate the 2026 swimming season.
  - A. **This contract consists of two phases of work as noted below:**
    1. Prior to May 15<sup>th</sup>, 2026, complete the lower portion of the work including: stone retaining walls, staircases, green infrastructure, rain garden, split rail fence and screened beach sand. Utilize the beach access gate on route 31 to minimize turf and upper site disturbances for the 2026 swimming season.
    2. Post September 7, 2026, all remaining work is to be completed prior to May 26, 2027, to accommodate the 2027 swimming season.
2. **2026:** Contractor shall perform all required plant maintenance from 05/15/2026 – 09/07/2026 between **7Am -11Am Monday – Friday only**.
3. **As-Built Survey:** As-built plans prepared by a Professional Engineer or Land Surveyor registered in the Commonwealth of Massachusetts showing final park development shall be submitted to DCR. In addition, an affidavit from a Professional Engineer or Land Surveyor registered in the Commonwealth of Massachusetts shall be submitted, which states that the project was completed in accordance with the requirements of the Order of Conditions. Provide (3) original stamped copies to DCR as well as pdf and CAD file for the final as built survey. The Contractor shall include this work in their bid.
4. The Contractor is advised to review the project permits attached and above restrictions to determine what work is impacted by these restrictions and shall plan the work accordingly. Schedule constraints will be discussed at the pre-bid meeting.

## **SUBMITTALS**

1. **Submittal Schedule:** Unless otherwise specified, within seven (7) calendar days of the date of the notice to proceed or at the pre-construction meeting, whichever occurs first, the Contractor shall submit to DCR a list of all submittals needing approval and a timeline of their submission.

2. **Schedule Updates:** The construction schedule must be maintained on-site for review during meetings. Any significant changes to the schedule must be emailed to the resident engineer with the project manager copied immediately for review.

## INSPECTIONS

1. **Inspection Team:** The Department will assign inspectors and/or resident engineers to this project on either a full time or part-time basis, as required to cover the work under this Contract, as justified by the Department.
2. **Material Shipments:** The contractor must notify the Department at least **48 hours** in advance of material shipments to arrange for inspection.

## PERMITS

- 1) This project has been permitted by and is under the jurisdiction of the Town of Westminster Conservation Commission and the Commonwealth of Massachusetts Department of Environmental Protection. The Contractor is responsible for obtaining an official copy of the following Order of Conditions from the appropriate parties and for full compliance with all Conditions of the Orders throughout construction:
  - (a) Westminster Conservation Commission
  - (b) Massachusetts Department of Environmental Protection DEP File # 336-0994
- 2) A copy of the Westminster Conservation Commission's Special Conditions is contained in the subsequent pages of this section.
- 3) The Contractor is responsible for preparing and filing for the NPDEES Construction General Permit and associated SWPPP. The final SWPPP and project schedule must be submitted to the Westminster Conservation Commission, two weeks before starting work, for review and approval prior to beginning work on-site. A pre-construction meeting with the ConCom is required.
- 4) **Permit Availability on Site at All Times:** Keep all required permits, including **OOC**, general permits, any extensions, any approved plans, on-site **at all times**.
- 5) **Compliance:** The contractor shall comply with all permit requirements.

## ADDITIONAL SITE-SPECIFIC NOTES

1. **Minimize Interference:** Perform site work and debris removal in a way that minimizes disruption to navigation, streets, walkways, parking areas, buildings, and other adjacent facilities.
2. **Permission for Closures:** Obtain written permission from the relevant authorities and police details, if determined by DCR, to close or obstruct streets, walkways, or adjacent facilities. If necessary, provide alternate routes for traffic and pedestrians as required by those authorities.
3. **Protect Utilities and Fixtures:** Where applicable, protect and maintain light poles, utility poles and services, traffic signal control boxes, curb boxes, valves, and other utilities, unless specified for removal or modification.

4. **Obstruction of Navigable Waterways:** a. The contractor must promptly recover and remove any material, equipment, or machinery lost, discarded, or misplaced into the water that could obstruct navigation, as determined by the Department. b. The contractor must notify DCR immediately with a description and location of any obstructions. c. When instructed by DCR, the contractor must mark or buoy the obstruction until it is removed.

#### **ATTACHMENT LIST OF PART 4 SPECIAL CONDITIONS**

1. Conservation Commission Order of Condition DEP File# 336-0994

file



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

## WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

336-09 **94**

MassDEP File #

eDEP Transaction #

**WESTMINSTER**

City/Town

### A. General Information

Please note:  
this form has  
been modified  
with added  
space to  
accommodate  
the Registry  
of Deeds  
Requirements

**Important:**  
When filling  
out forms on  
the  
computer,  
use only the  
tab key to  
move your  
cursor - do  
not use the  
return key.



1. From: WESTMINSTER  
Conservation Commission

2. This issuance is for (check one):  
a. ☒ Order of Conditions      b. ☐ Amended Order of Conditions

3. To: Applicant:

Ruth

a. First Name

Helfeld

b. Last Name

MA Department of Conservation & Recreation

c. Organization

21 Causeway Street 9th floor

d. Mailing Address

Boston

e. City/Town

MA

f. State

02114

g. Zip Code

4. Property Owner (if different from applicant):

Priscilla

a. First Name

Geigis

b. Last Name

MA Department of Conservation & Recreation

c. Organization

251 Causeway Street 9th floor

d. Mailing Address

Boston

e. City/Town

MA

f. State

02114

g. Zip Code

5. Project Location:

Fitchburg Road

a. Street Address

166

c. Assessors Map/Plat Number

Westminster

b. City/Town

2

d. Parcel/Lot Number

Latitude and Longitude, if known:

42.51745d-qm

d. Latitude

s

1.855290d

s

m



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

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### A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

a. County

b. Certificate Number (if registered land)

c. Book

d. Page

7. Dates: 9/20/2022 11/10/2022 11/21/2022  
a. Date Notice of Intent Filed b. Date Public Hearing Closed c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

Massachusetts DCR Crow Hill Pond Renovations

a. Plan Title

Activitas Inc.

Megan Buscynski, P.E.

b. Prepared By

July 7, 2022

1" = 20'

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

### B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

- a. ☐ Public Water Supply b. ☐ Land Containing Shellfish c. ☐ Prevention of Pollution  
d. ☐ Private Water Supply e. ☐ Fisheries f. ☐ Protection of Wildlife Habitat  
g. ☐ Groundwater Supply h. ☐ Storm Damage Prevention i. ☐ Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

- a. ☒ the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.



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Bureau of Resource Protection - Wetlands

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**B. Findings (cont.)**

Denied because:

- b. ☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c. ☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**
3. ☐ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a)                      a. linear feet

**Inland Resource Area Impacts:** Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input type="checkbox"/> Bank	<u>                    </u> a. linear feet	<u>                    </u> b. linear feet	<u>                    </u> c. linear feet	<u>                    </u> d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	<u>                    </u> a. square feet	<u>                    </u> b. square feet	<u>                    </u> c. square feet	<u>                    </u> d. square feet
6. <input type="checkbox"/> Land Under Waterbodies and Waterways	<u>                    </u> a. square feet <u>                    </u> e. c/y dredged	<u>                    </u> b. square feet <u>                    </u> f. c/y dredged	<u>                    </u> c. square feet	<u>                    </u> d. square feet
7. <input type="checkbox"/> Bordering Land Subject to Flooding	<u>                    </u> a. square feet	<u>                    </u> b. square feet	<u>                    </u> c. square feet	<u>                    </u> d. square feet
Cubic Feet Flood Storage	<u>                    </u> e. cubic feet	<u>                    </u> f. cubic feet	<u>                    </u> g. cubic feet	<u>                    </u> h. cubic feet
8. <input type="checkbox"/> Isolated Land Subject to Flooding	<u>                    </u> a. square feet	<u>                    </u> b. square feet		
Cubic Feet Flood Storage	<u>                    </u> c. cubic feet	<u>                    </u> d. cubic feet	<u>                    </u> e. cubic feet	<u>                    </u> f. cubic feet
9. <input type="checkbox"/> Riverfront Area	<u>                    </u> a. total sq. feet	<u>                    </u> b. total sq. feet		
Sq ft within 100 ft	<u>                    </u> c. square feet	<u>                    </u> d. square feet	<u>                    </u> e. square feet	<u>                    </u> f. square feet
Sq ft between 100-200 ft	<u>                    </u> g. square feet	<u>                    </u> h. square feet	<u>                    </u> i. square feet	<u>                    </u> j. square feet



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**B. Findings (cont.)**

**Coastal Resource Area Impacts:** Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. <input type="checkbox"/> Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. <input type="checkbox"/> Coastal Beaches	a. square feet	b. square feet	c. nourishment cu yd	d. nourishment cu yd
14. <input type="checkbox"/> Coastal Dunes	a. square feet	b. square feet	c. nourishment cu yd	d. nourishment cu yd
15. <input type="checkbox"/> Coastal Banks	a. linear feet	b. linear feet		
16. <input type="checkbox"/> Rocky Intertidal Shores	a. square feet	b. square feet		
17. <input type="checkbox"/> Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	a. c/y dredged	b. c/y dredged		
21. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		
22. <input type="checkbox"/> Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet



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## B. Findings (cont.)

\* #23. If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

23. ☐ Restoration/Enhancement \*:

a. square feet of BVW

b. square feet of salt marsh

24. ☐ Stream Crossing(s):

a. number of new stream crossings

b. number of replacement stream crossings

## C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
  - a. The work is a maintenance dredging project as provided for in the Act; or
  - b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
  - c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on November 21, 2025 unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.



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**C. General Conditions Under Massachusetts Wetlands Protection Act**

8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.
10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,  

"Massachusetts Department of Environmental Protection" [or, "MassDEP"]  
"File Number            336-0994 "
11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.



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**C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)**

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.
19. The work associated with this Order (the "Project")
  - (1) ☒ is subject to the Massachusetts Stormwater Standards
  - (2) ☐ is NOT subject to the Massachusetts Stormwater Standards

**If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:**

- a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.
- b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:
  - i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
  - ii. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
  - iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;



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**C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)**

iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;

v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:

i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and

ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.



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**C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)**

- g) The responsible party shall:
  - 1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
  - 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
  - 3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

**Special Conditions attached**

- 20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.



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**D. Findings Under Municipal Wetlands Bylaw or Ordinance**

1. Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☐ No
2. The Westminster hereby finds (check one that applies):  
Conservation Commission

- a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

1. Municipal Ordinance or Bylaw

2. Citation

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

- b. ☐ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

1. Municipal Ordinance or Bylaw

2. Citation

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

Special Conditions attached.

Crow Hill Pond 336-0494

#### SPECIAL CONDITIONS

20. No work shall be conducted on this site until evidence of the recording of these Orders at the Registry of Deeds has been presented to the Commission.
21. Construction entrances shall be installed to prevent mud from being tracked onto the roadway.
22. The Commission reserves the right to impose additional conditions on portions of this site to mitigate any actual or potential impacts resulting from work herein permitted.
23. The applicant or his/her contractors shall immediately install sediment control devices as indicated on the approved plans prior to any work being done on the site. The Commission's Agent shall be notified to inspect these devices. Hay bales, silt fencing or other devices should be of sufficient porosity to pass detained water without allowing suspended sediments to pass through and have sufficient support to withstand the forces of runoff.
24. The contractor shall have an on-site stockpile of materials required to control erosion whenever it occurs and to repair implemented devices. If possible, stockpile shall be moved out of the buffer zone.
25. No work shall be conducted on this project until all required Local, State and Federal Permits have been applied for and approved.
26. During and after work on this project there shall be no discharge or spillage of fuel, oil, or other pollutants into any resource area.
27. Truck operators shall not expel excess materials or wash their trucks within the 100-foot buffer zone.
28. Failure to comply with any condition may justify initiation of enforcement action.
29. No spoils of construction or equipment shall be stored, placed or operated in the wetlands.
30. During construction, the Applicant shall transport all solid and chemical waste from the site and dispose of it in compliance with Local, State and Federal requirements for waste disposal.

31. No work shall be permitted by these Conditions unless and until the Applicant receives a sub-surface disposal permit from the Westminster Board of Health which complies with both the requirements of Title 5 and any more stringent local standards, and until a copy of this permit is sent to the Commission.
32. The operation and periodic maintenance of the sewage disposal system shall be ongoing and shall not expire because of the issuance of the Certificate of Compliance.
33. All conditions pertaining to the town bylaw shall be adhered to. The most prominent condition being that there shall be no alterations allowed within 25-feet of any resource area.
34. These Special Conditions shall be made available at the site at all times for easy reference.
35. The Applicant or his/her contractors shall immediately install sediment control devices as indicated on the approved plans prior to any work being done on the site. The Commission's Agent shall be notified to inspect these devices.
36. Immediately following construction all embankments or disturbed areas not sodded and within the 100-foot buffer zone shall be loamed, limed, fertilized and seeded. Fertilizers utilized for landscaping and lawn care shall be of the low nitrogen content variety and shall be used in moderation. Pesticides and herbicides shall not be used on this project within 100-feet of wetlands. A minimum of 4-inches of topsoil shall form the seedbed. Seed to consist of a mixture of species that will result in a vigorous and durable growth of grassed. Loamed and seeded areas shall be mulched with hay, straw or chopped stalk mulch applied at a rate of 2 ½ tons per acre. Proper steps shall be taken to avoid erosion during the winter season.
37. During construction the Applicant shall transport all solid and chemical waste from the site and dispose of it in compliance with Local, State and Federal requirements for waste disposal.
38. During construction, earthwork brought to final grade shall be finished as indicated or specified. Side slopes and back slopes shall be protected as soon as possible upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Such methods, as necessary, shall be utilized to effectively prevent erosion to control sedimentation.
39. All excess fill and other excess construction material shall be removed from the site following construction.
40. The areas of construction shall remain in a stable condition at the close of each construction day. Erosion controls should be monitored at this time and maintained or reinforced if necessary.

41. During and after work on this project there shall be no discharge or spillage of fuel, oil or other pollutants onto any part of the site. The applicant shall take all reasonable precautions to prevent the release of pollutants by ignorance, accident or vandalism.
42. By accepting this Order of Conditions, the owner is consenting to allow members of the Commission and their **Agent** to have permission to enter the site and inspect the premises at reasonable hours to evaluate compliance with these Conditions. If the property is transferred during the execution of and lifespan of this order (including extensions), the new owner will contact the commission officeto discuss consent to access to the property.
43. There shall be no stockpiling of soil or other materials within SO-feet of any wetland without the written permission of the Commission. Stripped topsoil shall be utilized to the maximum extent possible on-site. All stockpiles within the 100-foot buffer zones shall be ringed with erosion-siltation controls at their base.
44. No area shall be excavated so as to cause an accumulation or free standing water. Permanent drainage shall be provided as needed in accordance with best management practices.
45. Sediment laden water that is being pumped from trenches or excavations shall not be pumped into protected resource areas or drainage systems. Sedimentation basins, filter fabric fencing, hay bales or other means shall be used for this purpose.
46. There shall be no pumping of water from any resource area.
47. Any stumps shall not be buried within fifty (50) of any wetlands, and only in accordance with local Board of Health regulations and all other local, state and federal regulations.
48. The contractor shall chip all brush and slash cuttings on site and stockpile the chippings to be used on all unstable, disturbed areas during construction as temporary stabilization mulch.
49. Accompanying the Applicant's request for a Certificate of Compliance shall be a written statement by a Registered Professional Engineer, Landscape Architect or a Registered Land Surveyor, as appropriate, certifying compliance with the approved plans and these Orders of Conditions and citing any deviations.
50. During construction the site contractor shall be required to assure that all sub-contractors have reviewed and understand these Orders of Conditions. Copies shall be provided to all contractors working the site. Questions regarding the

implementation of these Conditions shall be directed to the Agent or the Commission.

51. The storm drainage system, detention basins, water quality swales, compensatory storage areas and erosion control devices shall be constructed during the initial phases of the project so that they may be functional during construction. Said features shall be kept free of silt and debris to ensure their proper operation.

52. Construction and site grading shall be scheduled to avoid periods of heavy, sustained rain or high water. Once begun, grading shall move uninterrupted to completion to avoid siltation of the wetlands.

53. Any dewatering activities on the project in which water will be released to wetlands or storm drains shall make use of a stilling pond or similar device to remove sediment before the water is released.



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

**WPA Form 5 – Order of Conditions**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

336-09 *§ 4*

MassDEP File #

eDEP Transaction #

**WESTMINSTER**

City/Town

**E. Signatures**

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

Please indicate the number of members who will sign this form.

This Order must be signed by a majority of the Conservation Commission.

*11.17.22*

1. Date of Issuance

*3*

2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Crow Hill Pond Beach Improvements

*[Signature]*  
Signature

Dan Bartkus, Chairman

Printed Name

*[Signature]*  
Signature

Tim Sheehan

Printed Name

*[Signature]*  
Signature

Carrie Monty

Printed Name

*[Signature]*  
Signature

Vic Pelletier

Printed Name

*[Signature]*  
Signature

Anthony Maressa

Printed Name

*[Signature]*  
Signature

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

☐ by hand delivery on

☒ by certified mail, return receipt requested, on

Date

Date

*November 21, 2022*



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

## WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

336-0994

MassDEP File #

eDEP Transaction #

WESTMINSTER

City/Town

### F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands

## WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

336-0914

MassDEP File #

eDEP Transaction #

WESTMINSTER

City/Town

### G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Westminster

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Westminster

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

Crow Hill Pond Beach Improvements

Project Location

336-09

MassDEP File Number

Has been recorded at the Registry of Deeds of:

County

Book

Page

for: Property Owner

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands

DEP File Number: \_\_\_\_\_

**Request for Departmental Action Fee  
Transmittal Form**

Provided by DEP \_\_\_\_\_

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

**A. Request Information**

1. Location of Project

a. Street Address \_\_\_\_\_

b. City/Town, Zip \_\_\_\_\_

c. Check number \_\_\_\_\_

d. Fee amount \_\_\_\_\_

2. Person or party making request (if appropriate, name the citizen group's representative):

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

City/Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

Phone Number \_\_\_\_\_

Fax Number (if applicable) \_\_\_\_\_

3. Applicant (as shown on Determination of Applicability (Form 2), Order of Resource Area Delineation (Form 4B), Order of Conditions (Form 5), Restoration Order of Conditions (Form 5A), or Notice of Non-Significance (Form 6)):

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

City/Town \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_

Phone Number \_\_\_\_\_

Fax Number (if applicable) \_\_\_\_\_

4. DEP File Number: \_\_\_\_\_

**Important:**  
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



**B. Instructions**

1. When the Departmental action request is for (check one):

- ☐ Superseding Order of Conditions – Fee: \$120.00 (single family house projects) or \$245 (all other projects)
- ☐ Superseding Determination of Applicability – Fee: \$120
- ☐ Superseding Order of Resource Area Delineation – Fee: \$120



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands

DEP File Number: \_\_\_\_\_

**Request for Departmental Action Fee  
Transmittal Form**

Provided by DEP

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

**B. Instructions (cont.)**

Send this form and check or money order, payable to the *Commonwealth of Massachusetts*, to:

Department of Environmental Protection  
Box 4062  
Boston, MA 02211

2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.
3. Send a **copy** of this form and a **copy** of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see <https://www.mass.gov/service-details/massdep-regional-offices-by-community>).
4. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

**END OF SECTION**



## **BID PACKAGE**

### **PART V**

### **TECHNICAL SPECIFICATIONS**

The background of the entire page is a detailed topographic map with white contour lines on a dark gray background. The map shows various elevation levels and geographical features.

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF CONSERVATION AND RECREATION  
DIVISION OF DESIGN AND ENGINEERING

**CROW HILL POND BEACH  
IMPROVEMENTS**

**PART V  
SPECIFICATIONS**

CONTRACT NO. P25-3586-C2A

PREPARED BY:

**ACTIVITAS**

landscape architecture | civil engineering

**MASSACHUSETTS DCR– CROW HILL POND BEACH IMPROVEMENTS**

Westminster, Massachusetts

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June 2025

PART V  
SPECIFICATIONS

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**MASSACHUSETTS DCR  
CROW HILL  
POND BEACH  
IMPROVEMENTS**

CONTRACT NO. P25-35866-C2A

**DIVISION 01 00 00**  
GENERAL REQUIREMENTS

**ACTIVITAS**

# **MASSACHUSETTS DCR– CROW HILL POND BEACH IMPROVEMENTS**

Westminster, Massachusetts

Bid Documents

June 2025

## **SUMMARY OF WORK**

### **PART 1 – GENERAL**

#### **1.01 GENERAL REQUIREMENTS**

- A. Attention is directed to the CONTRACT and all Sections within PARTS I, II, III and IV, which are hereby, made a part of this Section of the Specifications.

#### **1.02 SCOPE**

- A. Project Description: This project is located at Crow Hill Pond, 166 Fitchburg Road, Westminster, MA 01473.
  - 1. The proposed project includes the construction of a new accessible pathway and boardwalk, renovation of existing stone wall, and various site/landscaping improvements. Work shall include the following:
    - a. Construction of new accessible walkway and boardwalk to provide equal access to beach.
    - b. Construction of a new stone retaining wall adjacent to new boardwalk.
    - c. Reconstruction of existing historic stone retaining wall and associated stairways.
    - d. Associated site improvements (drainage improvements, site furnishings, walkways, plantings, etc.) as illustrated and defined in the drawings and specifications.
- B. In addition, the work under the Contract includes:
  - 1. Work outside the Project Site as called for in the Contract Documents and as required for the performance of the Work.
  - 2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
  - 3. Providing and restoring, where appropriate, all temporary facilities.

#### **1.03 PERMITS AND FEES**

- A. The Contractor, at its cost, shall schedule, secure and obtain all permits, approvals, licenses, and inspections necessary for the proper execution of the work under all sections of this project.
- B. The Contractor shall coordinate all its work with appropriate Town of Westminster Departments and Agencies as required by the Contract Documents.

#### **1.04 TIME OF COMPLETION**

- A. In accordance with the General Conditions, the Work shall be commenced at the time stated in the Notice to Proceed and shall be completed as noted in the preceding sections.

**END OF SECTION**

**SUMMARY OF WORK**

**MASSACHUSETTS DCR- CROW HILL POND BEACH IMPROVEMENTS**

Westminster, Massachusetts

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SECTION 01 21 00

ALLOWANCES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 ALLOWANCE FOR MISCELLANEOUS SITE WORK - SCOPE

- A. This Under this item, the Contractor shall supply the labor, equipment, and materials required to carry out miscellaneous site work as directed by the Owner or Landscape Architect within the project site limits. This work will cover activities not specified under any other contract items.
- B. This allowance will be used at the sole discretion of the Owner.
- C. All materials must be of acceptable quality and receive approval from the Landscape Architect before being ordered. When replacements are made, materials must match the original in type, quality, and intended use, and must also be approved by the Landscape Architect.

1.03 MEASUREMENT AND PAYMENT

- A. To receive payment under this item, the Contractor must perform the work on a time and material basis in accordance with Section 01 22 00 Unit Prices.
- B. Material costs will not be paid unless supported by clear and legible copies of paid bills or invoices detailing the materials, their purpose, and the location, time, and date of installation.
- C. Upon request, the Contractor must provide the Agency with documentary evidence sufficient to substantiate the fairness and reasonableness of any costs submitted for payment under this item.
- D. The allowance for this item is a not-to-exceed amount of \$25,000. This is the maximum amount the Contractor may receive for work under this item for the duration of this Contract. After final payment, any unspent funds will revert to the Owner in the form of a Change Order Credit.

END OF SECTION

**MASSACHUSETTS DCR- CROW HILL POND BEACH IMPROVEMENTS**

Westminster, Massachusetts

Bid Documents

June 2025

SECTION 01 22 00

UNIT PRICES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 REQUIREMENTS

- A. Unit prices for changes to the work not part of the Base Bid will be paid in accordance with unit prices listed by the Contractor on the Schedule of unit prices, based on quantities measured in the field.
- B. All unit prices shall include their pro-rata share of all costs for overhead, profit, bond, materials, equipment and disposal required to complete the work item.
- C. The Owner may choose not to approve any or all unit prices if it deems the unit price unreasonable. In this case, the change order process described in the general conditions will be used for work described in the unit price schedule, when any change of the base contract scope is required.

1.03 APPLICABILITY OF UNIT PRICES

- A. The payment lines shall be as indicated in the Contract Documents.
- B. Prior to commencing any change to the work involving removal or placement of materials set forth in the schedule of unit prices, the Contractor shall notify the Landscape Architect/Civil Engineer in sufficient time to permit proper measurements to be taken on behalf of the Owner. Only quantities which have been approved in writing by the Landscape Architect/Civil Engineer and/or Owner will be considered in the determination of adjustments to the contract sum.
- C. Performance of work which is not required under the Contract Documents or which is not authorized by Change Order, whether or not such work item is set forth hereunder as a Unit Price item, shall not be considered cause for extra payment. The Contractor will be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the Landscape Architect/Civil Engineer and/or Owner.

1.04 SCHEDULE OF UNIT PRICES

- A. The List of proposed unit prices for the above referenced project are included in the Bid Form for completion by the Contractor.

END OF SECTION

# MASSACHUSETTS DCR– CROW HILL POND BEACH IMPROVEMENTS

Westminster, Massachusetts

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## SECTION 01 31 19

### PROJECT MEETINGS

#### PART 1 – GENERAL

##### 1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

##### 1.02 PROJECT MEETINGS

- A. Preconstruction Conference: Conduct a preconstruction conference prior to beginning work on site. Require all major subcontractors and suppliers to attend. In general, the meeting shall cover the following subjects:
  - 1. Creation of project team directory listing contract person for each organization.
  - 2. Issuance of Contract Documents.
  - 3. Reviewing of project constraints and work hours.
  - 4. Unloading policies, storage locations, temporary office locations, and temporary facilities.
  - 5. First aid, safety, and security procedures.
  - 6. Cleaning, housekeeping, and waste removal.
  - 7. Change order requirements.
  - 8. Progress payment requirements.
  - 9. Submittal requirements, schedules, and procedures.
  - 10. Record document requirements and procedures.
  - 11. Other subjects as determined by the Contactor, Landscape Architect/Civil Engineer, and Owner.
- B. Regular Progress Meetings: Conduct Progress Meetings to aid coordination and planning of the work and to create a forum to resolve coordination and scheduling problems and conflicts. Project meetings will be held as required at the job site. Special project meetings may be called at any time by the Owner and/or Landscape Architect/Civil Engineer, and shall be attended by the Contractor and any required Subcontractors.
  - 1. Chairperson and Minutes: The Contractor will chair the meetings and will prepare written meeting minutes (as necessary).
  - 2. The Contractor shall require appropriate representatives of all major subcontractors and suppliers to attend each Progress Meeting as required. Representatives of Contractor, Subcontractor, and suppliers who are present at Progress Meetings shall have the full authority to commit their respective organizations to decisions, commitments, and agreements made at Progress Meetings.
  - 3. Progress Meeting Agenda: Progress Meetings shall have at least the following agenda:
    - a. Review and approval of minutes and record of previous meetings.
    - b. Review progress of work, Progress Schedule, and status of Submittals and Lead Time Items.
    - c. Identify problems that impede planned progress.
    - d. Develop corrective measures and procedures to maintain planned

### PROJECT MEETINGS

01 31 19-1

**MASSACHUSETTS DCR– CROW HILL POND BEACH IMPROVEMENTS**

Westminster, Massachusetts

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*June 2025*

- schedule.
- e. Review apparent conflicts and other problems, and develop corrective measures.
- f. Monthly review of payment applications.
- g. Pre-installation discussions regarding specific project items.
- h. Other current business.

END OF SECTION

**MASSACHUSETTS DCR– CROW HILL POND BEACH IMPROVEMENTS**

Westminster, Massachusetts

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SECTION 01 30 00

SUBMITTALS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 GENERAL PROCEDURES FOR SUBMITTALS

- A. Timeliness – The Contractor shall transmit each submittal to the Landscape Architect/Civil Engineer at least 5 days in advance of performing related Work or other applicable activities, so that the installation will not be delayed by processing time, including, disapproval and re-submittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Landscape Architect/Civil Engineer in advance of the Work.
- B. Sequence – The Contractor shall transmit each submittal in a sequence which will not result in the approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.
- C. Contractor's Review and Approval – Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Landscape Architect/Civil Engineer. Submittals shall be accompanied by a transmittal notice, stating name of Project, date of submittal, "To" or "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section or Drawing Number to which the submittal refers, purpose (first submittal, re-submittal), description, remarks, distribution record, and signature of transmitter.
- D. Any reference as to a specific type or manufacturer in these specifications is for identification purposes only. Equivalent products will be considered. In the event that samples or specifications on equivalent products are required, it will be at the vendor's expense.
- E. Or-Equivalents – On the transmittal, or on a separate sheet attached to the transmittal, the Contractor shall direct attention to any deviations including minor limitations and variations, from the Contract Documents.
  - 1. The Contractor and all Subcontractors shall submit to the Landscape Architect/Civil Engineer for consideration of any Or-Equivalent substitution, a written point by point comparison containing the name and full particulars of the proposed product to the product named or described in the Contract Documents.
  - 2. Such submittal shall in no event be made later than 5 calendar days prior to the incorporation of the item in the Work. In any case in which the time period specified in the Contract Documents from the Notice to Proceed to Substantial Completion is less than 5 days, the Landscape Architect/Civil Engineer can waive this requirements.
  - 3. Upon receipt of a written request for approval of an Or-Equivalent substitution, the

SUBMITTALS

01 30 00-1

## MASSACHUSETTS DCR- CROW HILL POND BEACH IMPROVEMENTS

Westminster, Massachusetts

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June 2025

Landscape Architect/Civil Engineer shall investigate whether the proposed item shall be considered equivalent to the item named or described in the Contract Documents. Upon conclusion of the investigation, the Landscape Architect/Civil Engineer shall promptly advise that the item is, or is not, considered acceptable as on Or-Equivalent substitution. Such written notice must have the concurrence of the Owner.

4. In no case may an item be furnished on the Work other than the item named or described, unless the Landscape Architect/Civil Engineer, with the Owner's concurrence, shall consider the item equivalent to the item so named or described.
  5. The equivalency of items offered as "Equivalent To" items named or described shall be proved to the satisfaction of the Landscape Architect/Civil Engineer at the expense of the Contractor or Subcontractor submitting the substitution.
  6. The Landscape Architect/Civil Engineer and/or the Owner may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor or Subcontractor, as the case may be, shall bear full cost for providing, delivering, and disposal of all such samples.
  7. The Contractor or Subcontractor, as the case may be, shall assume full responsibility for the performance of any item submitted as an "Or-Equivalent" and assumed the costs of any changes in any Work that may be due to such substitutions.
- F. Processing – All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this Contract shall be included in the Contract Sum.

### 1.03 LANDSCAPE ARCHITECT/CIVIL ENGINEER ACTION

- A. The Landscape Architect/Civil Engineer will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:
1. Final Unrestricted Release: Where marked "No Exception Taken" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
  2. Final-But-Restricted-Release: When marked "Reviewed as Noted" or "For Your Information and Use" the Work may proceed provided it complies with the Landscape Architect/Civil Engineer notation or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend upon these compliances.
  3. Returned for Resubmittal: When marked "Revise & Resubmit", "Incomplete Submittal" or "Rejected", the Work covered by the submittal (purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay, in accordance with the Landscape Architect/Civil Engineer notations stating the reasons for returning the submittal.

### 1.04 SUBMISSION OF SHOP DRAWINGS & PRODUCT DATA

- A. Shop drawings shall be complete, give all information necessary or requested in the individual section of the specifications. They shall also show adjoining Work and details of

## **MASSACHUSETTS DCR- CROW HILL POND BEACH IMPROVEMENTS**

Westminster, Massachusetts

*Bid Documents*

*June 2025*

connection thereto.

- B. Shop drawings shall be for whole systems. Partial submissions will not be accepted.
- C. The Landscape Architect/Civil Engineer reserves the right to review and approve shop drawings only after approval of related products data and samples.
- D. Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Landscape Architect/Civil Engineer stamp.
- E. The Contractor shall submit to the Landscape Architect/Civil Engineer one legible, reproducible electronic copy of each shop drawing. A transmittal notice shall accompany each submittal.
- F. When the submittal is returned by the Landscape Architect/Civil Engineer with the stamp "Revise & Resubmit", "Incomplete Submittal" or "Rejected", the Contractor shall correct the original drawings or prepare a new drawings and resubmit a electronic copy and two prints thereof to the Landscape Architect/Civil Engineer for approval. This procedure shall be repeated until the Landscape Architect/Civil Engineer approval is obtained.
- G. When the submittal is returned by the Landscape Architect/Civil Engineer with the stamp "No Exception Taken", the Contractor shall provide and distribute the prints for all Contractor and Subcontractors use, and in addition submit, within 10 calendar days after approval, 5 prints to the Landscape Architect/Civil Engineer.
- H. The Contractor shall maintain one full set of approved shop drawings at the site.

### **1.05 SUBMISSION OF SAMPLES**

- A. Unless otherwise specified in the individual section, the Contractor shall submit two specimens of each sample.
- B. Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.
- C. Samples that can be conveniently mailed shall be sent directly to the Landscape Architect/Civil Engineer, accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.
- D. All other samples shall be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in. Transmittal notice of sample so delivered with the Contractor's stamp of approval shall be mailed to the Landscape Architect/Civil Engineer.
- E. If a sample is rejected by the Landscape Architect/Civil Engineer, a new sample shall be resubmitted in a manner specified herein above. This procedure shall be repeated until the Landscape Architect/Civil Engineer approves the sample.
- F. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications.

END OF SECTION

**MASSACHUSETTS DCR– CROW HILL POND BEACH IMPROVEMENTS**

Westminster, Massachusetts

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SECTION 01 50 00

TEMPORARY FACILITIES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. The Contractor shall be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such, prior to Substantial Completion must be with the concurrence of the Landscape Architect/Civil Engineer. The Contractor bears full responsibility for re-providing any facility removed prior to Substantial Completion if required for the Work. NOTE: There will no access to the High School or Middle School buildings during the project unless specifically required under the scope of work (any work that may be required in the buildings will require accompaniment from the Owner).
- C. Removal of all temporary facilities shall be a condition precedent to Substantial Completion unless directed otherwise by the Landscape Architect/Civil Engineer or specifically noted in the Specifications.
- D. The Contractor must comply with all safety laws and regulations of the Commonwealth of Massachusetts, the United States Government, and local government agencies applicable to work under this contract.

1.02 TEMPORARY TELEPHONES

- A. Telephone service, in the form of a cellular phone and beeper, shall be available on site.
- B. The Contractor shall pay for all equipment charges for the foregoing temporary telephones and for all calls and charges in connection therewith.

1.03 TOILETS

- A. The Contractor shall provide portable bathroom facilities as required.

1.04 TEMPORARY CONSTRUCTION FENCE

- A. The Contractor shall be responsible for providing and maintaining temporary fencing or barricades around the construction and additional fencing or barricades as may be necessary to assure the safety of all persons authorized or unauthorized. Such protective measures shall be located and constructed as required by local, state and federal ordinances, laws, codes or regulations at no additional cost to the Owner.

1.05 TEMPORARY STRUCTURES AND MATERIAL HANDLING

- A. Materials shall be handled, stored, installed, cleaned, and protected in accordance with the best practice in the industry and, except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.

1.06 TEMPORARY WATER

- A. There will be no water supply available at the site during construction. The Contractor shall

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not use the on-site water service and shall be responsible for providing water from off-site sources.

1. The Contractor shall provide all necessary connections, piping and hoses to utilize the available sources of water.
- B. The Contractor shall provide an adequate supply of cool drinking water with individual drinking cups for personnel on the job.

### **1.07 TEMPORARY ELECTRICITY**

- A. The Contractor may make use of the electricity available at the site, metered and paid for by the Owner, provided that the Contractor shall supply proper adapters and extension cords. Where heavy-duty electric equipment drawing current in excess of 15 amp. is involved, the Contractor shall provide temporary service to supply the power. The temporary electric service shall include, but not be limited to labor, materials, and equipment necessary to supply temporary power of adequate capacity for the project. The power company will furnish transformers and meters, when required by the power company, and the Contractor shall bear the costs.
- B. Temporary electrical work shall be performed under the direct supervision of at least one master electrician, who will be present on the project at all times when such work is being performed.
- C. All temporary work shall be provided in conformity with the National Electric Code, State Laws and requirements of the power company.
- D. The Contractor shall dismantle and completely remove from the project site, temporary electrical facilities only when the permanent electrical system is operational.

### **1.08 WINTER CONDITIONS**

- A. Remove snow and ice which may impair progress of work, be detrimental to workmen or impair trucking, delivery or moving of materials at job site, or prevent adequate drainage at site or adjoining areas.

END OF SECTION

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SECTION 01 70 00

PROJECT CLOSEOUT

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 010000 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 RELATED DOCUMENTS

- A. Consult the individual sections of the specifications for specific items required under those sections.

1.03 SUBSTANTIAL COMPLETION

- A. Prior to requesting Substantial Completion as provided in the General Conditions the Contractor shall make a thorough inspection of the Work. During this inspection the Contractor shall prepare a comprehensive list of all items remaining to be completed or corrected. This list shall include all remaining Contractor and Subcontractor items to be provided under the Contract Documents.
- B. Upon completion of the list, the Contractor shall notify, in writing, the Landscape Architect/Civil Engineer that the Work is Substantially Complete. The Landscape Architect/Civil Engineer shall then conduct a similar thorough inspection. If the Landscape Architect/Civil Engineer agrees that the Work is Substantially Complete, the Landscape Architect/Civil Engineer will promptly make a thorough inspection and prepare a monetized punch list, setting forth in accurate detail any items on the Contractor's list and additional items that are not acceptable or incomplete. The Contractor shall coordinate all Subcontractors to achieve prompt completion of the punch list.
- C. The Contractor shall not be relieved of the responsibility to provide Contract items left off of the Landscape Architect/Civil Engineer's punch list.
- D. If the Landscape Architect/Civil Engineer determines that the Work is not Substantially Complete, the Landscape Architect/Civil Engineer shall inform the Contractor of those items that must be completed before the Landscape Architect/Civil Engineer will prepare a monetized punch list. Upon completion of those items, the Contractor shall again request the Landscape Architect/Civil Engineer to prepare a punch list.
- E. When the punch list has been prepared, the Landscape Architect/Civil Engineer will arrange a meeting with the Contractor and Subcontractors to identify and explain all punch list items and answer questions on work, which must be done before final acceptance.
- F. The Landscape Architect/Civil Engineer may revise the punch list, from time to time, to ensure that all items of Work are properly completed.
- G. The Landscape Architect/Civil Engineer shall prepare the Certificate of Substantial Completion in accordance with the General Conditions.

1.04 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Prior to final payment and completion, the Contractor shall provide all Operating Manuals

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and Maintenance Instructions as required by the Contractor Documents and as requested by the Owner.

- B. Consult the individual sections of the specifications for the specific requirements for those sections and for further details and descriptions of the requirements
- C. Operating Instructions and Manuals:
  - 1. The Contractor shall collect all of the above instructions and copies of all approved submittals and bind them into three complete sets in three ring binders, and submit them to the Landscape Architect/Civil Engineer who will deliver them to the Owner.
  - 2. Submission of operating and maintenance instructions shall be a condition precedent to the final payment.
- D. Instructions of Owner's Personnel:
  - 1. Where specified in the individual sections of the specifications, the Contractor and Subcontractor shall instruct the Owner's personnel at the site, in the use and maintenance of equipment installed under the Contract.
  - 2. Submission to the Landscape Architect/Civil Engineer of a certificate of compliance to this requirement, signed by the Contractor and the Landscape Architect/Civil Engineer, shall be a condition precedent to final payment.

### **1.05 FINAL COMPLETION**

- A. Related Requirements:
  - 1. The Contractor's attention is directed to the General Conditions of the Contract.
- B. Final Completion:
  - 1. Within 7 days after Substantial Completion, if any of the items on the Landscape Architect/Civil Engineer's punch list are not complete or if the Contractor has not provided the appropriate Record Drawings, Operating Manuals, Warranties, Guarantees, or Spare Parts, the Landscape Architect/Civil Engineer may assign a monetary value for each incomplete item as well as any other items per the General Laws of the Commonwealth of Massachusetts.
  - 2. The Contractor shall provide the Landscape Architect/Civil Engineer with a Notarized Contractor's Certificate and Release and an appropriate Application for Payment. This Application shall be for an amount equal to the remaining balance of the Contract less the amount the Landscape Architect/Civil Engineer's monetized punch list and any other items per the General Laws of the Commonwealth of Massachusetts.
  - 3. The Contractor shall complete all remaining Work in accordance with the provisions of the General Conditions of the Contract.
  - 4. Upon completion of all remaining items, and after receipt of all appropriate Shop Drawing, Record Drawings, Operating Manuals, Warranties, Guarantees and Spare Parts required by the Contract Documents, The Contractor shall provide a notarized Contractor's Certificate and Release and a final Application for Payment to complement this closeout process.

END OF SECTION

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## SECTION 01 78 36

### WARRANTIES

#### PART 1 – GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. This Section contains general information that applies to all work performed under the Contract and is inherently made a part of each specification section.

##### 1.02 WARRANTY REQUIREMENTS

- A. Warranties Required: All materials, equipment, and work of the Project shall be covered by comprehensive written warranties. Refer to individual specification sections for additional specific warranty requirements. For work not specified to have additional specific warranty requirements or warranties longer than one year, provide a comprehensive one year written warranty signed by the Contractor and Subcontractor.
  - 1. Warranty Limitations: Warranties required under the Contract are in addition to and not in lieu of any remedy or warranty to which the Owner is entitled under law. Warranties required under the Contract shall not be interpreted as a waiver of any of the Owner's rights.
  - 2. Warranty Procurement: Do not purchase or subcontract for material, equipment or work until it has been verified that parties required to provide and sign warranties are willing to do so and that warranty language, content, and form are approved by the Owner. Special warranty terms, conditions, and requirements are often specified.
  - 3. Warranties are Irrevocable: After a specific warranty's language, content, and form has been approved by the Owner and after the work covered by a specific warranty is subcontracted or purchase order given to a manufacturer, the warrantor shall not revoke or withhold the warranty for any reason including, without limitation, non-payment or incomplete payment by any party other than the owner, except that if the work has not been installed in compliance with the warrantors installations requirements, then the warranty may be temporarily withheld until corrections are made and the warrantors installation requirements have been met.
  - 4. Warranty Forms: Submit written warranty forms to Owner through Landscape Architect/Civil Engineer for approval prior to award of subcontract, submission or purchase order, and execution of warranty. The manufacturers standard warranty forms may not comply with the requirements of the Contract Documents. Special warranty terms, conditions, and requirements are often specified and required.
    - a. Standard Warranty Form: In the absence of specific written permission by the Owner, provide all warranties including the Contractors comprehensive one year warranty on fully executed copies of the "Standard Warranty Form" included in this Section.
  - 5. Executed Warranties: Furnish original or certified copies of each executed warranty to Owner for warranty and maintenance manuals. Comply with requirements of Section 017839, Project Record Documents.

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6. Work Covered by Warranty: Contractor and warrantor shall remove and replace other work damaged as a result of failure of warranted materials, equipment, or work, and shall remove or replace other work which must be removed and replaced to provide access to and replacement of materials, equipment, or work covered under warranty. Warranties shall include full payment to the Owner for work related to warranty repair or replacement including, without limitation, painting.
7. Pro-Rated Warranties: Unless otherwise specified or approved in writing by Owner, each warranty shall cover full cost of replacement or repair, and shall not be pro-rated on basis of useful service life or warranty period.
8. Warranty Extensions; Work repaired or replaced under warranty shall be provided with a new warranty equal to the full length of the original warranty. The new warranty shall begin on the date of Owner's acceptance and use of the replaced or repaired item.
9. Warranty Effective Starting Date: All warranties shall begin on Date of Final Acceptance of the entire project or Owner's acceptance of the work or item covered by the warranty, whichever is later, and the warranty coverage shall continue for the period specified. If no specific warranty period is specified, the warranty shall extend for one year (365 days).
10. Contractor's Responsibilities for Warranties: The Contractor shall implement and invoke all guarantees and warranties provided by subcontractors, manufactures, material suppliers, and other parties, including warranties longer than one year duration. The Contractor shall make every effort to facilitate, expedite, and aid the Owner in warranty claims the Owner may have throughout the warranty periods.

END OF SECTION

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PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 RECORD DRAWINGS

- A. Record Drawings shall consist of all the Contract Drawings.
- B. From the sets of electronic drawings furnished by the Owner, the Contractor shall print and reserve one set for record purposes. From this set, the Contractor shall detach and furnish, at no charge to all Subcontractors, the drawings of their portion of the Work for the same purposes.
- C. The Contractor and the above Subcontractors shall keep their record set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work, and any variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order or instructions by the Landscape Architect/Civil Engineer shall be recorded. Record Drawings shall be prepared for the entire project and include all Work.
- D. The Landscape Architect/Civil Engineer may periodically inspect the Record Drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly requisitions for periodic payment.
- E. At Substantial Completion the Contractor shall submit the complete set of Record Drawings to the Landscape Architect/Civil Engineer. The Landscape Architect/Civil Engineer will review these drawings and return them to the Contractor with necessary comments.
- F. Upon receipt of an AutoCAD compatible disk or electronic file of the original contract drawings from the Landscape Architect/Civil Engineer, the Contractor and Subcontractors shall transfer the As-Built information shown on the Record Drawings. This electronic drafting shall be done by an experienced CAD operator and match the original Drawings.
- G. From the disks, the Contractor shall, at its own expense, prepare five sets of hardcopies on bond and the electronic files on a DVD to the Landscape Architect/Civil Engineer. Each sheet shall be clearly marked "Record Drawing" and bear the date of printing. Submission of accurate Record Drawings and their approval by the Landscape Architect/Civil Engineer shall be a condition precedent to final payment.

1.03 AS-BUILT SURVEY

- A. Provide an as-built survey stamped by a licensed land surveyor in the Commonwealth of

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Massachusetts of the final site conditions. Survey of the new work shall tie into the existing survey to show actual site conditions post-construction.

1. Three (3) original stamped copies will be provided to the Owner as well as a pdf and CAD file for the final as-built survey.

END OF SECTION

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CONTRACT NO. P25-35866-C2A

**DIVISION 02 00 00**  
EXISTING CONDITIONS

**ACTIVITAS**

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## SECTION 02 00 00

### SITE REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section, whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all under the Contract.

##### 1.02 EXAMINATION OF SITE

- A. Prior to bidding the Contractor shall thoroughly examine the site and the Contract Documents to ensure his knowledge of conditions and requirements affecting the work. No claim for extra compensation or extension of time will be allowed for Contractor's failure to comply with this requirement nor will any condition at the site, whether or not in agreement with conditions shown or called for on the Bid and Contract Documents, be allowed as a basis for such claims, except as otherwise specifically provided for.

##### 1.03 DISCOVERY

- A. If during the demolition, excavation, disposal, or other work, articles of unusual value, or of historical or archeological significance are encountered, the ownership of such articles is retained by the Owner, and information regarding their discovery shall be immediately furnished to the Landscape Architect/Civil Engineer. If the nature of the article is such that the work can not proceed without danger of damaging same, work in that area shall be immediately discontinued until the Landscape Architect/Civil Engineer and/or Owner has decided the proper procedure to be followed. Any time lost thereby shall be a condition for which the time of the Contract may be extended. All costs incurred after discovery in the salvaging of such articles shall be borne by the Owner.

##### 1.04 COORDINATION WITH EXISTING UTILITIES

- A. The Contractor shall give advance notice to public utility companies as required by law, and shall provide proper disposition, subject to Landscape Architect/Civil Engineers and/or Owner's approval of all existing pipe lines, conduits, sewers, drains, poles, wiring, and other utilities that in any way interfere with the work, whether or not they are specifically shown on the Drawings. The Contractor shall immediately notify the Owner and appropriate authorities when coming across unknown utility line, and await decisions as to how to dispose of same. When an existing utility line must be cut and plugged, or capped, moved, or relocated, or has become damaged he shall notify the Owner and the Utility company involved, and assure the protection, support, or moving of utilities to adjust them to the new work. The Contractor shall be responsible for all damage caused to existing and/or active utilities under the work of this Contract, whether or not such utilities are shown on the Drawings, including resultant damages or injuries to persons or properties.
1. Written notice shall be given by the Contractor to all public service corporations owning or having charge of publicly or privately owned utilities of his intention to

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commence operations affecting such utilities at least (1) week in advance of the commencement of such operations, and the Contractor shall at that time file a copy of such notice with the Landscape Architect/Civil Engineer.

2. Before the Contractor begins any work or operations that might damage any subsurface structures, he shall carefully locate all such structures and conduct his operations so as to avoid any damage to them.
- B. Agents of various public service agencies, municipal and State departments may be entering on the work site to remove existing facilities, to construct or place new facilities or to make alterations to existing facilities.
- C. Prior to starting work or erecting permanent construction signing, the Contractor shall notify the "DIG SAFE" program with a minimum of 72 hours advance warning. Once located and marked, the Contractor shall maintain such marks and access to installations to permit repairs and maintenance of service if interrupted.
- D. The Contractor shall perform the work in cooperation with various agencies in a manner that causes the least interference with the operations of the aforementioned agencies and shall have no claim for daily due to said work of these agencies.
- E. 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 of his intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations. The Contractor shall, at the same time, file a copy of such notice with the Landscape Architect/Civil Engineer.

### 1.05 LAYOUT

- A. Contractor shall maintain a level and transit on the job, and shall employ personnel for use thereof trained and registered as a Civil Engineer or as a registered Surveyor by the Commonwealth of Massachusetts. The Owner and Landscape Architect/Civil Engineer shall have reasonable use of the instruments at all times.
- B. Existing survey information on Drawings is for Contractors use. Contractor shall establish and maintain benchmarks in at least two widely separated locations, and shall establish and maintain grades, lines, levels and other dimensional reference guides as required. The Contractor shall annotate project documents to indicate all modifications of grades, utilities, etc.

### 1.06 PROTECTION OF PROPERTY AND THE PUBLIC

- A. Construct all fences, barricades, and protective facilities required for the protection of the public, in accordance with local and State regulations. Furnish and install all signs, lights, reflectors and all such protection facilities as may be required.
- B. Contractor shall save the Owner harmless from all claims arising from the use of public streets and sidewalks and adjoining premises for construction purposes.
- C. Keep all access roads and walks clear of debris, materials, construction plans and equipment, during building operation. Repair streets, drives, curbs, sidewalks, fences, poles and the like, where disturbed by construction, and leave them in a good condition after completion of the work as before operations started. The Contractor shall contact appropriate Town officials concerning hauling of construction materials over Town roads and bridges.

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- D. Provide ways and means to control the flow of water from every source which may cause delay or damage during the construction operation.
- E. Protect all planting, landscaping, trees and site improvements as indicated on the Drawings.
- F. The Contractor shall be responsible for the maintenance of construction barriers and traffic barriers in order to maintain traffic, over, through, or around the work included in his Contract with the maximum of safety and practicable convenience to such traffic during the life of the Contract, and whether or not work has been suspended temporarily. He shall take all precautions for preventing injuries to persons or damage to property to or about the work.
- G. The work shall be carried on and barriers erected in such a manner as to provide safe passage at all times for public travel and with least obstruction to traffic. The Contractor shall provide and maintain, at his own expense, in a safe and passable condition, such temporary by-passes as created by the barriers as may be necessary to accommodate both pedestrian and vehicular traffic.
- H. The Contractor shall maintain all legally required means of egress.
- I. Where the new construction or repair work coincides with the presently traveled way, the Contractor shall carry on his work so that travel will not be obstructed.
- J. Whenever gale or high winds are forecasted, take proper measures to secure all loose material, equipment or other items which could blow about and be damaged or cause damage to other work. No such loose items shall be left unsecured at end of working day.

### **1.07 POLICE**

- A. Whenever, in the opinion of the Town or School Department, traffic is sufficiently congested, or public safety is endangered the Contractor shall furnish at his expense a uniformed police detail to direct traffic or to keep traffic off the area affected by construction operations. Such officers shall be in addition to flagmen required under other provisions of the Contract. The Contractor shall comply with all necessary notifications and payment schedules as required by the Town of Weston Police Department.
- B. The employment of or the presence of special officers or police shall in no way relieve the Contractor of any responsibilities or liability that is his under the terms of the Contract.

### **1.08 FIRE DEPARTMENT ACCESS**

- A. The Contractor shall maintain fire lanes as required by the Weston Fire Department throughout the course of construction.

### **1.09 SPECIAL SECURITY AND CONTRACTOR'S RESPONSIBILITY FOR THE WORK**

- A. The Owner shall not provide security within the storage, staging, or construction areas nor will the Owner assume responsibility for acts of vandalism, within these areas.
- B. Until written acceptance of the physical work by the
- C. Landscape Architect/Civil Engineer and/or Owner, the Contractor shall assume full charge thereof and he shall take every necessary precaution against damage to the work by action of the elements, or from any cause whatever, whether arising from the execution of the Contractor or not.

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- D. The Contractor shall bear all losses resulting to him on account of vandalism.
- E. The Contractor shall rebuild, repair, restore and make good all damages to any portion of the work occasioned by any of the above causes before the completion and written acceptance of the physical work, and shall bear the expense thereof.
- F. Should the Contractor fail to take prompt action whenever conditions make it necessary, the Owner shall make emergency repairs or cause the same to be made, with the stipulation that the costs for such repairs shall be charged against the Contractor and deducted from monies due to him.
- G. In case of suspension of work from any cause whatever, the Contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, provide for normal drainage and shall erect any necessary temporary structures, signs, or other facilities at his expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings and seedlings furnished under his/her Contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

### **1.10 TEMPORARY BRACING, SHORING, SHEETING, TIE DOWN**

- A. Provide all sheeting, shoring, bracing, underpinning, reinforcement and other temporary supports as may be required to maintain the integrity of, and prevent damage to, any structure or finish to be subjected to or adjacent to cutting work. Patch to restore to sufficient final strength, and acceptance appearance, subject to Landscape Architect/Civil Engineer and/or Owner's approval.

### **1.11 SITE DRAINAGE**

- A. Contractor shall take over responsibilities for existing site drainage upon entering premises, and maintain such drainage during the life of his Contract in a manner approved by the Landscape Architect/Civil Engineer and so as not to adversely affect adjacent areas.
- B. Keep excavations, pits, trenches, and other construction areas free of water at all times, including backing up drains and sewers. Provide hydraulic equipment to control surface and ground water. Pumping equipment shall be adequate to remove all hydrostatic pressure from structures until sufficient strength has been developed by the structure to protect work from displacement or other damage.
- C. Maintain ground water level where required sufficiently below excavation level at all times to maintain stable working platform. Ground water shall be controlled so as to avoid adverse effects on established ground water elevation of adjacent sites.

### **1.12 SITE TRENCHING AND EXCAVATION**

- A. Open excavation adjacent to the traveled way or shoulders shall not remain through the hours of darkness, holiday or periods of shutdown, unless adequately protected and specifically authorized by the Town. The Contractor shall obtain a street opening permit from the Town Department of Public Works prior to excavating in Town streets or right-of-ways.
- B. If live service connections are to be 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.

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- C. 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 Contract price, and no additional compensation will be allowed therefore.
- D. Before starting any work for this Contract, the Contractor shall prepare and submit to the Landscape Architect/Civil Engineer for approval, a plan that indicates the traffic routing proposed by the Contractor during the various stages and time periods of the work and the temporary barricades, signs, cones, drums, and other safety and traffic control devices to be employed during each stage and time period of the work to maintain traffic and access to abutting properties.
- E. Particular care should be taken to establish and maintain methods and procedures, which will not create unnecessary or unusual hazards to public safety. Traffic control and safety devices required only during working hour operations shall be removed at the end of each working day.
- F. 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.
- G. All trenches with the right-of-way in pavements to remain shall be hot patched at the end of each workday as directed.
- H. All existing and other materials not required or needed for use on the project, and not required to be removed and stacked, shall become the property of the Contractor and shall be removed and stacked, shall become the property of the Contractor and shall be removed from the site and legally disposed of unless otherwise noted. No separate payment will be made for this work and all costs in connection therewith shall be included in the bid price of this Contract.

### **1.13 COORDINATION**

- A. Before commencing any work, or any phase of work, the Contractor shall prepare a sequence of operations for all work under the Division, and shall submit it for approval by the Landscape Architect/Civil Engineer and the Owner at a Pre-Construction Conference.
- B. Before commencing any work, the Contractor shall consult with the Owner regarding any uses of any facility, including, but not limited to, loading docks, parking areas, storage areas, etc., that may be required to prosecute work.
- C. If, in the judgment of the Landscape Architect/Civil Engineer, continued work under the approved sequence of operations may interfere with the operations of any other construction projects at any time during the progress of the work, the Landscape Architect/Civil Engineer may direct the Contractor to accelerate, interrupt, or cease work, at particular points. The Contractor shall make reasonable changes in the sequence of operations to accommodate these directions, at no additional cost to the Owner.
- D. The Contractor shall be responsible for the proper fitting of all work and the coordination of the operations of all trades, Subcontractors, or materials and equipment engaged upon the work. He shall be prepared to guarantee each of his Subcontractors the dimensions which they may require for the fitting of their work to all surrounding work and shall perform or cause the Subcontractors to perform all cutting, fitting or adjusting and patching necessary to make the several parts of the work come together properly and to fit the work to receive or be received by that of other Contractors.

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- E. The Contractor shall give his personal supervision to the work or have a competent superintendent on the job at all times during the progress of the work, with the authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expedition of his work.
- F. The Contractor shall lay out his own work and shall be responsible for all lines, elevations and measurements of the grading, landscaping and other work executed by him under the Contract. He shall exercise proper precaution to verify the dimensions shown on the Drawings before laying out the work and will be held responsible for any error resulting from his failure to exercise such precaution.
- G. The Contractor's responsibility for the coordination of all work under the Contract shall be complete, and shall extend to all modifications in the work, whether or not such modifications entail a change in the Contract price. Where the Contract Documents allow an optional material or method, the Contractor shall provide all other coordination and additional work that such change necessitates, without any additional cost to the Owner.
- H. The Contractor shall provide all necessary coordination with the Contractor for the Support Building (to be completed simultaneously under separate contract).

### 1.14 MEASUREMENTS

- A. Before ordering any material or doing any work, the Contractor shall verify all measurements and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the Drawing; any difference which may be found shall be submitted to the Landscape Architect/Civil Engineer, in writing, for consideration before proceeding with the work.

### 1.15 CONDUCT OF WORK

- A. The Contractor shall coordinate with the Owner and Landscape Architect/Civil Engineer, work in connection with adjacent occupied buildings or areas, driveways, walks or other facilities that would prevent access thereto or interrupt, restrict or otherwise infringe upon the Owner's use thereof.
- B. Damage to existing work, if caused by Contractor's operations under this Contract, shall be repaired at Contractor's expense.
- C. The Contract Site shall be shown on Drawings, and shall include the entire area bounded by the "Contractors Work Area" or "Limit of Work" lines when required for performance of work under the Contract.
- D. Any street or other paving, curbs and/or sidewalks damaged as the result of work under this Contract, whether within or outside of the limits of the work, shall be repaired and/or replaced with new matching construction by the Contractor causing such damage, at his expense, and in a manner satisfactory to the Landscape Architect/Civil Engineer and authorities having jurisdiction there over.
- E. Where existing curbs or walks are to remain, or after new curbs or walks are constructed and trucking is required over them, they shall be suitably protected in an approved manner.
- F. The Contractor shall provide continuous, lawful, safe, adequate and convenient access to the site. Access to the site shall generally be via existing roadways and paved surfaces

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that the Contractor shall maintain and restore to original condition. Contractor shall construct and maintain in good usable condition temporary roads or appurtenances as required, and when no longer required, remove, temporary construction and restore such areas to their original condition.

### **1.16 CLEANING UP**

A. The following specific cleaning work shall be done:

1. Concrete and masonry shall be cleaned free of all foreign matter. If, in opinion of the Landscape Architect/Civil Engineer, further cleaning of specific areas is required they shall be scrubbed with water or other cleaning agents. Acid cleaners shall not be used, except as otherwise specifically be permitted in the trade sections.
2. Surfaces with integral finishes shall be washed with clean water, mild soap and soft rags, thoroughly rinsed, and then wiped with clean, soft rags. Abrasive cleaners shall not be used.
3. Painted surfaces shall be cleaned free of foreign matter, and if necessary, shall be lightly scrubbed at specific stains with clean water, mild soap, and soft rags thoroughly rinsed, and wiped with clean, soft white rags.
4. Metal surfaces, hardware, equipment, and similar items shall be cleaned free of all foreign matter and, if necessary, shall be lightly scrubbed at specific stains with clean water, mild soap, and soft rags, thoroughly rinsed and wiped with clean soft, white rags. Abrasive cleaners shall not be used.
5. All advertising matter and temporary instructional material shall be removed from exposed surfaces throughout.

END OF SECTION

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## SECTION 02 00 00

### SITE REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section, whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all under the Contract.

##### 1.02 EXAMINATION OF SITE

- A. Prior to bidding the Contractor shall thoroughly examine the site and the Contract Documents to ensure his knowledge of conditions and requirements affecting the work. No claim for extra compensation or extension of time will be allowed for Contractor's failure to comply with this requirement nor will any condition at the site, whether or not in agreement with conditions shown or called for on the Bid and Contract Documents, be allowed as a basis for such claims, except as otherwise specifically provided for.

##### 1.03 DISCOVERY

- A. If during the demolition, excavation, disposal, or other work, articles of unusual value, or of historical or archeological significance are encountered, the ownership of such articles is retained by the Owner, and information regarding their discovery shall be immediately furnished to the Landscape Architect/Civil Engineer. If the nature of the article is such that the work can not proceed without danger of damaging same, work in that area shall be immediately discontinued until the Landscape Architect/Civil Engineer and/or Owner has decided the proper procedure to be followed. Any time lost thereby shall be a condition for which the time of the Contract may be extended. All costs incurred after discovery in the salvaging of such articles shall be borne by the Owner.

##### 1.04 COORDINATION WITH EXISTING UTILITIES

- A. The Contractor shall give advance notice to public utility companies as required by law, and shall provide proper disposition, subject to Landscape Architect/Civil Engineers and/or Owner's approval of all existing pipe lines, conduits, sewers, drains, poles, wiring, and other utilities that in any way interfere with the work, whether or not they are specifically shown on the Drawings. The Contractor shall immediately notify the Owner and appropriate authorities when coming across unknown utility line, and await decisions as to how to dispose of same. When an existing utility line must be cut and plugged, or capped, moved, or relocated, or has become damaged he shall notify the Owner and the Utility company involved, and assure the protection, support, or moving of utilities to adjust them to the new work. The Contractor shall be responsible for all damage caused to existing and/or active utilities under the work of this Contract, whether or not such utilities are shown on the Drawings, including resultant damages or injuries to persons or properties.
1. Written notice shall be given by the Contractor to all public service corporations owning or having charge of publicly or privately owned utilities of his intention to

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commence operations affecting such utilities at least (1) week in advance of the commencement of such operations, and the Contractor shall at that time file a copy of such notice with the Landscape Architect/Civil Engineer.

2. Before the Contractor begins any work or operations that might damage any subsurface structures, he shall carefully locate all such structures and conduct his operations so as to avoid any damage to them.
- B. Agents of various public service agencies, municipal and State departments may be entering on the work site to remove existing facilities, to construct or place new facilities or to make alterations to existing facilities.
- C. Prior to starting work or erecting permanent construction signing, the Contractor shall notify the "DIG SAFE" program with a minimum of 72 hours advance warning. Once located and marked, the Contractor shall maintain such marks and access to installations to permit repairs and maintenance of service if interrupted.
- D. The Contractor shall perform the work in cooperation with various agencies in a manner that causes the least interference with the operations of the aforementioned agencies and shall have no claim for daily due to said work of these agencies.
- E. 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 of his intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations. The Contractor shall, at the same time, file a copy of such notice with the Landscape Architect/Civil Engineer.

### 1.05 LAYOUT

- A. Contractor shall maintain a level and transit on the job, and shall employ personnel for use thereof trained and registered as a Civil Engineer or as a registered Surveyor by the Commonwealth of Massachusetts. The Owner and Landscape Architect/Civil Engineer shall have reasonable use of the instruments at all times.
- B. Existing survey information on Drawings is for Contractors use. Contractor shall establish and maintain benchmarks in at least two widely separated locations, and shall establish and maintain grades, lines, levels and other dimensional reference guides as required. The Contractor shall annotate project documents to indicate all modifications of grades, utilities, etc.

### 1.06 PROTECTION OF PROPERTY AND THE PUBLIC

- A. Construct all fences, barricades, and protective facilities required for the protection of the public, in accordance with local and State regulations. Furnish and install all signs, lights, reflectors and all such protection facilities as may be required.
- B. Contractor shall save the Owner harmless from all claims arising from the use of public streets and sidewalks and adjoining premises for construction purposes.
- C. Keep all access roads and walks clear of debris, materials, construction plans and equipment, during building operation. Repair streets, drives, curbs, sidewalks, fences, poles and the like, where disturbed by construction, and leave them in a good condition after completion of the work as before operations started. The Contractor shall contact appropriate Town officials concerning hauling of construction materials over Town roads and bridges.

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- D. Provide ways and means to control the flow of water from every source which may cause delay or damage during the construction operation.
- E. Protect all planting, landscaping, trees and site improvements as indicated on the Drawings.
- F. The Contractor shall be responsible for the maintenance of construction barriers and traffic barriers in order to maintain traffic, over, through, or around the work included in his Contract with the maximum of safety and practicable convenience to such traffic during the life of the Contract, and whether or not work has been suspended temporarily. He shall take all precautions for preventing injuries to persons or damage to property to or about the work.
- G. The work shall be carried on and barriers erected in such a manner as to provide safe passage at all times for public travel and with least obstruction to traffic. The Contractor shall provide and maintain, at his own expense, in a safe and passable condition, such temporary by-passes as created by the barriers as may be necessary to accommodate both pedestrian and vehicular traffic.
- H. The Contractor shall maintain all legally required means of egress.
- I. Where the new construction or repair work coincides with the presently traveled way, the Contractor shall carry on his work so that travel will not be obstructed.
- J. Whenever gale or high winds are forecasted, take proper measures to secure all loose material, equipment or other items which could blow about and be damaged or cause damage to other work. No such loose items shall be left unsecured at end of working day.

### **1.07 POLICE**

- A. Whenever, in the opinion of the Town or School Department, traffic is sufficiently congested, or public safety is endangered the Contractor shall furnish at his expense a uniformed police detail to direct traffic or to keep traffic off the area affected by construction operations. Such officers shall be in addition to flagmen required under other provisions of the Contract. The Contractor shall comply with all necessary notifications and payment schedules as required by the Town of Weston Police Department.
- B. The employment of or the presence of special officers or police shall in no way relieve the Contractor of any responsibilities or liability that is his under the terms of the Contract.

### **1.08 FIRE DEPARTMENT ACCESS**

- A. The Contractor shall maintain fire lanes as required by the Weston Fire Department throughout the course of construction.

### **1.09 SPECIAL SECURITY AND CONTRACTOR'S RESPONSIBILITY FOR THE WORK**

- A. The Owner shall not provide security within the storage, staging, or construction areas nor will the Owner assume responsibility for acts of vandalism, within these areas.
- B. Until written acceptance of the physical work by the
- C. Landscape Architect/Civil Engineer and/or Owner, the Contractor shall assume full charge thereof and he shall take every necessary precaution against damage to the work by action of the elements, or from any cause whatever, whether arising from the execution of the Contractor or not.

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- D. The Contractor shall bear all losses resulting to him on account of vandalism.
- E. The Contractor shall rebuild, repair, restore and make good all damages to any portion of the work occasioned by any of the above causes before the completion and written acceptance of the physical work, and shall bear the expense thereof.
- F. Should the Contractor fail to take prompt action whenever conditions make it necessary, the Owner shall make emergency repairs or cause the same to be made, with the stipulation that the costs for such repairs shall be charged against the Contractor and deducted from monies due to him.
- G. In case of suspension of work from any cause whatever, the Contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, provide for normal drainage and shall erect any necessary temporary structures, signs, or other facilities at his expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings and seedlings furnished under his/her Contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

### **1.10 TEMPORARY BRACING, SHORING, SHEETING, TIE DOWN**

- A. Provide all sheeting, shoring, bracing, underpinning, reinforcement and other temporary supports as may be required to maintain the integrity of, and prevent damage to, any structure or finish to be subjected to or adjacent to cutting work. Patch to restore to sufficient final strength, and acceptance appearance, subject to Landscape Architect/Civil Engineer and/or Owner's approval.

### **1.11 SITE DRAINAGE**

- A. Contractor shall take over responsibilities for existing site drainage upon entering premises, and maintain such drainage during the life of his Contract in a manner approved by the Landscape Architect/Civil Engineer and so as not to adversely affect adjacent areas.
- B. Keep excavations, pits, trenches, and other construction areas free of water at all times, including backing up drains and sewers. Provide hydraulic equipment to control surface and ground water. Pumping equipment shall be adequate to remove all hydrostatic pressure from structures until sufficient strength has been developed by the structure to protect work from displacement or other damage.
- C. Maintain ground water level where required sufficiently below excavation level at all times to maintain stable working platform. Ground water shall be controlled so as to avoid adverse effects on established ground water elevation of adjacent sites.

### **1.12 SITE TRENCHING AND EXCAVATION**

- A. Open excavation adjacent to the traveled way or shoulders shall not remain through the hours of darkness, holiday or periods of shutdown, unless adequately protected and specifically authorized by the Town. The Contractor shall obtain a street opening permit from the Town Department of Public Works prior to excavating in Town streets or right-of-ways.
- B. If live service connections are to be 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.

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- C. 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 Contract price, and no additional compensation will be allowed therefore.
- D. Before starting any work for this Contract, the Contractor shall prepare and submit to the Landscape Architect/Civil Engineer for approval, a plan that indicates the traffic routing proposed by the Contractor during the various stages and time periods of the work and the temporary barricades, signs, cones, drums, and other safety and traffic control devices to be employed during each stage and time period of the work to maintain traffic and access to abutting properties.
- E. Particular care should be taken to establish and maintain methods and procedures, which will not create unnecessary or unusual hazards to public safety. Traffic control and safety devices required only during working hour operations shall be removed at the end of each working day.
- F. 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.
- G. All trenches with the right-of-way in pavements to remain shall be hot patched at the end of each workday as directed.
- H. All existing and other materials not required or needed for use on the project, and not required to be removed and stacked, shall become the property of the Contractor and shall be removed and stacked, shall become the property of the Contractor and shall be removed from the site and legally disposed of unless otherwise noted. No separate payment will be made for this work and all costs in connection therewith shall be included in the bid price of this Contract.

### **1.13 COORDINATION**

- A. Before commencing any work, or any phase of work, the Contractor shall prepare a sequence of operations for all work under the Division, and shall submit it for approval by the Landscape Architect/Civil Engineer and the Owner at a Pre-Construction Conference.
- B. Before commencing any work, the Contractor shall consult with the Owner regarding any uses of any facility, including, but not limited to, loading docks, parking areas, storage areas, etc., that may be required to prosecute work.
- C. If, in the judgment of the Landscape Architect/Civil Engineer, continued work under the approved sequence of operations may interfere with the operations of any other construction projects at any time during the progress of the work, the Landscape Architect/Civil Engineer may direct the Contractor to accelerate, interrupt, or cease work, at particular points. The Contractor shall make reasonable changes in the sequence of operations to accommodate these directions, at no additional cost to the Owner.
- D. The Contractor shall be responsible for the proper fitting of all work and the coordination of the operations of all trades, Subcontractors, or materials and equipment engaged upon the work. He shall be prepared to guarantee each of his Subcontractors the dimensions which they may require for the fitting of their work to all surrounding work and shall perform or cause the Subcontractors to perform all cutting, fitting or adjusting and patching necessary to make the several parts of the work come together properly and to fit the work to receive or be received by that of other Contractors.

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- E. The Contractor shall give his personal supervision to the work or have a competent superintendent on the job at all times during the progress of the work, with the authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expedition of his work.
- F. The Contractor shall lay out his own work and shall be responsible for all lines, elevations and measurements of the grading, landscaping and other work executed by him under the Contract. He shall exercise proper precaution to verify the dimensions shown on the Drawings before laying out the work and will be held responsible for any error resulting from his failure to exercise such precaution.
- G. The Contractor's responsibility for the coordination of all work under the Contract shall be complete, and shall extend to all modifications in the work, whether or not such modifications entail a change in the Contract price. Where the Contract Documents allow an optional material or method, the Contractor shall provide all other coordination and additional work that such change necessitates, without any additional cost to the Owner.
- H. The Contractor shall provide all necessary coordination with the Contractor for the Support Building (to be completed simultaneously under separate contract).

### **1.14 MEASUREMENTS**

- A. Before ordering any material or doing any work, the Contractor shall verify all measurements and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the Drawing; any difference which may be found shall be submitted to the Landscape Architect/Civil Engineer, in writing, for consideration before proceeding with the work.

### **1.15 CONDUCT OF WORK**

- A. The Contractor shall coordinate with the Owner and Landscape Architect/Civil Engineer, work in connection with adjacent occupied buildings or areas, driveways, walks or other facilities that would prevent access thereto or interrupt, restrict or otherwise infringe upon the Owner's use thereof.
- B. Damage to existing work, if caused by Contractor's operations under this Contract, shall be repaired at Contractor's expense.
- C. The Contract Site shall be shown on Drawings, and shall include the entire area bounded by the "Contractors Work Area" or "Limit of Work" lines when required for performance of work under the Contract.
- D. Any street or other paving, curbs and/or sidewalks damaged as the result of work under this Contract, whether within or outside of the limits of the work, shall be repaired and/or replaced with new matching construction by the Contractor causing such damage, at his expense, and in a manner satisfactory to the Landscape Architect/Civil Engineer and authorities having jurisdiction there over.
- E. Where existing curbs or walks are to remain, or after new curbs or walks are constructed and trucking is required over them, they shall be suitably protected in an approved manner.
- F. The Contractor shall provide continuous, lawful, safe, adequate and convenient access to the site. Access to the site shall generally be via existing roadways and paved surfaces

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that the Contractor shall maintain and restore to original condition. Contractor shall construct and maintain in good usable condition temporary roads or appurtenances as required, and when no longer required, remove, temporary construction and restore such areas to their original condition.

### **1.16 CLEANING UP**

A. The following specific cleaning work shall be done:

1. Concrete and masonry shall be cleaned free of all foreign matter. If, in opinion of the Landscape Architect/Civil Engineer, further cleaning of specific areas is required they shall be scrubbed with water or other cleaning agents. Acid cleaners shall not be used, except as otherwise specifically be permitted in the trade sections.
2. Surfaces with integral finishes shall be washed with clean water, mild soap and soft rags, thoroughly rinsed, and then wiped with clean, soft rags. Abrasive cleaners shall not be used.
3. Painted surfaces shall be cleaned free of foreign matter, and if necessary, shall be lightly scrubbed at specific stains with clean water, mild soap, and soft rags thoroughly rinsed, and wiped with clean, soft white rags.
4. Metal surfaces, hardware, equipment, and similar items shall be cleaned free of all foreign matter and, if necessary, shall be lightly scrubbed at specific stains with clean water, mild soap, and soft rags, thoroughly rinsed and wiped with clean soft, white rags. Abrasive cleaners shall not be used.
5. All advertising matter and temporary instructional material shall be removed from exposed surfaces throughout.

END OF SECTION

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CROW HILL  
POND BEACH  
IMPROVEMENTS**

CONTRACT NO. P25-35866-C2A

**DIVISION 03 00 00**  
CONCRETE

**ACTIVITAS**

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## SECTION 03 00 00

### CAST-IN-PLACE CONCRETE

#### PART 1 - GENERAL

##### 1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 – GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

##### 1.02 WORK INCLUDED

- A. Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
  - 1. Cast-in-place concrete foundations.
  - 2. Other cast-in-place cement concrete site requirements as detailed in the Drawings.

##### 1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Earthwork
- B. Site Furnishings
- C. Porous Asphalt Pavement
- D. Cement Concrete Pavement
- E. Loam and Seed
- F. Storm Drainage System

##### 1.04 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirement shall govern.
  - 1. American Society for Testing and Materials (ASTM):

C 67	Brick and Structural Clay Tile
C 91	Masonry Cement
C 144	Aggregate for Masonry Mortar
C 150	Portland Cement
C 207	Hydrated Lime for Masonry Purposes
C 270	Mortar for Unit Masonry

##### 1.05 SUBMITTALS

- A. Complete shop drawings for reinforcing steel for each cast-in-place concrete site components shall be submitted.

### CAST-IN-PLACE CONCRETE

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1. Include placing drawings that detail fabrication, bending, and placement. Indicate bar sizes, lengths, bar schedules, bent bar diagrams, splices, and reinforcement supports as applicable.
- B. Manufacturer's Product Data shall be submitted for all proprietary products used in concrete work including, but not limited to, curing compounds, admixtures, and reinforcement accessories.
- C. Concrete Mix Design: Submit proposed design mix for the type and strength of concrete specified. Provide separate mix designs for any change in ingredients. Include the following items:
  1. Mix proportions for all ingredients of the mix. Designate within the submittal where each mix is proposed to be used. Proportions shall be established by one of the following methods in accordance with ACI 301.
    - a. Field experience.
    - b. Trial Batch.
    - c. Water/cement ratio specified herein.
  2. Cement type.
  3. Aggregate gradations taken within 3 months from the date of submission. Specify size of coarse aggregate in accordance with ASTM size numbers.
  4. Provide data for all proprietary items incorporated into the mix including, but not limited to admixtures.
  5. Compressive strength results from an independent testing laboratory for mixes designed in accordance with trial batch or field experience methods.
    - a. Trial batches shall be tested within 12 months of the date of submission.
    - b. Submit quantity of tests in accordance with ACI 301. Note that mix designs developed in accordance with the field experience method must include a minimum of 30 consecutive tests, with an allowance for 10 to 30 consecutive tests with a higher average strength required.
    - c. Slump and air content shall be consistent with specifications for this project within tolerances specified within ACI 301.

### 1.06 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
  1. Manufacturer shall be certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities.
- C. Testing Agency Qualifications: If the trial batch method is used to design concrete mixes, testing shall be performed by an independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
  1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
  2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

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- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- E. Reference Publications: Comply with the following unless modified by requirements in the Contract Documents:
  - 1. ACI 301, "Specification for Structural Concrete", Sections 1 through 5.
  - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials".
  - 3. ACI 318, "Building Code Requirements for Structural Concrete".
  - 4. ACI 347R "Guide to Formwork for Concrete".
  - 5. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice".

### 1.07 TESTING AND INSPECTION

- A. The Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections will include the following:
  - 1. Steel reinforcement placement (if applicable)
  - 2. Concrete placement, including conveying and depositing.
  - 3. Curing procedures and maintenance of curing temperature.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
  - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
  - 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  - 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
  - 5. Compression test specimens: ASTM C 31/C 31M. Cast and laboratory cure one set of four standard cylinder specimens for each composite sample.
  - 6. Compressive-Strength Tests: ASTM C 39/C 39M; test one laboratory-cured specimen at 7 days two specimens at 28 days. Retain the fourth specimen for testing at 56 days in the event that the 28-day strength tests do not attain the specified strength.
    - a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
  - 7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  - 8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
  - 9. Test results shall be reported in writing to the 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

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- 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.
10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by the Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by the Engineer.
  11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

### 1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver manufactured products in manufacturer's original, unopened, and undamaged containers with labels intact and legible.
- B. Store and handle manufactured products to prevent damage and deterioration.
- C. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage

## PART 2 – PRODUCTS

### 2.01 COMPACTED DENSE GRADED CRUSHED STONE BASE

- A. Compacted Dense Graded Crushed Stone shall be as specified under Section 31 00 00 – EARTHWORK.
- B. The Contractor shall submit to the Landscape Architect a sieve analysis by an independent recognized testing laboratory of the material he intends to utilize. No material shall be placed until approved by the Landscape Architect in writing.

### 2.02 CAST-IN-PLACE CONCRETE

- A. Ready mix concrete shall conform to ASTM C-94, the batch plant shall be certified in compliance with the National Ready Mix Concrete Association standards. Concrete shall have a minimum 28-day compressive strength of 4,000 psi. Prepare design mixture for concrete, proportioned based on laboratory trial mixture, field test data, or default water-cement ratio given below, according to ACI 301.
  1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
  2. When acceptable data is not available for either field experience or trial batch design methods, design mixture based on a maximum water/cement ratio of 0.35.
  3. Provide a maximum slump of 4 inches except for concrete containing a high-range water reducer. Concrete containing a high-range water reducer shall have a maximum slump of 8 inches when added to concrete with a maximum slump of 4 inches.
- B. Forms shall be steel or wooden forms at the Contractor's option and as approved by the Landscape Architect. Provide forms capable of producing uniform, straight, or curved concrete surfaces. Use only non-staining form release compounds.

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- C. Reinforcing bars shall be deformed steel bars complying with ASTM A-615, grade 60. Provide miscellaneous bar supports and 18 gauge ASTM A-82 annealed steel wire ties.
- D. Portland cement shall conform to ASTM C-150, Type I or Type II. Use only one brand of cement throughout the project. Limit the temperature of the cement to 140 degrees Fahrenheit when delivered to the batching plant.
- E. Supplementary Cementitious Materials: The following cementitious materials may be substituted for a portion of the Portland cement in the design mixture. Limit the percentage, by weight, of cementitious materials as follows:
  - 1. Fly Ash: ASTM C 618, Class C or F. Maximum percentage = 25%.
  - 2. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120. Maximum percentage = 50%.
- F. Aggregates shall conform to ASTM C 33, Class 3S coarse aggregate. Provide aggregates from a single source with a long history of successful use in similar work and conditions.
  - 1. Maximum coarse aggregate size: Comply with size limits in ACI 301.
  - 2. Fine aggregate: Free of materials with deleterious reactivity to alkali in cement.
- G. Water: ASTM C 94/C 94M, potable, and clean, potable and free of all impurities that are detrimental to concrete.
- H. Air-entraining admixtures shall conform to ASTM C-260; use only admixtures that have been accepted in the mix design. Provide admixture in such quantity to provide the following air entrainment within a tolerance of plus or minus 1.5 percent.
  - 1. 1-1/2 inch maximum aggregate size: 5.5 percent.
  - 2. 1 inch maximum aggregate size: 6.0 percent.
  - 3. 3/4 inch maximum aggregate size: 6.0 percent.
- I. Water reducing admixtures shall conform to ASTM C-494 Type A or F; use only admixtures that have been accepted in the mix design.
- J. Curing/sealing compound shall comply with FS TT-C-800, having at least 30% solids content.
- K. Miscellaneous curing materials:
  - 1. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
  - 2. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- L. Form Ties: If required, factory-fabricated, removable or snap-off metal or fiberglass reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that will leave no corrodible metal closer than 1 1/2" to the plane of the exposed concrete surface.
  - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in the concrete surface and will permit neat and solid patching at every hole.
- M. Miscellaneous ties, if required, shall be hot-dipped galvanized steel straps, bars, rods and similar items which are fabricated from not less than 16 gauge sheet steel or 3/16" diameter steel wire. For precast and stone work, provide stainless steel slot anchors, threaded rods and other anchors as approved on shop drawings.

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### N. Expansion Joint Filler:

1. Fiber Type: Preformed asphalt impregnated fiber, ASTM D1751, ½ inch thick unless otherwise noted.
2. Cork Type: Preformed cork expansion joint, ASTM D1752. Type II, ½ inch thick unless otherwise noted.

### O. Expansion joint Sealant: ASTM C920, Type M, Class 2 5; two part polyurethane traffic grade sealant, color to match concrete wall color and to be approved by the Landscape Architect. Vertical joints shall have Nonsag, Grade NS, Use NT sealant.

## 2.03 MORTAR

- A. Patching Mortar for exposed concrete shall be made of the same material and of approximately the same proportions as used for the site walls, except that coarse aggregate shall be omitted and mortar shall consist of not more than 1 part Portland cement to 2 ½ parts damp loose sand by volume. Color to match concrete site walls.

## PART 3 – EXECUTION

### 3.01 COMPACTED DENSE GRADED CRUSHED STONE BASE

- A. Refer to Section 31 00 00 – EARTHWORK for preparation of subgrade and dense graded crushed stone base.
- B. The Contractor shall submit to the Landscape Architect a sieve analysis by an independent recognized testing laboratory of the material he intends to utilize. No material shall be placed until approved by the Landscape Architect in writing.

### 3.02 CAST-IN-PLACE CONCRETE

- A. Contractor shall excavate area to the lines and grades shown to provide proper footing for all concrete footings.
- B. Contractor shall erect proper formwork to pour the concrete footings, and install reinforcing steel where required on Drawings. Formwork shall be free of defects and shall provide a smooth and even finish to the entire wall surface. Place concrete and finish as indicated on the Drawings and as specified. Contractor shall leave forms for a minimum of 48 hours.
1. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
  2. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual.
    - a. For concrete surfaces to be concealed, provide surface tolerance Class D, allowing surface irregularities of 1" when measured with a 5 foot straight-edge.
    - b. For concrete surfaces to be exposed to view, provide surface tolerance Class B, allowing irregularities of ¼" when measured with a 5 foot straight-edge.
- C. Contractor shall protect the concrete against injury from the elements and defacement of any nature during construction.
- D. Strictly comply with industry standards and recommendations National Concrete Masonry Association except where more restrictive requirements are specified in this Section.
- E. Embedded Items: Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use

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setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

### 3.03 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

### 3.04 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired.
  - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated.
  - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete. Width of keys shall be equal to 1/3 of the member thickness unless otherwise noted.
  - 3. Intentionally roughen the concrete surface of construction joints between footings and walls and elsewhere as indicated. Provide a minimum surface roughness amplitude of 1/4 inch.

### 3.05 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- C. Maintain a minimum of 2 working vibrators on the jobsite during each concrete placement.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
  - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

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- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
  - 4. Protection of Footings against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.
- F. Hot-Weather Placement: Comply with ACI 301 and as follows:
  - 1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### 3.06 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Cure formed concrete surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
  - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

### 3.07 CONCRETE SURFACE REPAIRS

- A. Repair surface imperfections by patching or grinding in accordance with ACI referenced

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standards. Allow 28 days after placement before performing surface repairs unless otherwise directed.

- B. At concealed surfaces, grind projections larger than 1". Patch voids larger than 1-1/2" wide or 1/2" deep. Finished surface shall comply with Surface Finish 1.0 per ACI 301.
- C. At surfaces that will be exposed to view, grind projections larger than 1/4". Patch voids larger than 3/4" or 1/2" deep. Patching material shall have color to match adjacent surfaces.
  - 1. Prepare a patching mock-up for approval before performing patching to surfaces that will be exposed to view. Patch an area that will be inconspicuous and allow for viewing by Activitas before proceeding with successive patching.

END OF SECTION

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POND BEACH  
IMPROVEMENTS**

CONTRACT NO. P25-35866-C2A

**DIVISION 06 00 00**  
WOOD

**ACTIVITAS**

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SECTION 06 15 00

WOOD PEDESTRIAN BOARDWALK

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes

1. Wood Pedestrian Boardwalk.
2. Wood Pedestrian Railing.
3. Fasteners.
4. Connectors.

1.2 RELATED DOCUMENTS

- B. Examine all Drawings and all Sections of the Specifications for requirements and provisions affecting the work of this section.

1.3 SCOPE OF WORK

- A. Work under this Section, without limiting the generality thereof, consists of the furnishing and installation of all materials of this Section, equipment, labor, transportation facilities, and all operations and adjustments required for the complete and operating installation as indicated on the Drawings, stipulated in the Specifications and as reasonably implied by either or both. This includes, but is not limited to the following:
1. Construction of the helical pile supported the boardwalk.
- B. Should drawings not agree within themselves or the specifications, the greater quantity, or superior quality of work or materials shall be included.

1.4 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. The following items of related work are specified and included in other Sections of the Specifications
1. Helical Piles under HELICAL PILES, SECTION 31 66 15.
  2. EARTHWORK, SECTION 31 20 00.

1.5 REFERENCES

- A. American Wood Council – National Design Specifications (AWC-NDS).
- B. American Society for Testing and Materials (ASTM):
1. A36, Standard Specification for Carbon Structural Steel.
  2. A307, Standard Specifications for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
  3. A563, Standard Specification for Carbon and Alloy Steel Nuts.

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4. D245, Standard Practice for Establish Structural Grades and Related Allowable Properties for Visual Graded Lumber.
5. D1990, Standard Practice for Establishing Allowable Properties for Visually Graded Dimension Lumber from In-Grade Tests of Full-Size Specimens.
6. F436, Standard Specification for Hardened Steel Washers.
7. F1554, Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.
- C. American National Standard Institute (ANSI)
  1. ANSI/American Society of Mechanical Engineers (ASME) Standard B12.2.1.
- D. American Wood Protection Associations (AWPA) Analytical Standards: A2, A3, A9, A16, A17, A18.
- E. AWPA U1 Use Category System: User Specification for Treated Wood.
- F. ICBO ES ER-4981.
- G. National Forest Products Association (NFPA).
- H. American Institute of Timber Construction (AITC).
- I. National Forest Products Association (NFPA).
- J. 2020 International Building Code (IBC).
- K. Massachusetts State Building Code (MSBC).

### 1.6 SUBMITTALS

- A. Shop Drawings:
  1. Detailed shop drawings, including erection drawings, schedules, and index sheet, showing:
    - a. Grades of wood.
    - b. Dimensions.
    - c. Size and arrangement.
    - d. Framing to support deck, if applicable.
    - e. Wood blocking.
    - f. Wood rail posts and fencing/railing.
    - g. Framing plan.
  2. Describe proposed methods of installation and anchorage to structure showing size, types, thicknesses, connections of wood members and related items, including adjoining work by other trades.
  3. Errors in dimension shown on shop drawings shall be the responsibility of Contractor. Check and coordinate woodwork with work of other trades before submitting shop drawings.
  4. Do not proceed with the production of materials or performance of the work until the corresponding item on the shop drawings has been reviewed by the Engineer.

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- B. Methods of erection include a description of the methods, sequence of erection, and type of equipment proposed for use in erecting structural woodwork.
- C. Connection design calculations for any connection details vary from those provided on the construction drawings. The calculations should be stamped by a licensed professional engineer registered in the Commonwealth of Massachusetts, properly coordinated with shop drawings, also stamped by the same licensed professional engineer stamping the calculations.
- D. Manufacturer's literature for all metal connectors and framing anchors.
- E. Wood-preservative-treatment data from chemical treatment manufacturer. Included certification of chemical solution and affirmation that it complies with indicated treatment standard.
- F. Submit chemical treatment manufacturer's instructions for handling, storing, installing and finishing of treated materials.
  - 1. For each type of pressure treatment specified, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained and conformance with applicable standards.
  - 2. Warranty documents for each type of treatment.
- G. Quality Control Submittals:
  - 1. Methods proposed to resolve misalignment between anchor bolts and bolt holes in wood members.
  - 2. Manufacturer's and/or fabricator's and/or erector's affidavit, upon request, stating that the materials or products provided comply with the Specification.

### **1.7 QUALITY ASSURANCE**

- A. Erector shall have a minimum of 3 years of experience, specializing in the performing of the work specified in this Section, unless otherwise approved by the Engineer.
- B. Contractor shall provide the services of a Professional Engineer, registered in the Commonwealth of Massachusetts, to design and certify that the work of this section meets or exceeds the performance requirements specified.
- C. For each material type required for the work of this section, provide primary materials that are the product of one manufacturer. Provide secondary or accessory materials that are acceptable to the manufacturers of the primary materials.
  - 1. Alkaline copper quaternary (ACQ) preservative-treated wood products from a single approved source.
  - 2. Wood Treatment Plan Qualifications: Wood treatment plant experienced in performing work of this section which specializes in the treatment of wood similar to that required for this project, licensed by the manufacturer.
  - 3. All wood shall be graded by a grader certified by an approved lumber grading agency or a qualified individual who has completed a wood grading training source. Wood shall bear a grade stamp or a certificate of grade from the lumber grader.

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### **1.8 PRODUCT DELIVERY, STORAGE AND PROTECTION**

- A. Keep wood dry during delivery and storage.
- B. Store wood off the ground and keep covered
- C. Timber shall be handled in an approved manner such that the material will not be damaged. The material shall be stored onsite in an area which will be designated by the Owner.
- D. Cut and stack wood so as not to encourage the growth of sap-stain fungi, mold or mildew, Stack lumber flat with stickers and spacers between bundles to allow air circulation.
- E. Provide reasonable protection during transportation, storage, handling and erection of the wood to avoid marring, staining, or the accumulation of excess moisture, dirt and foreign matter.

### **1.9 PROJECT CONDITIONS**

- A. Verify actual dimensions in the field before fabrication for items requiring field measurements. Field dimensions shall be shown on the shop drawings and shall be noted as having been verified.

## **PART 2 – PRODUCTS**

### **2.1 WOOD MATERIALS**

- A. Sawn lumber shall comply with the requirements of AWC-NDS National Design Specification for Wood Construction and Supplement.
- B. Wood Species: Southern Yellow Pine or species with equal to better properties only approved by the Engineer.
- C. Wood Grade: No. 1 or Better.
- D. Moisture Content: Wood shall be dried to a maximum moisture content of 19%.
- E. Wood 8x12 and smaller shall be free of heart center (FOHC). Wood larger than 8x12 shall be boxed heart.
- F. Dressing: Wood shall be surfaced four sides (S4S) rough sawn, unless noted otherwise. Wood sizes are nominal dimensions, unless otherwise noted as only rough sawn.
- G. Wood shall be pressure treated in accordance with American Wood Protection Association (AWPA U1).
  - 1. Preservative chemicals; Alkaline Copper Quaternary (ACQ).
- H. End cut preservative: Treat cut ends in accordance with manufacturer's recommendations.

### **2.2 FASTENERS**

- A. Bolts and Lag Screws – ASTM A307 hot dipped galvanized.
- B. Anchor Bolts: ASTM F1554.

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- C. Steel Connection Plates, Straps and Bars: ASTM A36.
- D. Nails, Brads and Staples: ASTM F1667.
- E. Wood Screws: Complying with the requirements of ASME B18.6.1.
- F. Nuts: ASTM A563, type and finish to match bolt type and finish.
- G. Hardened Steel Flat and Beveled Washers: ASTM F436, type and finish to match bolt type and finish.
- H. The fastener must have at least the same corrosion resistance as the connector.
- I. The fastener shall be coordinated with the connector type as recommended by the Manufacturer.

### **2.3 CONNECTORS**

- A. As recommended by Manufacturer for intended usage.
- B. Connectors may not be modified in the field unless noted by the Manufacturer.
- C. All connectors shall be manufactured by Simpson Strong-Tie Co., Inc. or other manufacturers with products of equal or better capacity and performance having ICBO approval.

### **2.4 FABRICATION**

- A. General:
  - 1. Wood shall be manufactured in strict conformance to approved shop drawings. Fabrication prior to receipt of approved shop drawings shall be at the Contractor's risk.
  - 2. Complete assembly, including bolting, before starting of finishing operations.
  - 3. Field cut wood to agree with field measurements as needed.
- B. Connectors: Design and detail all connections which vary from design plans to resist the design loads. Do not use one-sided or other eccentric connections, except isolated cases where approval of the Engineer is obtained.
- C. Connection Joinery: Wood shall be manufactured to join tightly and in proper alignment at the time of assembly. Small (1/4" or less) Variations where the faces of the joints come together (in alignment or separation) are acceptable. Provisions shall be made in detailing joinery to allow for dimensional changes (joint separation and alignment) associated with wood drying shrinkage.
- D. Corrective Work: Wood elements having fabrication errors and/or which do not satisfy tolerance limits shall not be incorporated in finished work. Such elements may be corrected if permitted by the Engineer. Submit drawings showing details of proposed corrective work. These drawings shall be approved prior to performing corrective work. Corrective work and any retesting which may be required shall be at no additional cost.

### **2.5 QUALITY CONTROL**

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- A. Wood manufacturing, materials, and workmanship shall be subjected to inspection and testing in mill, shop and/or field by the Engineer.
- B. Maintain inspection and quality control records of shop and field work.
- C. Notify the Engineer prior to start of any fabrication, the start of painting, or other phases of work so as to afford them reasonable opportunity to inspect work.
- D. Notify the Engineer prior to start of any fabrication, the start of painting (If applicable) or other phases of work so as to afford them reasonable opportunity to inspect work.
- E. Woodwork which has been rejected by the Engineer in the mill or shop shall be corrected without delay and at no expense to the Owner.
- F. Acceptance of woodwork at the shop shall not prevent its final rejection at the job site, even after it has been erected, if it is found to be defective in any way.
- G. Do not remove any marks or tags identifying rejected work.

### PART 3 – EXECUTION

#### 3.1 EXAMINATION

- A. Examine all work prepared by others to receive work of this Section and report any defects affecting installation to Contractor for correction. Commencement of work will be construed as complete acceptance of preparatory work by others.

#### 3.2 ERECTION

- A. Field connections shall conform to the relevant sections of the IBC.
- B. Errors in shop fabrication or deformations resulting from handling and/or transportation that prevent proper assembly and fitting of parts shall be reported immediately to the Engineer for approval and method of correction. Approved corrections shall be made at no additional cost to the Owner.

#### 3.3 INSTALLATION

- A. Joints are to be square, tight and well-fastened with all members assembled in accordance with the Contract Documents.
- B. Holes for bolts shall be slightly over drilled so that the bolt can pass through with no play around bolt hole and threads.
- C. Bolts shall be tightened to provide a solid connection. No more than 1 washer shall be installed under the bolt head or nut. Bolt threads shall project no more than one bolt diameter beyond the nut.
- D. All timber shall be cut and fit in such a manner as to have full bearing over the entire contact surface.
- E. All cut faces of timber shall be coated with a minimum of 2 coats of sealing compound as specified herein before installation.

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### **3.4 ANCHOR BOLTS**

- A. Coordinate installation of anchor bolts and other connectors required for securing wood to in-place work.
- B. Furnish templates, anchor bolts, and other items to be embedded in cast-in-place concrete in ample time so that this work will not be delayed.

### **3.5 WOOD FENCING**

- A. Install fencing per the design plans and details.
- B. Post shall be bolted to boardwalk stringers per the design plans.

### **3.6 MISFITS AT BOLTED CONNECTIONS**

- A. Where misfits in erection bolting are encountered, immediately notify the Engineer for approval of one of the following methods of correction:
  - 1. Ream holes that must be enlarged to admit bolts and use oversized bolts.
  - 2. Reject the member containing misfit, incorrectly sized, or misaligned holes and manufacture a new member to ensure a proper fit.
- B. Do not enlarge incorrectly sized or misaligned holes in members by burning or by using drift pins or by forcing bolts.

### **3.7 MISFITS AT ANCHOR BOLTS**

- A. Resolve misalignments between anchor bolts and bolt holes in wood members in accordance with approved submittal.

### **3.8 ERECTION TOLERANCES**

- A. Maximum variation from plumb and maximum offset from alignment shall be in accordance with the IBC.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **4.1 METHOD OF PAYMENT**

- A. Payment for WOOD PEDESTRIAN BOARDWALK shall be made by Lump Sum, complete in place. This price and payment shall constitute full compensation for supply and satisfactory installation of all new lumber, and hardware as identified on the contract drawings complete in place including all labor, equipment, testing, transportation, survey, supervision, materials, drilling, all hardware, disposal of any surplus materials, and all other items necessary for the satisfactory supply and installation of the Wood Pedestrian Boardwalk, including any incidentals necessary to complete the work specified herein and as shown on the Contract Drawings.

END OF SECTION

**MASSACHUSETTS DCR  
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CONTRACT NO. P25-35866-C2A

**DIVISION 31 00 00**  
EARTHWORK

**ACTIVITAS**

**MASSACHUSETTS DCR- CROW HILL POND BEACH IMPROVEMENTS**

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SECTION 31 10 00

SITE PREPARATION

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Work Included: Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
  - 1. Protection of existing utilities.
  - 2. Protection of existing vegetation and trees.
  - 3. Stripping, screening and stockpiling of existing materials for reuse on-site.
  - 4. Installation and maintenance of temporary construction fencing.
  - 5. Installation and maintenance of temporary construction erosion control.

1.03 JOB CONDITIONS

- A. General: The Contractor shall visit and accept the site as he finds it, and shall inform himself of the character and the type of site items to be removed. The Contractor shall walk the site with the Landscape Architect and Owner prior to commencing work to review the full scope of demolition and items to remain. The Owner assumes no responsibility for the actual condition or structural adequacy of any existing construction to be demolished.
- B. Damage or loss to site improvements shall be at the risk of the Contractor from and after the date of Contract execution, and no such damage or loss shall relieve the Contractor from any obligation under the Contract.
- C. Disposal: Dispose of cleared, grubbed, and removed materials off the site. Burning of materials on the job site will not be permitted. All items must be disposed of in a safe and legal manner.
- D. Traffic: Conduct operations and removal of debris to ensure minimum interference with the normal use of corridors, public ways and other adjacent facilities. Do not close or obstruct traffic ways, corridors, streets, walks or other used facilities without the written permission of the Owner and authorities having jurisdiction.
- E. Protection: Prevent injury to persons and damage to property. Immediately repair collapse or damage to existing structures or utilities.
- F. Shoring and Bracing: Provide adequate shoring and bracing to prevent uncontrolled collapse or damage to existing structures and utilities.

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- G. Dust and Noise Control: Take effective measures to prevent windblown dust and to control noise to avoid creating a nuisance. Avoid creating ice hazards in freezing weather.
- H. Utilities: Maintain all utilities except those requiring removal or relocation. Keep utilities in service and protect from damage. Do not interrupt utilities serving use areas without first obtaining permission from the utility company and the Owner. Provide temporary services as required.

### PART 2 – PRODUCTS

#### 2.01 TEMPORARY CONSTRUCTION FENCING

- A. Construction fence shall be equivalent to Temporary Construction Fence - Rental Fence on Blocks as provided by Steelco Fence, 19 Brook Road, Needham Heights, MA 02494.

#### 2.02 STOCKPILE COVER

- A. Reinforced polypropylene tarps, resistant to ultraviolet radiation.
- B. Secured with ropes and anchors, as required and approved by the Landscape Architect.

#### 2.03 STABILIZED CONSTRUCTION ENTRANCE

- A. Reference drawings for construction entrance materials and details.
- B. Aggregate for construction entrances shall conform to MHD Specifications Section M2.01.1.
- C. Crushed stone shall be durable, crushed stone or gravel from off-site sources, conforming to the following:

<u>Location or Use</u>	<u>MHD Spec. Section</u>
Stabilized Construction Entrance	M2.01.1

### PART 3 – EXECUTION

#### 3.01 TEMPORARY CONSTRUCTION FENCING

- A. Erect temporary construction fencing as directed in areas as shown on the construction documents.
- B. Existing Chain Link Fence, 6'-0" or higher, scheduled to be removed and/or replaced under the contract may be used as construction fence until it is replaced by new chain link fencing.
- C. Contractor must maintain a secure site at all times.

#### 3.02 DEMOLITION

- A. General: Demolish completely and legally remove from site and dispose of properly. Proceed with demolition systematically.
- B. Demolish all existing above and below grade improvements except as indicated in the drawings. Wherever areas of new construction area shown to go over or encompass existing construction or improvements, the Contractor shall notify the Landscape Architect immediately for a determination on the conflict.

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### **3.03 SALVAGE**

- A. Salvage indicated material or materials determined to be suitable and required for reuse, including: grates, frames or other metal castings and miscellaneous parts of inlets and manholes; metal fences; and other miscellaneous site items as indicated on the Drawings. Stockpile items to be salvaged in off-site location, as designated by Owner and Landscape Architect.
- B. Protect (metallic) coatings on salvaged items. Remove adhering concrete from salvaged items.
- C. Items to be Packaged and Stored Off-Site: Items to be packaged and stored off-site shall be carefully packaged in a substantial manner with all related components, accessories, and fasteners, clearly tagged for reassembly. Photocopies of reassembly documents shall be included in each package of each group of related components.
  - 1. Type of label components with identifying code to provide proper reassembly.
  - 2. Packaging shall be suitable for material, and shall be secure.
  - 3. Dry components thoroughly: coat components susceptible to corrosion and all threaded areas with anti-corrosion coating.

### **3.04 STRIPPING, SCREENING AND STOCKPILING TOPSOIL AND FILL MATERIALS**

- A. Prior to starting general excavation, strip all topsoil within areas to be occupied by athletic fields, structures and pavements, as well as all areas to be regarded, or used for construction operations for later use in loaming and finish grading. Topsoil shall be stockpiled at locations as indicated on drawings or as approved on site by the Owner and Landscape Architect/Engineer. Should the topsoil be stockpiled in an area without prior approval of the Landscape Architect/Engineer, the Landscape Architect/Engineer may direct the Contractor to relocate such stockpile to another portion of the site, and the Contractor shall do so at no additional cost to the Owner.
- B. Do not strip without clear understanding of existing soil, planting and site conditions to be preserved.
- C. All loam encountered during stripping operation, regardless of depth, shall be excavated, stockpiled and covered on site, where directed. All other stripped material, which can be classified as fill under other Sections, shall be used or stockpiled for re-use in rough grading or backfill.
- D. All stripped topsoil and/or loam to be re-used as topsoil on berms and landscape areas shall be screened in accordance with Section 32 92 19, LOAM AND SEED.

### **3.05 BACKFILL**

- A. Backfill trenches and excavations resulting from work under this Section in accordance with the geotechnical engineer's recommendations.

### **3.06 SAWCUTTING**

- A. Contractor shall use mechanical equipment that produces a clean, straight edge.

END OF SECTION

SITE PREPARATION

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SECTION 31 20 00

EARTHWORK

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 – GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all Drawings and other Sections of the Specifications for requirements therein affecting the work of this Section whether or not such work is specifically mentioned in this Section.
- C. This Section contains information that applies to all work performed under the Contract and is hereby made a part of each specification section.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Stripping of all existing topsoil within the proposed locations of walkways and other site improvements.
  - 2. Excavating for site improvements.
  - 3. Filling, grading and subgrade preparation.
  - 4. On-site management of all excavated materials.
  - 5. Furnishing, placement and compaction of all fill materials specified herein or shown on the Drawings.
  - 6. Protecting stockpiles of excavated fill material and natural soils intended for on-site reuse against increases in moisture content, and freezing temperatures.
  - 7. Frost protection.
  - 8. Rock excavation as may be required to attain the specified grades.
  - 9. Off-site disposal of all unsuitable and excess excavated materials, including any chemical analysis that may be required for off-site disposal.
  - 10. Pumping and other dewatering procedures necessary to maintain excavated areas free of water from any source whatsoever and to avoid disturbance of the subgrade.
  - 11. Storm water control.
  - 12. Rough grading.
  - 13. Dust control.

EARTHWORK

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- B. Special Conditions For Site Preparation and Earthwork Operation: The Contractor shall adhere to normal haul times allowed by the local authorities having jurisdiction.

### **1.03 EXAMINATION OF SITE AND DOCUMENTS**

- A. It is hereby understood that the Contractor has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions as indicated in the Contract Documents, or obvious from observation at the Site.
- B. Plans, surveys, measurements, and dimensions under which the work is to be performed are believed to be correct, but the Contractor shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found except as otherwise provided herein.

### **1.04 STANDARDS AND DEFINITIONS**

- A. Massachusetts Highway Department Standard Specifications for Highways and Bridges (MHD Specifications).
- B. American Society for Testing and Materials (ASTM)
- C. American Association of State Highway and Transportation Officials (AASHTO).
- D. Occupational Safety and Health Administration (OSHA).
- E. MCP: Massachusetts Contingency Plan, 310 CMR 40.0000
- F. Massachusetts Solid Waste Management Facility Regulations 310 CMR 19.00.
- G. Massachusetts Site Assignment Regulations for Solid Waste Facility Regulations 310 CMR 16.000.
- H. Unsuitable Soil: Soils which, due to their consolidation properties, degree of saturation, gradation, or other deleterious characteristics will not provide a stable subgrade, or cannot be used as backfill, or do not conform to the requirements of these specifications, shall be considered unsuitable. The Landscape Architect, Civil Engineer and Owner shall be the sole and final judges as to the suitability of soils at the site.
- I. Trench Excavation: Excavations of any length where the width is less than twice the depth and where the shortest distance between payment lines does not exceed ten (10') feet.
- J. Open Excavation: All excavations not conforming to the definition of Trench Excavation shall be defined as Open Excavation.
- K. Rock Excavation: For payment purposes shall be defined naturally-occurring, intact material that cannot be broken and removed by a CAT 235 or equivalent excavator and requires use of hoe rams, systematic drilling and blasting or other mechanical means to fracture and remove. Boulders over three cubic yards in volume located within soil in open excavation or one cubic yard in volume within soil in trenches, requiring the use of hoe rams, drills, or explosives for removal are also defined as rock excavation.
- L. Invert or Invert Elevation: The elevation at the inside bottom surface of the pipe or channel.
- M. Bottom of pipe: The base of the pipe at its outer surface.

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### **1.05 SUBSURFACE CONDITIONS**

- A. By submitting a bid, the Contractor affirms that he has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.
- B. The Contractor may, at his own expense, conduct additional subsurface testing as required for his own information after approval by the Owner.

### **1.06 SUBMITTALS**

- A. Issue submittals in accordance with Division 1. Submittals under this Section shall include the following:
  - 1. Proposed schedule, sequence, and procedures for all earthwork operations. Proposed earthwork sequencing and procedures shall include detailed descriptions of all methods, operations and equipment proposed for soil excavation, subgrade preparation, and backfilling.
  - 2. Details of compaction equipment, including descriptions, product literature, specifications and ratings, proposed for use in compacting fill and backfill materials.
  - 3. Plan for control of surface water runoff during site work.
  - 4. Plan for control of dust during site work.

### **1.07 SAMPLES AND TESTING**

- A. Fill materials shall be subject to quality control testing. A Soils Engineer may be employed by the Owner to perform tests on materials. Test results and laboratory recommendations will be available to the Contractor.
- B. A 50 lb. sample of each off-site material proposed for use, and of any on-site, shall be submitted to the Landscape Architect or Soils Engineer for review and testing at least ten (10) days prior to first use on-site.
  - 1. Samples shall be delivered to office of the Landscape Architect/Soils Engineer, as directed.
  - 2. The Contractor shall provide the location and name of material source, including on-site sources.
  - 3. The Contractor shall indicate the proposed on-site use of each material submitted.
  - 4. Product Data: Submit location of pits for all borrow material and source site usage.
- C. The Landscape Architect will be the sole and final judge of suitability of all materials.
- D. If retained, the Soils Engineer will determine maximum dry density and optimum water content in accordance with ASTM D1557, Method C, and in-place density in accordance with ASTM D1556 or ASTM D2167.

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- E. Tests of materials as delivered may be made from time to time. Materials in question may not be used, pending test results. Remove rejected materials and replace with new, whether in stockpiles or in place.
- F. It is anticipated that chemical testing would not be required for commercial, natural bank-run borrow source, or materials provided through the crushing and processing of pure rock from a quarry.

### **1.08 COORDINATION**

- A. The work of this Section shall be coordinated with that of other trades affecting, or affected by, this work, as necessary to assure the steady progress of all work of the Contract.
- B. Prior to the start of earthwork, the Contractor shall arrange an on-site meeting with the Landscape Architect, Civil Engineer and Soils Engineer for the purpose of establishing Contractor's schedule of operations and scheduling inspection procedures and requirements.
- C. As construction proceeds, the Contractor shall be responsible for notifying the Landscape Architect prior to start of earthwork operations requiring inspection and/or testing.

### **1.09 SPECIAL SITE CONSIDERATIONS**

- A. It is the responsibility of the Contractor under this Contract to do the excavation, filling, grading and rough grading to bring the existing grades to subgrade and parallel to finished grades as specified herein and as shown on the Drawings for this Work. The Contractor shall visit the site prior to submitting a bid to become familiar with the extent of the work to be done under this Contract. The Contractor shall be responsible for determining the quantities of earth materials necessary to complete the work under this Section. All earth materials shall be included in the Contractor's base bid.

### **1.10 QUALITY ASSURANCE**

- A. The Owner may retain a Soils Engineer to perform on-site observations and testing during the following phases of the construction operations. The services of the Soils Engineer may include, but not be limited to the following:
  - 1. Observation of activities during excavation and subgrade preparation.
  - 2. Observation and testing during placement and compaction of fills.
  - 3. Laboratory testing and analysis of fill and bedding materials specified, as required.
  - 4. Observation, construction and performance of water content, gradation, and compaction tests at a frequency and at locations to assure conformance of this Specification. The results of these tests will be submitted to the Landscape Architect, copy to the Contractor, on a timely basis so that the Contractor can take such action as is required to remedy indicated deficiencies. During the course of construction, the Soils Engineer will advise the Landscape Architect, in writing, with copy to Contractor if, at any time, in his opinion, the work is not in substantial conformity with the Contract Documents.
- B. The Contractor shall allow the Soils Engineer sufficient time to make the necessary observations and tests and shall provide safe access to the work area at all times.

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- C. The Soils Engineer's presence does not include supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of the Soils Engineer, nor any observations and testing performed by him, nor any notice or failure to give notice shall excuse the Contractor from defects discovered in his work.

### **1.11 PERMITS, CODES AND SAFETY REQUIREMENTS**

- A. All work shall conform to the Drawings and Specifications and shall comply with applicable codes and regulations.
- B. Comply with the rules, regulations, laws and ordinances of the Local authorities having jurisdiction, appropriate agencies of the Commonwealth of Massachusetts and all other authorities having jurisdiction. Coordinate all work done within Town and State rights of way with the appropriate agencies. Provide all required traffic control and safety measures, including uniformed police officers per Town and State requirements. All labor, materials, equipment and services necessary to make the work comply with such requirements shall be provided without additional cost to the Owner.
- C. Comply with the provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, Inc., the Commonwealth of Massachusetts Rules and Regulations For the Prevention of Accidents in Construction Operations, and the requirements of the Occupational Safety and Health Administration (OSHA), United States Department of Labor.
- D. The Contractor shall procure and pay for all permits and licenses required for the complete work specified herein and shown on the Drawings.
- E. The Contractor shall not close or obstruct any street, sidewalk, or passageway unless authorized in writing by the Landscape Architect. The Contractor shall so conduct his operations as to interfere as little as possible with the use ordinarily made of roads, driveways, sidewalks or other facilities near enough to the work to be affected hereby. The Contractor shall comply with the time limits established by the terms for trucking onto and off of the site.
- F. Any apparent conflict between the Drawings and Specifications and the applicable codes and regulations shall be referred to the Landscape Architect in writing, for resolution before the work is started.

### **1.12 LAYOUTS AND GRADES**

- A. The Contractor shall maintain and/or reestablish benchmarks and survey monuments shown on the Drawings or found to exist on the site to provide a base reference for the construction. Replace any which may become destroyed or disturbed. The Contractor shall employ and pay all costs for a registered Civil Engineer or Land Surveyor who is licensed within the jurisdiction of the project site to lay out all lines and grades in accordance with the Drawings and Specifications, and as necessary or required for the construction. The selection of the Civil Engineer or Land Surveyor shall be subject to the Owner Representative's approval.
- B. The words "finished grades" as used herein shall mean final grade elevations indicated on the Drawings. Spot elevations shall govern over proposed contours. Where not otherwise indicated, project site areas outside of the building shall be given uniform slopes between points for which finished grades are indicated or between such points and existing grades.
- C. The word "subgrade" as used herein, means the required surface of subsoil, natural glacial till, fill material or compacted ordinary fill prior to placement of the engineered sports

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surface, pavement or concrete walkways. This surface is immediately beneath the site improvements, specially dimensioned fill, paving, loaming or other surfacing material, as dimensioned on the Drawings.

### **1.13 DISPOSITION OF EXISTING UTILITIES**

- A. Active utilities existing on the site and work areas shall be carefully protected from damage and relocated or removed as required by the work. When an active utility line is exposed during construction, its location and elevation shall be plotted on the record drawings as described in this Section and both Landscape Architect and Utility Owner notified in writing.
- B. Inactive or abandoned utilities encountered during construction shall be removed if within the area of site improvement or grouted, plugged or capped. The location of such utilities shall be noted on the record drawings and reported in writing to the Landscape Architect.
- C. The Contractor shall notify "Dig Safe" and local utility companies prior to the start of construction. The "Dig Safe" number shall be submitted by the Contractor in writing to the Landscape Architect prior to construction.
- D. In case of any damage or injury caused in the performance of the work, the Contractor shall at his own expense make good such damage or injury to the satisfaction of, and without cost to the Owner. Existing streets, sidewalks and curbs damaged during the project work shall be repaired or replaced to their condition prior to commencement of earthwork operations, at no additional cost to the Owner.

### **1.14 TEMPORARY DRAINAGE AND DEWATERING**

- A. The Contractor shall control the grading in areas under construction on the site so that the surface of the ground will properly slope to prevent accumulation of water in excavated areas and adjacent properties.
- B. Should surface, rain or ground water be encountered during the operations, the Contractor shall furnish and operate pumps or other equipment, and provide all necessary piping to keep all excavations clear of water at all times and shall be responsible for any damage to work or adjacent properties for such water. All piping exposed above surface for this use, shall be properly covered to allow foot traffic and vehicles to pass without obstruction.
- C. Presence of ground water in soil will not constitute a condition for which an increase in the contract price may be made. Under no circumstances place concrete fill, soil fill, lay piping or install appurtenances in excavation containing free standing water. Keep utility trenches free of water until pipe joint material has hardened and new utility backfilled to prevent flotation.
- D. It is anticipated that minimal dewatering will be necessary to remove ponded surface water and can be accomplished using on-site sumps and pumps.
- E. If discharge is necessary, the Contractor shall discharge all pumped water away from the work area, and in accordance with all applicable local codes and laws. Requirements specified herein for Erosion and Siltation Control shall be met during this process.
- F. All fill material shall be placed and compacted in-the-dry. The Contractor shall dewater excavated areas as required to perform the work and in such a manner as to preserve the undisturbed state of the natural inorganic or other subgrade soils.

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- G. For further information refer to paragraphs on SPECIAL REQUIREMENTS FOR SEQUENCE OF CONSTRUCTION OPERATIONS AND DRAINAGE AND EROSION CONTROL as specified herein.

### **1.15 FROST PROTECTION**

- A. Do not excavate to full indicated depth when freezing temperatures may be expected, unless work can be completed to subgrade or piping can be installed and backfilled the same day. Protect the excavation from frost if placing of concrete or piping is delayed.
- B. The Contractor, at no additional cost to the Owner, shall keep the operations under this Contract clear and free of accumulation of snow within the limits of Contract Lines as required to carry out the work.
- C. No work shall be installed on frozen ground.
- D. Should protection fail, remove frozen materials and replace with suitable fill material as directed and approved by the Landscape Architect at no cost to the Owner.

### **1.16 DISTURBANCE OF EXCAVATED AND FILLED AREAS DURING CONSTRUCTION**

- A. The Contractor shall take the necessary steps to avoid disturbance of underlying fill material, natural subsoil, natural glacial till and compacted ordinary fill during excavation and filling operations. Methods of excavation and filling operations shall be revised as necessary to avoid disturbance of the subgrade and underlying natural soils/compacted fill, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials. The Contractor shall coordinate with the Landscape Architect and Soils Engineer to modify his operations as necessary to minimize disturbance and protect bearing soils.

### **1.17 PROTECTION OF BEARING SUBGRADES**

- A. The Contractor shall be required to maintain stable, dewatered, and frost free subgrades for pavement areas, utility trenches, and other areas as directed by the Landscape Architect or Soils Engineer.
- B. The Contractor shall take precautions to reduce subgrade disturbance. Such precautions may include diverting storm water runoff away from prepared subgrades, reducing traffic in sensitive areas, thermal protection during cold weather periods, and subgrade stabilization such as placement of filter fabric and crushed stone or compacted gravel fill.
- C. Soils exhibiting weaving/instability or which become frozen, as determined by the Soils Engineer, shall be over-excavated (removed) to competent bearing material and replaced with compacted gravel fill or lean concrete at no additional cost to the Owner.

### **1.18 SPECIAL REQUIREMENTS FOR SEQUENCE OF CONSTRUCTION OPERATIONS AND DRAINAGE AND EROSION CONTROL**

- A. An initial procedure for sequencing of construction operations is specified under Section 31 10 00, SITE PREPARATION. This procedure shall be extended through Earthwork operations as follows:
  - 1. Perform initial procedures as specified under Section 31 10 00, SITE PREPARATION.
  - 2. Repair any broken or damaged sections of haybales or siltation fencing installed during site preparation and install any additional sections necessary for proper erosion control.

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3. Throughout earthwork operations, in addition to drainage swales, check dams, siltation sumps, and other items shown on the Drawings, the Contractor shall take other necessary precautions, including installation of temporary drainage swales, siltation sumps, check dams, haybales, silt fencing and temporary pipe to direct and control drainage from disturbed areas on the site so that erosion and siltation is minimal. In addition, no erosion or discharge of silt or larger particles shall occur in water bodies or wetland areas to remain undisturbed or onto adjacent properties or parcels of land.
4. Damaged or loose hay bales and siltation fence shall be replaced as necessary to maintain their function of controlled erosion and siltation. Damaged or broken down check dams and filtration dams shall be replaced immediately.
5. Throughout construction, remove any accumulation of silt or soil build-up behind hay bales, silt fences, check dams and filtration dams as it occurs. Remove accumulations of silt and soil build-up from the siltation sumps and silt traps when it is approximately 18 inches deep.
6. Replace the gravel layer on the inside of all siltation sumps as necessary to permit adequate flow through the gravel and to maintain their function as a filter of silt and larger particles. Excavate silt and other material from the basins of all siltation sumps as it accumulates.
7. Remove temporary drainage swales, check dams, siltation sumps, haybales and other temporary drainage, erosion and siltation control measures when permanent drainage control measures have been installed, and grass is established in drainage areas leading to the siltation sumps. Do not remove the above items without approval of the Landscape Architect. If, in the Landscape Architect's opinion, these measures are still necessary, they shall stay in place.

### **1.19 MEASUREMENT AND PAYMENT**

- A. Payment for removal of all material as shown on the Contract Drawings or as specified herein, shall be included in the contract price on an unclassified basis. This includes management and on-site reuse of existing topsoil to the fullest extent possible, chemical analysis and off-site disposal of excess topsoil if it has been determined by the Landscape Architect that a surplus of topsoil exists at the site, excavation for all materials necessary to construct the athletic fields, drainage lines and parking area as well as all site grading and improvements outside of the general excavation indicated on the drawings and specified herein.
- B. The Contractor shall include in his lump sum all costs associated with excavating all existing topsoil and subsoil to a minimum of 2 feet below finished grade for the athletic fields, paved walkways and other site improvements, as indicated on the Drawings or specified herein.
- C. If any part of the excavation is carried through error beyond the depth directed by the Landscape Architect and the dimensions indicated on the Drawings, or called for in the Specifications, the Contractor, at his own expense, shall furnish and install compacted fill material, as directed by the Landscape Architect up to the required level and/or dimensions.
- D. Excavation, removal, and/or disposal of unsuitable materials below the grades called for on the Drawings and as specified herein shall be paid for after removal of such materials has been authorized by the Landscape Architect. The quantities of excavation, removal,

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disposal and backfilling involving an adjustment of the Contract Price shall be subject to measurement verification and approval by the Landscape Architect, prior to the removal of such materials.

- E. Payment Lines: The following payment lines shall be used for purposes of Contract Price adjustment to determine volume of materials to be excavated, removed and backfilled.
1. Surfaced areas outside the building: Twelve inches below required subgrade as shown on the details.
  2. Utility structures: One foot outside of the outer walls and six inches below the bottom of the structures.
  3. Utility trenches: Width shall be the outside diameter of the pipe plus two feet. Maximum depth shall not exceed 1-foot below the bottom of the pipes, etc. For purposes of measurement and payment, Banks of trenches shall be vertical.
- F. Compensation for all work required under this Section and not specifically covered elsewhere, shall be included in the Contract Lump Sum Price for earthwork. All Unit Prices shall be measured based upon in-place measure unless otherwise noted. For purposes of adjusting the scope of construction, the Unit Price Schedule in the Bid Form may be utilized.
- G. All unit prices shall be based upon volumes measured in-place and shall include all costs associated with furnishing, transporting, placement and compaction of fill materials.

### PART 2 – PRODUCTS

#### 2.01 GENERAL

- A. Fill material shall be obtained from required on-site cut to the extent suitable material is available and off-site to the extent suitable material is not available from on-site cuts.
- B. Fill materials shall conform to the following material descriptions. Gradation requirements shall be determined by ASTM D422 unless otherwise specified.

#### 2.02 MATERIALS

A. Aggregate:

1. GRANULAR FILL, also referred to as structural fill, from off-site sources shall consist of inert material that is hard, durable stone and coarse sand, free from loam, organics and clay, surface coatings, and other deleterious and/or compressible materials. Maximum size of stone in gravel shall be three inches (3") largest dimension.

Sieve (ASTM D422)	% Passing by Weight	
	Minimum	Maximum
3 in.	100	
No. 4	30	90
No. 40	10	50
No. 200	0	8

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2. AGGREGATE BASE COURSE, GRAVEL BASE COURSE, or DENSE-GRADED CRUSHED STONE shall consist of a combination of crusher-run coarse aggregates of crushed stone and fine aggregates of natural sand or stone screenings. Coarse aggregate shall consist of a hard, durable particles of fragments of stone. Fine aggregate shall consist of natural or crushed sand. The composite material shall be free from loam and clay, and deleterious materials. Gradation shall conform to MDPW Specification Designation, M2.01.7, and the following:

Sieve (ASTM D422)	% Passing by Weight	
	Minimum	Maximum
2 in.	100	
1 ½ in.	70	100
¾ in.	50	85
No. 4	30	55
No. 50	8	24
No. 200	3	10

3. COMMON or ORDINARY FILL shall be retained from on-site sources and shall consist of mineral soil, free of organic materials, loam, trash, wood, trash, snow, ice, frozen soil, plastic clay and other compressible or deleterious materials. It shall have physical properties such that it may be readily spread and compacted for the formation of compacted fills without excessive weaving or instability, as judged by the Soils Engineer. It shall be free of highly plastic clays, of all materials subject to decay, decomposition or dissolution, and of cinders or other materials which will corrode piping or other metal.

- a. Fill material, subsoil and glacial till from excavation on the site shall be used as Ordinary Fill. The contractor shall take precautions to maintain suitability of excavated on-site fill, subsoil and glacial till for re-use, particularly in regard to moisture maintenance and prevention of freezing.
- b. The Contractor shall bear all costs associated with the off-site disposal of soils that have become unsuitable after excavation and stockpiling of these soils due to the Contractor's failure to protect the stockpiled soils from moisture and/or freezing.

Note: The maximum particle size shall be 3 inches for backfill placed within 2 feet of utilities and 6 inches elsewhere.

4. SAND BEDDING shall consist of clean, inert, hard, durable grains of quartz or other hard, durable rock, free from loam or clay, surface coatings and deleterious materials, and shall conform to the following gradation requirements:

Sieve Designation	% Passing by Weight	
	Minimum	Maximum
1/4 in.	100	
No. 200	0	10

### B. UNSUITABLE MATERIAL

1. Material containing organic matter, frozen materials, debris, materials subject to decomposition, silts and silty materials which are too wet to be stabilized and existing fill which, in the opinion of the Soils Engineer, do not satisfy the design requirements, shall be unsuitable material.

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2. Suitable Soil that is allowed to become frozen, saturated, or unstable because of the Contractor's failure to employ appropriate dewatering, excavation methods, or weather protection is considered unsuitable material.
3. Unsuitable material shall be legally disposed off-site by the Contractor at no additional cost to the Owner.

### **2.03 EQUIPMENT**

- A. Provide sufficient equipment units of suitable types to spread, level, and compact fills promptly upon delivery of materials.
- B. Contractor may use any compaction equipment or device which he finds convenient or economical, but the Landscape Architect retains the right to disapprove equipment which, in his opinion, is of inadequate capacity or unsuited to the character of material being compacted.

## **PART 3 – EXECUTION**

### **3.01 GENERAL REQUIREMENTS**

- A. Stripping: Prior to starting general excavation, all existing topsoil within the Limit of Work as shown on the Contract Drawings shall be stripped to its full depth, screened and stockpiled in approved locations for later on-site reuse. All stockpiled topsoil shall be screened under the work of this Section and as specified in Section Lawns. All stockpiled topsoil shall be tested for suitability as loam as specified in Sections Planting Soils. If topsoil does not meet the specifications for loam, it may be reused as ordinary fill, beneath lawn and planting areas only, if it meets the requirements as specified, or removed from the site and disposed of in a legal manner. Stockpiled topsoil for re-use as loam shall be free from trash, brush, stones over three-quarter inch (3/4") in diameter and other extraneous matter. All excess loam quantities shall be removed from the site at no additional cost to the Owner after Landscape Architect is satisfied that there is enough existing screened and acceptable material stockpiled on site to complete the project. The Contractor shall perform all chemical analysis that may be required for off-site disposal of the excess topsoil, at no additional cost to the Owner. Do not strip without a clear understanding of existing soil, planting and site conditions to be preserved. Contractor shall supply additional quantities of loam if there is not enough on-site material to complete the work at no additional cost to the Owner.
- B. All topsoil containing excessive amounts of stones or organics shall be stockpiled separately and removed from the site at no additional cost to the Owner.
- C. The Contractor shall perform all work necessary to strip, store, stockpile, transport, clean and re-spread existing topsoil, and to furnish any additional topsoil required to complete the work.

### **3.02 EXCAVATION**

- A. Excavate all materials, on an unclassified basis, encountered to allow construction of the proposed athletic fields, site improvements, utilities and site work as shown on the Drawings and as specified herein.
- B. Excavate to levels shown for site improvements, as required to provide working clearance and to allow adequate inspection.

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- C. All excavation shall be performed in the dry. Excavation and dewatering shall be accomplished by methods which preserve the undisturbed state of subgrade soils.
- D. Excess excavated material shall be reused on site to the fullest extent possible. No off-site removal of soil will be permitted unless directed by the Landscape Architect.
- E. In planting areas, remove boulders and other obstructions to a depth of at least two feet below finished grade.
- F. When excavations have reached the prescribed depths, the Landscape Architect shall be notified and will make an inspection of the conditions. After inspection, the Contractor will receive approval to proceed if conditions meet design requirements.
- G. Should an excavation be carried beyond the depth indicated on the drawings or as specified herein as a result of Contractor's error, the Contractor shall provide and place compacted ordinary fill, as directed by the Landscape Architect, to the required elevation at no additional cost to the Owner.
- H. Localized sumps and temporary ditches shall be made as needed to drain off surface water and groundwater to avoid damage to areas of cut or fill. Such ditches shall be maintained as required for efficient operation, at no additional cost to the Owner. Water shall be recharged on-site.
- I. Prior to placing subbase and base course materials required beneath the athletic fields and for support of pavements and concrete walkways, specifically in areas in which building demolition was recently performed including removal of the below grade remains of former structures utilities and foundations, proof compact subgrades consisting of existing fill material with a minimum of 5 passes of a vibratory roller exerting a minimum of 20,000 foot-pounds of energy to the soil and weighing a minimum of 5-tons. Specific attention should be paid to those areas of the site in which former structures that were recently demolished and removed. Any soft or spongy areas revealed by the proof-compacting process shall be removed and replaced with compacted Ordinary Fill as directed by the Landscape Architect, at no additional cost to the Owner.

### **3.03 TRENCH EXCAVATION**

- A. Excavate as necessary for all drainage pipes, utilities and related structures and appurtenances, and for any other trenching necessary to complete the work.
- B. In general, machine excavation of trenches will be permitted with the exception of preparation of pipe beds which will be hand work. Excavate by hand or machine methods at least six inches below the bottom of all utilities.
- C. Trench excavation shall include the removal of all materials encountered. During excavation, materials determined to be suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins. All excavated materials not required or unsuitable for backfill shall be reused on site. The banks of trenches shall be cut as near vertical as practicable to the extent allowed by OSHA.
- D. The Contractor shall provide, at his own expense, suitable bridges over trenches where required for accommodation and safety of the traveling public and as necessary to satisfy the required permits and codes.

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- E. Trenches shall be excavated to the necessary width and depth for proper laying of pipe or other utility and shall have vertical sides or slopes as required by codes. Minimum width of trenches shall provide clearance between the sides of the trench and the outside face of the utility. Maximum trench sizes are as shown on the Drawings or as specified herein. The depth of the trench shall be six inches below the bottom of the pipe barrel or respective utility.
- F. Coordinate all utility and trench backfilling with the trades involved.

### 3.04 FILLING AND GRADING

- A. Placing Fills:
  - 1. Provide all specified fill materials.
  - 2. Areas to be filled shall be natural undisturbed soil or existing fill material that has been proof compacted as specified herein, and shall be free of construction debris, refuse, compressible or decayable materials and standing water. Do not place fill when subgrade or layers below it are unsuitable.
  - 3. Notify the Landscape Architect when excavations are ready for inspection. Filling shall not be started until conditions have been approved by the Landscape Architect.
  - 4. Furnish approved materials. Place fill in layers not exceeding 6 inches compacted thickness and compact as specified below for various fill conditions.
  - 5. All fill is to be placed "in the dry", to which end dewatering may be required. Spreading and drying of each layer may also be required. The Contractor shall dewater excavated areas as required to perform the work and in such a manner as to preserve the undisturbed state of the existing subgrade.
  - 6. Conversely, if the Geotechnical Engineer 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.
  - 7. At the completion of excavation and before placing any fills, proof-roll excavated subgrades.
  - 8. All fill within the new athletic field and paved parking areas shall be placed and compacted under continuous monitoring by the Geotechnical Engineer.
    - a. Place all specialized fill materials, as specified herein or as shown on the Drawings, within the new sports surface areas, paved parking area and pedestrian walkways in uniform lifts not exceeding 6 inches (compacted thickness) and compact to 95 percent of maximum modified Proctor density.
    - b. Place Ordinary Fill in uniform lifts not exceeding 6 inches (compacted thickness) and compact to 92 percent of maximum dry Proctor density.
  - 9. Within lawns and planting areas: All fills shall be compacted to between 88 and 90 percent of its maximum modified dry Proctor density.
  - 10. In the case of lawn and planting areas, compaction requirements for subgrades and fills shall be considered minimums and maximums within the density

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percentages called for, and any overcompaction of subgrades or fills which would be detrimental to lawn or planting objectives shall be corrected by loosening subgrades or fills through tilling or other means and recompacting to specified compaction limits.

11. The Contractor shall notify the Landscape Architect three (3) days in advance when the rough grades are established and ready for formal inspection.

### B. Backfilling of Trenches and Structures:

1. Areas to be backfilled shall be free of construction debris, refuse, compressible or decayable materials and standing water. Do not place fill when fill materials or layers below it are frozen unless specifically approved by the Soils Engineer.
2. Gravel shall be used as Backfill around manholes and other structures. Excavated material may be used if approved by the Landscape Architect or Soils Engineer.
3. Do not commence backfilling operations of utility trenches until all piping, conduits, etc. have been installed, tested and approved and the locations of all pipe and appurtenances have been recorded. Backfill carefully by hand around pipe to depth of one foot above top of pipe using material specified herein, and tamping firmly in layers not exceeding six inch layers, compacting by hand rammers or mechanical tampers. When a manufacturer of utility line materials suggests backfill materials and methods other than those specified herein, such requirements shall govern providing the finished work equals or exceeds the result obtained by the materials and methods specified herein. Water mains shall be hand backfilled to a minimum cover of 18 inches before mechanical equipment can be used to backfill trench.
4. Sand Bedding will be required below all pipe unless otherwise shown on the Drawings or specified herein. Crushed Stone is required under utility structures where shown on the Drawings. Granular Fill, Sand Bedding or Crushed Stone shall be placed to the full width of the trench and under utility structure foundations as indicated on the Drawings. After a pipe is bedded, the trench shall be filled to the centerline of the pipe with Granular Fill or Sand Bedding except at the joint. After the joint is inspected, that portion shall be filled in with Sand Bedding. Material under and around the pipe shall be carefully and thoroughly tamped.
5. From the centerline of the pipe to a point 12 inches above the top of the pipe the backfill shall be crushed stone or Sand Fill placed by hand and hand tamped. Above this point, backfill shall be placed in layers six inches deep and each layer shall be compacted with mechanical tampers to not less than 95% of maximum density at optimum moisture of the material. This backfill shall be carried up to the bottom of materials specified to be placed for surfacing requirements.
6. Utilities shall not be laid directly on boulders or other hard material. This material shall be removed as specified herein within trench limits, and within vertical planes one foot outside of structure walls. Backfill will be placed in eight inch lifts and thoroughly compacted. If hand guided compaction equipment is used, fill shall be placed in six inch lifts. Ordinary Fill may be used as backfill in areas as specified herein.
7. Coordinate all utility and trench backfilling with the trades involved.

### C. Moisture Control:

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1. Variation of moisture content in fill and backfill materials shall be limited to Optimum Moisture (-1% to +2%). Moisture content shall be as uniformly distributed as practicable within each lift, and shall be adjusted as necessary to obtain the specified compaction.
2. Material which does not contain sufficient moisture to be compacted to the specified densities shall be moisture conditioned by sprinkling, discing, windrowing, or other method approved by the Soils Engineer.
  - a. Material conditioned by sprinkling shall have water added before compaction. Uniformly apply water to surface of subgrade or layer of soil material to obtain sufficient moisture content. The Contractor shall maintain sufficient hoses and/or water distributing equipment at the site for this purpose.
3. Material containing excess moisture shall be dried to required Optimum Moisture before it is placed and compacted. Excessively moist soils shall be removed and replaced and shall be scarified by use of plows, discs, or other approved methods, and air-dried to meet the above requirements.
4. Materials which are within the moisture requirements specified above, but which display pronounced elasticity or deformation under the action of earthmoving and compaction equipment, shall be reduced to Optimum Moisture Content, or below, to secure stability.
5. In the event of sudden downpours or other inclement weather, exposed subgrades and fills which, in the opinion of the Soils Engineer become inundated or excessively moistened shall have excess water removed and soil dried as specified above.

### 3.05 ROUGH GRADING

- A. Rough grading shall include the shaping, trimming, rolling and finishing the surface of the sub-base, shoulders, and earth slopes, and the preparation of the sub-base for loam, seeding and paved surfaces. The grading of shoulders and sloped areas may be done by machine methods. All ruts shall be eliminated. Grading of subgrades for sports surface and roadway and parking areas shall be finished at the required depth below and parallel to the proposed surface.
  1. If, during the progress of rough grading work, water pipe, sewer conduit, drain, or other construction is damaged due to operations under this Contract, the Contractor shall repair all such damage at no additional cost to the Owner and restore damaged areas to their original condition.
  2. Do all other cutting, filling and grading to the lines and limits indicated on the Drawings. Grade evenly to within the dimensions required for grades shown on Drawings and specified herein. No stones larger than four inches (4") in largest diameter shall be placed in upper six inches (6") of fill. Fill shall be left in a compacted state at the end of the work day and sloped to drain.
  3. The Contractor shall bring all areas to grades as shown on the Drawings and in the details. The Landscape Architect, however, may make such adjustments in grades and alignments as are found necessary to avoid special conditions encountered.

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4. No rubbish of any description shall be allowed to enter fill material. Such material shall be removed from the site.
5. Complete the grading operations after the utilities installed, site improvements constructed, and all materials, rubbish and debris removed from the site. Leave subgrade for lawns clean at required grades. There must be sufficient grade staking to provide correct lines and grades.
6. Wherever streets, lawns, sidewalks, or other items contained within or outside of Limits of Contract lines have been excavated in fulfilling the work required under this Contract, this Contractor shall furnish and install all materials necessary to bring finished surfaces level with the existing adjacent surfaces. All work shall be installed to match the existing conditions in accordance with the governing authority. Notify the proper authorities prior to restoring surfaces outside the Contract Limit Lines.

### **3.06 DUST CONTROL**

- A. The Contractor shall take all necessary measures and provide equipment and/or materials to minimize dust from rising and blowing across the site and from impacting neighboring residential property. In addition, the Contractor shall control all dust created by construction operations and movement of construction vehicles, both on the site and paved ways at all times using sprinklered water, or other approved means.
- B. Dust control is required off-site due to work under this Contract, in addition to watering, sweeping and other methods, the Contractor shall apply calcium chloride in the required amounts to properly control dust. These amounts shall be reviewed by the Landscape Architect prior to application. The Contractor shall maintain and clean public roadways from soil and mud resulting from work under this Contract by use of street sweepers or other approved methods.
- C. Do not use oil or similar penetrants. Chemical materials may not be used on subgrades of areas to be seeded or planted.

END OF SECTION

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SECTION 31 25 00

EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. This Section specifies equipment and materials for an erosion and sediment control program for minimizing erosion and siltation during the construction phase of the project. The erosion and sediment control provisions, including but not limited to wire backed silt fence, compost filter tube, silt sacks, and other items detailed on the Drawings and specified herein are the minimum requirements for an erosion control program. The Contractor shall provide additional erosion and sediment control materials and methods as required to affect the erosion and siltation control principles specified herein.
- B. Contractor shall be responsible for applying for a NPDES Permit with the EPA. The Contractor will also need to prepare the SWPPP and shall coordinate the submission with the Landscape Architect/Civil Engineer.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Site Preparation
- B. Earthwork
- C. Bituminous Concrete Pavement
- D. Cement Concrete Pavement
- E. Loam and Seed
- F. Storm Drainage System

1.04 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
- B. Commonwealth of Massachusetts Highway Department "Standard Specifications for Highways and Bridges" (MHD Specifications).

1.05 SUBMITTALS

- A. Proposed methods, materials to be employed, and schedule for effecting erosion and siltation control and preventing erosion damage shall be submitted for approval. Submittals shall include:
  - 1. Proposed methods for effecting erosion control including 1" = 30' scale plans (or

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- other appropriate scale as approved by the Landscape Architect/Civil Engineer) indicating location of erosion control devices and siltation basins.
2. List of proposed materials including manufacturer's product data.
3. Schedule of erosion control program indicating specific dates from implementing programs in each major area of work.
4. Copy of SWPPP.

### 1.06 EROSION CONTROL PRINCIPLES

- A. The Contractor shall implement all soil erosion and sediment control devices prior to excavation within the site.
- B. The following erosion control principles shall apply to the land grading and construction phases:
  1. Stripping of vegetation, grading, or other soil disturbance shall be done in a manner that will minimize soil erosion.
  2. Whenever feasible, natural vegetation shall be retained and protected.
  3. Extent of area, which is exposed and free of vegetation, and duration of its exposure shall be kept within practical limits.
  4. Temporary seeding, mulching, or other suitable stabilization measures shall be used to protect exposed critical areas during prolonged construction or other land disturbance.
  5. Drainage provisions shall accommodate increased runoff resulting from modifications of soil and surface conditions during and after development or disturbance. Such provisions shall be in addition to existing requirements.
  6. Sediment shall be retained on-site.
  7. Erosion control devices shall be installed as early as possible in the construction sequence prior to start of clearing and grubbing operations and excavation work.
- C. Cut and fill slopes and stockpiled materials shall be protected to prevent erosion. Slopes shall be protected with permanent erosion protection when erosion exposure period is expected to be greater than or equal to six months, and temporary erosion protection when erosion exposure period is expected to be less than six months.
  1. Permanent erosion protection shall be accomplished by seeding with grass and covering with an erosion protection material, as appropriate for prevailing conditions.
  2. Temporary erosion protection shall be accomplished by covering with an erosion protection material appropriate for prevailing conditions.
  3. Except where specified slope is indicated on Drawings, fill slopes shall be limited to a grade of 3:1 (horizontal: vertical) cut slopes shall be limited to a grade of 2:1.

## PART 2 - PRODUCTS

### 2.01 COMPOST FILTER TUBE

- A. Elongated tubes of mulch that shall have a minimum diameter of twelve (9") inches and shall be installed with wooden stakes.

### 2.02 SILT SACK

- A. Silt sack shall be manufactured from a specially designed woven polypropylene geotextile and sewn by a double needle machine, using a high strength nylon thread, and

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manufactured by ACF Environmental, Inc., 2831 Cardwell Road, Richmond, VA 23234 (800) 448-3636, or approved equal.

### 2.03 STRAW BLANKET (IF REQUIRED)

- A. Straw Blanket to be used on seeded 3:1 - 4:1 slopes shall be equivalent to Model ECS-1B Single Net Straw Biodegradable Rolled Erosion Control Product as manufactured by East Coast Erosion Control, 443 Bricker Road, Bernville, PA 19506.

## PART 3 - EXECUTION

### 3.01 MAINTENANCE AND REMOVAL OF EROSION CONTROL DEVICES

- A. Drainage swales adjacent to construction activities shall be monitored twice each month for evidence of silt intrusion and other adverse environmental impacts, which shall be corrected immediately upon discovery.
- B. Culverts and drainage ditches shall be kept clean and clear of obstructions during construction period.
- C. Erosion Control Devices
  - 1. Sediment behind the erosion control device shall be checked twice each month and after each heavy rain. Silt shall be removed if greater than 6 in. deep.
  - 2. Condition of erosion control device shall be checked twice each month or more frequently as required. Damaged and/or deteriorated items shall be replaced. Erosion control devices shall be maintained in place and in effective condition.
  - 3. Hay bales shall be inspected frequently and maintained or replaced as required to maintain both their effectiveness and essentially their original condition. Underside of bales shall be kept in close contact with the earth below at all times, as required to prevent water from washing beneath bales.
  - 4. Sediment shall be removed from the retention ponds at the completion of the Project and periodically during construction. Sediment deposits shall be removed when sediment has accumulated to a depth of 12 in. or as directed.
  - 5. Sediment deposits shall be disposed of off- site, in a location and manner which will not cause sediment nuisance elsewhere.
- D. Removal of Erosion Control Devices
  - 1. Erosion control devices shall be maintained until all disturbed earth has been paved or vegetated, at which time they shall be removed. After removal, areas disturbed by these devices shall be regraded and seeded.
  - 2. Erosion control netting shall be kept securely anchored until start of permanent turf construction.
  - 3. Erosion protection material shall be kept securely anchored until acceptance of completed slope or entire Project, whichever is later.

### 3.02 COMPOST FILTER TUBE

- A. Compost filter tube shall be furnished and installed as indicated on the Drawings prior to the start of clearing and grubbing operations.
- B. Compost filter tube shall be installed as indicated in the Drawings and shall be with stakes at a maximum 4' on center.

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- C. Compost filter tube shall remain in working order until the site is stabilized. Additional erosion controls shall be installed, as needed to prevent silt from leaving the site, at no additional cost to the Owner.

3.03 SILT SACK

- A. Silt sack shall be installed per the manufacturer's recommendations.
- B. Silt sack shall be emptied when full and is reusable.

3.04 STRAW BLANKET

- A. Straw blanket shall be installed per the manufacturer's recommendations.

END OF SECTION

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SECTION 31 66 15

HELICAL PILES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.
- C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 DESCRIPTION OF WORK

- A. Provide all labor, equipment, materials, and supervision necessary to complete the work specified in this Section and as shown on the Contract Drawings, including but not necessarily limited to the following:
  - 1. The design (Including design submittals) and installation of the helical piles as specified herein and as indicated on the Contract Drawings for support of the proposed WOOD PEDESTRIAN BOARDWALK with an allowable design capacity of 10 kips (5 tons) per pile in compression, 1 kip (0.5 tons) tension, and 0.5 kips (0.25 tons) lateral.
  - 2. Helical piles shall consist of helical foundations having round shafts with helix-shaped bearing plate(s) or an approved equivalent foundation system designed and stamped by a Massachusetts Registered Professional Engineer retained by the Contractor.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. The following items of related work are specified and included in other Sections of the Specifications
  - 1. WOOD PEDESTRIAN BOARDWALK, SECTION 06 15 00.
  - 2. EARTHWORK, SECTION 31 20 00.

1.4 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - 1. ASTM A36/A 36M – “Structural Steel”.
  - 2. ASTM A29/A 29M – “Steel bars, Carbon and Alloy, Hot-Wrought and Cold Finished”.
  - 3. ASTM A153 – “Zinc Coating (Hot-Dip) on Iron and Steel Hardware”.
  - 4. ASTM SAE J429 – “Mechanical and Material Requirements for Externally Threaded Fasteners”.

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5. ASTM C150 – Standard Specification for Portland Cement, Type I/II.
6. ASTM C404 – Aggregates for Masonry Grout.

- B. American Welding Society (AWS) D1.1 "Structural Welding Code – Steel"
- C. International Code Council Evaluation Service, Inc. (ICC-ES) Report AC308 entitled, "Acceptance Criteria for Helical Foundation Systems and Devices," approved June 2007.
- D. Massachusetts State Building Code – Ninth Edition (Building Code)
- E. Comply with applicable requirements of the following standards and those referenced in this Section. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
- F. Massachusetts Contingency Plan (MCP) 310 CMR 40.0000.
- G. Occupational Safety and Health Administration (OSHA) 29 CFR 1910.

### **1.5 DEFINITIONS**

- A. A helical pile is a factory-manufactured unit consisting of a central steel shaft and one or more steel, helix-shaped bearing plate welded to the lead shaft. Shaft extensions are added until the helical bearing plates reach the required depth and minimum installation torque within the design bearing stratum required to support the design load.

### **1.6 APPROVED INSTALLERS**

- A. Provide a written statement demonstrating at least five (5) years of experience in this type of installation.
- B. Superintendent must have at least five (5) years of experience in this type of installation.
- C. Provide a written statement identifying at least ten (10) comparable installations.

### **1.7 EXAMINATION OF SITE AND DOCUMENTS**

- A. It is hereby understood that the Contractor has carefully examined the site and all conditions affecting work under this Section. NO claim for additional costs will be allowed because of lack of full knowledge of existing conditions as indicated in the Contract Documents, or obvious from observation at the site.
- B. Plans, surveys, measurements, and dimensions under which the work is to be performed are believed to be correct, but the Contractor shall have examined them for themselves during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found except as otherwise provided herein.
- C. The Contractor shall provide reasonable access to all pile locations and shall remove, as far as practicable, any surface, overhead, or subsurface obstructions that could interfere with screwing piles at the locations indicated on the Contract Documents. Reference Specification Section 31 20 00 – EARTHWORK for detailed requirements regarding the removal of obstructions.
- D. The Contractor is hereby informed that the fill material may contain cobbles and boulders.

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### 1.8 SUBMITTALS

- A. Design Submittal – The Contractor shall submit detailed design calculations, construction drawings, and shop drawings for approval at least four (4) weeks prior to the beginning of construction. Calculations shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. The design shall comply with the design criteria indicated herein and the requirements of the Building Code.
1. Helical Piles shall be factory-manufactured hot-dipped galvanized steel units consisting of a round (not square) pipe-section shaft with a series of affixed helix bearing plates which are installed by applying simultaneous downward and torque forces.
  2. The annulus of the helical pipe shaft shall be backfilled using tremie method with cement grout.
  3. Helical piles shall derive their support at a minimum depth of 10-ft below the ground surface and within a naturally occurring soil stratum free of fill and organics.
  4. The piles, extensions, couplings, caps and connections, and appurtenances shall be designed in accordance with the provisions of the Building Code and shall confirm within the requirements contained in ICC-ES report AC358.
  5. The piles and installation equipment shall be capable of overcoming possible cobbles and boulders within the soil deposits.
  6. Submit calculations determining helical pile capacity in accordance with the requirements of section 1810.3.3.1.9 of the Building Code.
  7. Submit pile details including: pile capacity. Shaft diameter, helical bearing plate diameters and spacing, pile length, splices or couplings, connection to wood framing and concrete, minimum installation torque for design capacity, ultimate installation torque for materials, pile layout and other items pertinent to installation.
  8. Submit cement grout design mix for shaft backfill. Minimum 28-day compressive strength of cement grout shall be 4,000 psi.
  9. Submit descriptions of the type of equipment and methods for installing the piles. Include a drawing indicating the area planned to be used for staging, access areas, helical pile installation locations, and any other element of the installation.
  10. Submit mill certificates for all steel components of the helical piles and appurtenances including the results of tests conducted by a certified laboratory.
  11. Calibrate the direct in-line electric torque meter, power source, and readout box to be used throughout pile installation which is current within thirty (30) days of commencing pile installation. Calibrate all equipment together as a unit. Submit the results of the calibration from a certified testing laboratory.
- B. Project Record Documents: Submit field records of as-built pile installation within two (2) days of completion of each pile:
1. Pile number
  2. Date of Installation

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3. As-built information indicated in Paragraph 1.10-B.
4. Average torque reading per foot
5. Description of lead section and extensions installed
6. Helical plates size(s) and shaft size
7. Damage (if any) to pile
8. Advancement rate per foot

### **C. Geotechnical Subsurface Investigation**

1. As part of the design submittal, Contract shall complete at least two (2) subsurface borings at the site to identify the subsurface stratification of soils prior to commencing design work.
2. Completion of subsurface borings and their interpretation shall be under the supervision of a Geotechnical Engineer and stamped by a Massachusetts Registered Professional Engineer retained by the Contractor.
3. Subsurface borings shall be advanced a minimum of 30 feet unless bedrock is found at a shallower depth.
4. Subsurface borings shall be completed using ASTM D1586 Standard Penetration testing sampling with intervals at least every 5 feet and at every stratum change.
5. Upper most helix shall be terminated below the bottom of the lowest unsuitable soil stratum.
6. Geotechnical borings shall be submitted with the helical pile design calculations for basis of determining final embedment depth of helical piles.

## **1.9 PERMITS, CODES, AND SAFETY REQUIREMENTS**

- A. Work shall confirm to the Drawings and Specifications and shall comply with all applicable codes and regulations. Present in writing to the Landscape Architect all conflicts between the Drawings and Specifications, and applicable codes and regulations for resolution before commencing any work.
- B. Comply with the provisions of the Manual for Accident Prevention in Construction of the Associated General Contractors of America, Inc., and the requirements of the Occupational Safety and Health Administration, United States Department of Labor.
- C. The Contractor shall be responsible for the health and safety of all workers engaged in the excavation and disposal of contaminated soil and associated operations pursuant to OSHA 29 CFR 1910.
- D. Minimum precautions noted in this Section shall in no way relieve the Contractor of their responsibility for implementing stricter health and safety precautions should they be warranted by the work. In addition, the Owner, the Construction Manager, and their agents will not be held negligent or liable for any inadequacies or deficiencies in the Contractor's work or health and safety plan or for any oversight or inadequacies in the Contractor's implementation of the work or health and safety plan.
- E. The Contractor shall procure and pay for all permits and licenses required for the complete work specified herein and shown on the Drawings at no additional cost to the Owner.

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### **1.10 LAYOUT AND GRADES**

- A. All lines and grades shall be laid out by the Contractor. The Contractor shall establish permanent benchmarks determined by a registered Land Surveyor or professional Civil Engineer and shall maintain all established bounds and benchmarks and replace as directed any which are destroyed or disturbed.
- B. The Contractor shall employ a competent survey crew. The survey crew shall be responsible for establishing the correct plan location of each pile in the field and shall determine and certify the actual location of each pile as installed, including a determination of the deviations of the center of each pile from the plan location. At the completion of pile installation, the Contractor's survey crew shall determine, tabulate, and submit to the Landscape Architect for the following data for each pile:
  - 1. Pile number
  - 2. Date of Installation
  - 3. Top of pile elevation immediately after installation
  - 4. Pile length immediately after installation
  - 5. Pile tip elevation
  - 6. Pile cut-off elevation
  - 7. Deviations from specified plan location at the cut-off elevation in north-south and east-west directions.
- C. An accurate dimensional sketch of the actual location of each pile shall be delivered to the Landscape Architect with a copy to the Structural Engineer within 48 hours of installation of each pile.
- D. The Contractor shall provide reasonable access to all pile locations and shall remove, as far as practicable, any surface, overhead, or subsurface obstructions existing within the fill that could interfere with installation piles at the locations indicated on the Contractor Drawings. The Contractor shall provide a stable working surface for pile installation operations.

### **1.11 MONITORING**

- A. Full-time monitoring of all pile installation operations shall be provided by the Contractors Geotechnical Engineer. No piles shall be installed except in the presence of their representative designated for the geotechnical explorations.
- B. The following will be sufficient cause for rejection of piles:
  - 1. Deviation from location and/or alignment requirements.
  - 2. Improper installation methods.
  - 3. An abrupt decrease in installation resistance.
- C. Notify the Architect immediately of any damage or deviation which may affect the acceptability of the pile or construction of the timber framed boardwalk so that corrective measure may be carried out with minimal delay.
- D. Piles which deviate from the specified plan locations that are not acceptable by the Architect will need to be corrected at the Contractors expense.

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### PART 2 – PRODUCTS

#### 2.1 MATERIALS

- A. Steel for helical piles shall be of the dimensions and grades shown on the Contractor's submittals, and in no case less than Grade 80. Helical pile shafts shall be pipe sections (i.e. round). The use of square shafts shall not be permitted. Steel for helical piles shall be new and of uniform quality. Steel shall comply with ICC-ES report AC358.
- B. Helical piles, extensions, caps, connections, and appurtenances shall be hot-dip galvanized in accordance with ASTM A153.
- C. Certification of the quality of the helical pile materials shall be furnished, in a form that is acceptable to the Architect, at the time of delivery of the materials to the site. Materials shall also be subject to on-site observation for conformance with the specification.
- D. The pile-installation equipment shall be capable of achieving the torque necessary to install the piles to the design capacity and to the design embedment specified, be suitable for the access and overhead limitations, and shall be subject to the approval of the Architect.
- E. All welding shall be in accordance with AWS D1.1.

### PART 3 – EXECUTION

#### 3.1 PREPARATION

- A. Verify site conditions for access and support of equipment.
- B. Obtain prior review by the Architect of the proposed installation procedures and pile design.
- C. The Contractor shall provide reasonable access to all pile locations and shall remove, as far as practicable, any surface, overhead, or subsurface obstructions existing throughout the fill material that could interfere with installation of piles at the locations indicated on the Contract Documents. The Contractor shall provide a stable working surface for pile installation operations.

#### 3.2 INSTALLATION

- A. Piles shall be advanced to the minimum embedment into the natural suitable soil deposit and to the minimum torque.
- B. The Contractor shall continuously measure the torque applied to the helical piles using a direct in-line calibrated electric torque metered attached to the hydraulic installation head. Installation shall continue until the minimum embedment depth and the specified torque corresponding to the ultimate capacity is achieved.
- C. Observe the following installation tolerances at all times:
  - 1. Plan location at top of completed pile at cut-off elevation – 3 inches.
  - 2. Alignment – Not greater than 3 percent from vertical on any section of length.
- D. The Contractor shall resort to the usual methods to install the piles when obstructions are encountered within the depth range needed for pile capacity. Such usual methods shall

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### 3.3 OBSTRUCTIONS

- ## PART 4 - MEASUREMENT AND PAYMENT

- A. Helical pile installation includes all services, design, permits, labor, equipment, transportation, materials, and supplies to complete the work, including engineering. Payment for these items shall include furnishing and installing helical piles, mobilization and demobilization.
- B. Piles rejected in accordance with the provisions of these specifications will be paid for provided the cause for rejection is not attributable to Contractor error. Piles rejected due to Contractor error will not be paid for. The Contractor will be paid at the Contract unit price for one replacement pile installed and accepted according to the provisions of these specifications.
- C. Final approval of each pile will be made by the Architect after submission and approval of the pile installation record and pile location plan.
- D. Additional piles required to compensate for piles which were installed out of design location will be installed at no additional cost to the Owner.
- E. As part of the Base Bid, geotechnical subsurface boring(s) shall be completed prior to final pile design, as specified herein. The geotechnical subsurface boring(s) shall be paid on a lump sum basis.

- A. The Lump Sum base bid shall include the total number of helical piles indicated in the Contractor Drawings, multiplied by the Unit Price per pile state in the Bid Form.
- B. Unit Prices for helical pile installation are for adjusting the scope of work (addition and deletion of scope) based upon the actual number of piles installed and accepted. The contract price will be adjusted based upon the following add and deduct unit prices:

- C. Unit Prices: The Contractor hereby agrees that the Unit Prices shall form the basis for additional cost or credit. The prices shall include all labor, materials, overhead, profit,

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administration, insurance, taxes, and all incidental or contributory items of costs to the Contractor, any subcontractor, or supplier in connection therewith.

- D. Additional piles required to supplement or replace piles which do not conform to the requirements of this specification due to Contractor error shall be furnished and installed at no expense to the Owner. In cases where the Architect determines that a pile which does not conform to the requirements of this specification due to Contractor error may be utilized if supplemented by additional piles, payment will be added for the original pile, but not for the required additional piles. Piles which do not conform to the requirements of this specification due to Contractor error and cannot be utilized shall be removed, cut off 1 foot below final grade such that they do not interfere with the proposed construction, and rejected.
- E. Piles which fail to conform to the requirements of this specification due to other than Contractor error, as well as additional piles required to supplement the non-confirming piles, shall be paid for at the Unit Price specified in Paragraph 4.2-B.1 of this Section.
- F. Final approval of each pile will be made by the Architect after submission and approval of the pile driving record and pile location plan.

END OF SECTION

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**DIVISION 32 00 00**  
EXTERIOR IMPROVEMENTS

**ACTIVITAS**

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SECTION 32 12 43

POROUS ASPHALT PAVEMENT

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 010000 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Work Included: Perform all work required to complete the work of this Section, as indicated. Such work includes, but is not limited to, the following:
  - 1. Subgrade Preparation
  - 2. Installation of underlying porous media infiltration beds and courses
  - 3. Rough grading and compaction of porous media infiltration beds and courses
  - 4. Porous Pavement

1.03 RELATED WORK

- A. Loam and Seed
- B. Cement Concrete Pavement

1.04 REFERENCES

- A. Work shall conform to codes and standards of the following:
  - 1. ASTM – American Society of Testing Materials
  - 2. AASHTO – American Association of State Highway and Transportation Officials
  - 3. Massachusetts Highway Department Standard Specifications for Highways and Bridges (MHD Specifications).
  - 4. Americans with Disabilities Act (ADA) Appendix to Part 1191 Accessibility Guidelines for Building and Facilities.
  - 5. Massachusetts Architectural Access Board (MAAB).
  - 6. NAPA – National Asphalt Pavement Association

1.05 QUALITY ASSURANCE

- A. Codes and standards: Perform site improvement work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Qualifications of workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.
- C. Layout and Grading: After staking and laying out the work, and before beginning final

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construction, obtain the Owner's Representative's approval of layout and grades. Contractor shall make minor adjustments as determined by the Owner's Representative.

- D. The Contractor and his Subcontractors shall inspect all subbases for unstable, unsuitable or improperly prepared areas. Do not begin work over unacceptable areas. Beginning work means the Contractor and his Subcontractors accept the subbase, previous work and conditions and shall be held responsible for any corrections required to properly implement the Construction Documents.
- E. Quality Assurance requirements for production of mix are discussed in the Materials section, and for construction of the porous media beds and paving in the Execution section.
- F. Weather Limitations
1. Pavement shall not be placed between November 15 and March 15, or when the ambient air temperature at the pavement site in the shade away from artificial heat is below 16 °C (60 °F) or when the actual ground temperature is below 10 °C (50 °F). Only the Owner's Representative may adjust the air temperature requirement or extend the dates of the pavement season.
  2. The Contractor shall not pave on days when rain is forecast for the day, unless a change in the weather results in favorable conditions as determined by the Owner's Representative.
- G. QC/QA During Production
1. The Contractor shall provide at his expense and the Owner's Representative's approval a third-party QA Inspector to oversee and document mix production. All mix testing results during production should be submitted to the QA Inspector.
  2. The QC plan may be altered at the discretion of the Owner's Representative and based on feasible testing as suggested by the asphalt producer. Certain QC testing requirements during production may not be feasible for small projects in which limited asphalt is generated. Some testing methods cannot be completed during the time needed during small batch production. The feasibility should be assessed with the Owner's Representative and producer.
  3. The mixing plant shall employ a Quality Control Technician (QCT). The QCT will perform QC/QA testing and will be certified in the discipline of HMA Plant Technician by the relevant certifying agency (e.g. NETTCP in New England). The Contractor shall sample, test and evaluate the mix in accordance with the methods and minimum frequencies in **Table 1** and the Post-Blended SBR Binder Quality Control Plan (if applicable).

**Table 1. QC/QA testing requirements during production.**

Test	Min. Frequency	Test Method
Temperature in Truck at Plant	6 times per day	
Gradation	greater of either (a) 1 per 500 tons, (b) 2 per day, or (c) 3 per job	AASHTO T30
Binder Content	greater of either	AASHTO T164

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	(a) 1 per 500 tons, (b) 2 per day, or (c) 3 per job	
Air Void Content	greater of either (a) 1 per 500 tons, (b) 2 per day, or (c) 3 per job	ASTM D6752
Binder Draindown	greater of either (a) 1 per 500 tons, (b) 1 per day, or (c) 1 per job	ASTM D6390

4. If an analyzed sample is outside the testing tolerances immediate corrective action shall be taken. After the corrective action has been taken the resulting mix will be sampled and tested. If the re-sampled mix test values are outside the tolerances the Owner's Representative will be immediately informed. The Owner's Representative may determine that it is in the best interest of project that production is ceased. The Contractor will be responsible for all mix produced for the project.
5. Testing Tolerances During Production. Testing of the air void content, binder draindown, and TSR shall be within the limits set herein. The paving mixture produced should not vary from the design criteria for aggregate gradation and binder content by more than the tolerances in **Table 2**.

**Table 2. QC/QA testing tolerances during production.**

Sieve Size (inch/mm)	Percent Passing
0.75/19	-
0.50/12.5	±6.0
0.375/9.5	±6.0
No.4/4.75	±5.0
No.8/2.36	±4.0
No.200/0.075 (#200)	±2.0
%PGAB	+0.4, -0.2

6. Should the paving mixture produced vary from the designated grading and asphalt content by more than the above tolerances, proper changes are to be made until it is within these tolerances.
7. Samples of the mixture when tested in accordance with AASHTO T164 and T30 shall not vary from the grading proportions of the aggregate and binder content designated by the Owner's Representative by more than the respective tolerances specified above and shall be within the limits specified for the design gradation.
8. Plant Shutdown and Rejection of Mix. Should the mix not meet the tolerances specified above upon repeat testing, the Owner's Representative may reject further loads of mix. Mix that is loaded into trucks during the time that the plant is changing operations to comply with a failed test shall not be accepted, and should be recycled at the plant.

H. QC/QA requirements for Porous Media Bed Construction.

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- I. QC/QA activities are summarized below:

<b>Activity</b>	<b>Schedule</b>
Contractor to notify Owner's Representative for approval	24 hours in advance of start of work
Contractor to notify Owner's Representative for approval	after subgrade preparation, before construction of porous media bed
Contractor to notify Owner's Representative for approval	after filter course placement, before placement of choker course and pavement to verify proper compaction of filter course by ASTM D3385

- I. QC/QA for Paving Operations

1. Testing and Inspection: The Contractor shall perform soil inspection services, staking and layout control, and testing and inspection of site grading and pavement work. Inspection and list of tests shall be reviewed and approved in writing by the Owner's Representative prior to starting construction.
2. Test in-place base and surface course for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable work as directed by the Owner's Representative.
3. Surface Smoothness: Test finished surface for smoothness using a ten-foot straightedge applied parallel with and at right angles to centerline of paved area. Surface will not be accepted if gaps or ridges exceed 3/16 of an inch.
4. The full permeability of the pavement surface shall be tested by application of clean water at the rate of at least 5 gpm over the surface, using a hose or other distribution device. Water used for the test shall be clean, free of suspended solids and deleterious liquids and will be provided at no extra cost to the Owner. All applied water shall infiltrate directly without large puddle formation or surface runoff, and shall be observed by the Owner's Representative.

5. QC/QA requirements during paving are summarized below:

<b>Activity</b>	<b>Schedule/Frequency</b>	<b>Tolerance</b>
Inspect truck beds for pooling (draindown)	every truck	NA
Take surface temp. behind joint heater	each pull	6°C (10°F) of compaction temp
Consult with Owner's Representative to determine locations of butt joints	as needed	NA
Test surface smoothness & positive drainage with a 10 ft straightedge	after compaction	4.5 mm (3/16")
Consult with Owner's Representative to mark core locations for QA testing	after compaction	NA
Hose test with at least 5 gpm water	after compaction	immediate Infiltration,

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no puddling

**1.06 SUBMITTALS**

- A. Submit a list of materials proposed for work under this Section including the name and address of the materials producers and the locations from which materials are to be obtained.
- B. Submit certificates, signed by the materials producers and the relevant subcontractors, stating that materials meet or exceed the specified requirements, for review and approval by the Owner's Representative.
- C. Submit samples of materials for review and approval by the Owner's Representative. For mix materials, samples may be submitted only to the QA inspector with the Owner's Representative's approval.
- D. Submittal requirements for samples and certificates are summarized in **Table 3** and discussed in further detail in the Materials section.

**Table 3.** Submittal Requirements

Material or Pavement Course	Properties to be Reported of Certificate
Choker course, Reservoir course	Gradation, max. wash loss, min. durability index, max. abrasion loss; air voids (reservoir course)
Filter course	Gradation, permeability/sat. hydraulic conductivity
Filter blanket (graded filter)	Gradation
Geotextile Filter Fabric	Manufacturer's certification
Striping Paint	Certificate
Binder	PGAB Certificate
Course Aggregate	Gradation, wear, fractured faces (fractured & elongated)
Fine Aggregate	Gradation, plasticity index
Silicone	Manufacturer's Certification
Fibers (optional)	Manufacturer's Certification
Mineral Filler (optional)	Manufacturer's Certification
Fatty amines (optional anti-strip)	Manufacturer's Certification
Hydrated lime (optional anti-strip)	Manufacturer's Certification

**1.07 PROJECT CONDITIONS**

- A. Site information: Data on indicated grades, utilities and other existing conditions are not intended as representations or warranties of accuracy.
- B. Existing utilities: Locate existing utilities in areas of work. If utilities are to remain in place, provide adequate means of protection during installation of site improvements.
- C. Protection: The Contractor shall use all means necessary to protect the materials of this Section before, during and after installation. In the event of damage, make all repairs and replacements necessary to approval of the Owner's Representative and at no additional

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cost to the Owner. All work shall be executed in such a manner as to prevent any damage to existing streets, curbs, paving to remain, existing plant materials, and adjoining properties.

1. Protect adjacent work from splashing of pavement materials. Remove all stains from exposed surfaces of pavement, structures, and grounds. Remove all waste and spillage.
  2. Proper erosion and sediment control practices shall be provided in accordance with existing regulations. Do not damage or disturb existing improvements or vegetation. Provide suitable protection where required before starting work and maintain protection through out the course of the work.
  3. The Contractor shall remove all debris, construction equipment and scrap material from areas within the limit of work prior to inspection for acceptance.
- D. The Drawings indicate, in general, the alignment and finished grade elevations. The Owner's Representative, however, may make minor adjustments in grades and alignment as are found necessary.
- E. Contractor shall provide proof-rolls of subgrade for review by Owner and Owner's Representative. Contractor shall also provide compaction testing prior to paving operations.

### 1.08 ADA, MAAB, AND UNIVERSAL ACCESSIBILITY CODE

- A. Special attention is to be given to compliance with the Americans with Disabilities Act (ADA), the requirements of MAAB, and the requirements of the Universal Accessibility Code.
1. Slopes: The cross pitch (perpendicular to travel) for all walkways shall be constructed at 1.5% (2% maximum, 1% minimum). The longitudinal slope (parallel to travel) for all walkways shall not exceed 4.5%. The slope of all handicapped curb cuts shall be constructed at 7% (8% maximum).
  2. The Contractor is to assume that all sidewalk grades shall be verified/checked with a 2-foot electronic "Smart Level".
  3. The above requirements shall supersede the grades shown on the grading plan. If the requirements cannot be met with the grades shown on the plans, the Contractor shall notify the Owner's Representative immediately.

## PART 2 - PRODUCTS

### 2.01 POROUS MEDIA INFILTRATION BEDS

- A. The porous media infiltration beds include a 4" thick layer of choker course of crushed stone, a 12" thick layer of filter course of poorly graded sand, a 3" layer filter blanket of pea gravel, and a 4" thick reservoir course of crushed stone for drainage.
- B. Material for the choker course and reservoir course shall meet the following:
- Maximum Wash Loss of 0.5%  
Minimum Durability Index of 35  
Maximum Abrasion Loss of 10% for 100 revs. and max. of 50% for 500 revs.

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Material for the choker course and reservoir course shall have the AASHTO No. 57 and AASHTO No. 3 gradations, respectively. If the AASHTO No. 3 gradation cannot be met, AASHTO No. 5 is acceptable with approval of the Owner's Representative.

- C. Material for the filter course shall have a hydraulic conductivity (also called the coefficient of permeability) of 10 to 60 ft/day (0.0036 to 0.022 cm/sec) at 95% compaction unless otherwise approved by the Owner's Representative. Great care needs to be used to not over-compact materials. The filter course material is commonly referred to as a bankrun gravel.
- D. Material for filter blanket between the filter course and the reservoir course shall be an intermediate size between the finer filter course above, and the coarser reservoir course below, for the purpose of preventing the migration of a fine setting bed into the coarser reservoir material. Material shall be a pea gravel with a median particle diameter of 3/8".
- E. **Table 4.** Gradations of choker, filter, and reservoir course materials.

	Per Cent Passing (%)			
US Standard Sieve Size	Choker Course (AASHTO No. 57/No. 67)	Filter Course (Manufactured Sand)	Reservoir Course (AASHTO No. 3)	Reservoir Course Alternative (AASHTO No. 5)
6 in.		100		
2 ½ in.			100	
2 in.			90 - 100	
1 ½ in.	100		35 - 70	100
1 in.	95 - 100		0 - 15	90 - 100
¾ in.				20 - 55
½ in.	25 - 60		0 - 5	0 - 10
3/8 in.				0 - 5
No. 4	0 - 10	25 - 70		
No. 8	0 - 5	0 - 6*		
No. 100	0 - 2	0 - 2	0 - 2	0 - 2

\* Preferably less than 4% fines

- F. Non-woven geotextile filter fabric for the sloping sides only shall be Mirafi 160N, or approved equal. Mirafi 160N is a non-woven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. 160N is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.

## 2.02 POROUS ASPHALT MIX

- A. Mix Materials - Consist of modified performance grade asphalt binder (PGAB), coarse and fine aggregates, and optional additives such as silicone, fibers, mineral fillers, fatty amines, and hydrated lime. Materials shall meet the requirements of the NAPA's *Design, Construction, and Maintenance of Open-Graded Friction Courses, Information Series 115* (2002), except where noted otherwise below or approved in writing by the Owner's Representative.

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### B. Polymer Modified PGAB

1. The asphalt binder shall be a polymer modified Performance Graded asphalt binder (PGAB) used in the production of Superpave Hot Mix Asphalt (HMA) mixtures. PGAB shall be two grades stiffer than that required for dense mix asphalt (DMA) parking lot installations, which is often achieved by adding a polymer. The polymer modified binder for this project shall be a PG 76-22 SBS or a PG 76-22 SBR (i.e. the PGAB binder may be a 64-28 that is modified with either SBS or SBR to meet the PG 76-22 specification). The binder shall meet the requirements of AASHTO M320.
2. The PGAB may be pre-blended or post-blended. The pre-blended binder can be pre-blended at the source or at a terminal. For post-blended addition, the modifier can either be in-line blended or injected into the pugmill at the Plant. Based on the selected method, the following must be met:
  - a. Pre-Blended PG 76-22 SBS will be supplied by an approved PGAB supplier holding a Quality Control Plan approved by the state DOT. A Bill of Lading (BOL) will be delivered with each transport of PG 76-22 SBS. A copy of the BOL will be furnished to the QA inspector at the Plant.
  - b. Post-Blended PG 76-22 SBR will be supplied by a HMA plant approved to perform in-line blending or blending by injection into the pugmill. A Post-Blended SBR Binder Quality Control Plan (**Table 5**) will be submitted to the Owner's Representative for approval at least 10 working days prior to production.
  - c. Quality control plans may be altered at the discretion of the Owner's Representative and based on feasible testing as suggested by the asphalt producer. Certain QC testing requirements during production may not be feasible for small projects in which limited asphalt is generated. Some testing methods cannot be completed during the time needed during small batch production. The feasibility should be assessed with the Owner's Representative and producer.

**Table 5.** Post-Blended SBR Binder QC Plan requirements

**The QC Plan will contain:**

1. Company name and address
2. Plant location and address
3. Type of Facility
4. Contact information for the Quality Control Plan Administrator
5. QC Tests to be performed on each PGAB
6. Name(s) of QC Testing Lab to perform QC and Process Control testing.
7. Actions to be taken for PG Binders and SBR in Non compliance
8. List of mechanical controls (requirements below)
9. List of process controls and documentation (requirements below)

**List of Mechanical Controls**

1. Liquid SBR no-flow alert system with an "alert" located in the control room and automatic documentation of a no flow situation on the printout
2. Provide means of calibrating the liquid SBR metering system to a delivery tolerance of 1%.
3. A batching tolerance at the end of each day's production must be within 0.5% of the amount of SBR solids specified.
4. Mag-flow meter (other metering system may be considered)

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### 5. Method of sampling liquid SBR

#### List of Process Controls and Documentation

1. Printouts of liquid SBR and PG binder quantities must be synchronized within one minute of each other
2. SBR supplier certification showing the percent of SBR solids in liquid SBR
3. Test results of a lab sample blended with the specified dosage of SBR. At a minimum, provide the name of the PGAB and liquid SBR suppliers, and PGAB information such as grade and lot number, and SBR product name used for the sample.
4. MSDS sheet for liquid SBR
5. Handling, storage, and usage requirements will be followed as required by the liquid SBR manufacturer
6. At a minimum, provide a table showing proposed rate of SBR liquid (L/min.) in relation to HMA production rate (tons per hour, TPH) for the % solids in liquid SBR, quantity of SBR specified for HMA production, and the specific gravity of the SBR.
7. QCT or QC Plan Administrator must be responsible for documenting quantities, ensuring actual use is within tolerance, etc. All printouts, calculations, supplier certifications etc. must be filed and retained as part of the QCTs daily diary/reports.
8. Method and Frequency of testing at the HMA plant, including initial testing and specification testing.

\*This Plan shall be submitted to the Owner's Representative 10 days before production.

### C. Anti-Stripping Mix Additives

1. The mix shall be tested for moisture susceptibility and asphalt stripping from the aggregate by AASHTO T283. If the retained tensile strength (TSR) < 80% upon testing, a heat stable additive shall be furnished to improve the anti-stripping properties of the asphalt binder. Test with one freeze-thaw cycle (rather than five recommended in *NAPA IS 115*). The amount and type of additive (e.g. fatty amines or hydrated lime) to be used shall be based on the manufacturer's recommendations, the mix design test results, and shall be approved by the Owner's Representative.
2. Silicone shall be added to the binder at the rate of 1.5 mL/m<sup>3</sup> (1 oz. per 5000 gal).
3. Fibers may be added per manufacturer and *NAPA IS 115* recommendation if the draindown requirement cannot be met (<0.3% via ASTM D6390) provided that the air void content requirement is met (>18%, or >16% as tested with CoreLok device).
4. Additives should be added per the relevant DOT specification and *NAPA IS 115*.

### D. Coarse Aggregate

1. Coarse Aggregate. Coarse aggregate shall be that part of the aggregate retained on the No. 8 sieve; it shall consist of clean, tough, durable fragments of crushed stone, or crushed gravel of uniform quality throughout. Coarse aggregate shall be crushed stone or crushed gravel and shall have a percentage of wear as determined by AASHTO T96 of not more than 40 percent. In the mixture, at least 75 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve shall have at least two fractured faces, and 90 percent shall have one or more fractured faces (ASTM D5821).
2. Coarse aggregate shall be free from clay balls, organic matter, deleterious substances, and a not more than 8.0% of flat or elongated pieces (>3:1) as specified in ASTM D4791.

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### E. Fine Aggregate

1. The fine aggregate shall be that part of the aggregate mixture passing the No. 8 sieve and shall consist of sand, screenings, or combination thereof with uniform quality throughout. Fine aggregate shall consist of durable particles, free from injurious foreign matter. Screenings shall be of the same or similar materials as specified for coarse aggregate. The plasticity index of that part of the fine aggregate passing the No. 40 sieve shall be not more than 6 when tested in accordance with AASHTO T90. Fine aggregate from the total mixture shall meet plasticity requirements.

### F. Porous Asphalt Mix Design

1. The Contractor shall submit a mix design at least 10 working days prior to the beginning of production. The Contractor shall make available samples of coarse aggregate, fine aggregate, mineral filler, fibers and a sample of the PGAB that will be used in the design of the mixture. A certificate of analysis (COA) of the PGAB will be submitted with the mix design. The COA will be certified by a laboratory meeting the requirements of AASHTO R18. The Laboratory will be certified by the state DOT, regional equivalent (e.g. NETTCP), and/or qualified under ASTM D3666. Technicians will be certified by the regional certification agency (e.g. NETTCP) in the discipline of HMA Plant Technician.
2. The mixture will be designed according to the NAPA IS 131, with the exception of testing for air void content. Bulk specific gravity (SG) used in air void content calculations shall not be determined and results will not be accepted using AASHTO T166 (saturated surface dry), since it is not intended for open graded specimens (>10% AV). Bulk SG shall be calculated using AASHTO T275 (paraffin wax) or ASTM D6752 (automatic vacuum sealing, e.g. CoreLok). Air void content shall be calculated from the bulk SG and maximum theoretical SG (AASHTO T209) using ASTM D3203.
3. The materials shall be combined and graded to meet the composition limits by mass (weight) as follows:

U.S. Standard Sieve Size	Percent Passing (%)	
	Minimum	Maximum
3/4 in.	100	--
1/2 in.	85	100
3/8 in.	55	75
No. 4	10	25
No. 8	5	10
No. 200	2	4

Binder Content (AASHTO T164) 6.0-6.5%

Air Void Content by Corelok (ASTM D6752)\* 16.0-20.0%

Air Void Content by Paraffin wax (AASHTO T275 )\* 18.0-22.0%

Draindown (ASTM D6390)\*\* <= 0.3 %

Retained Tensile Strength (AASHTO 283)\*\*\* >= 80 %

\* Either method is acceptable

\*\*Cellulose or mineral fibers may be used to reduce draindown.

\*\*\*If the TSR (retained tensile strength) values fall below 80% when tested per NAPA IS 131 (with a single freeze thaw cycle rather than 5). Step 4, the contractor shall employ an antistrip additive, such as hydrated lime (ASTM C977) or a fatty amine, to raise the TSR value above 80%.

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- G. Striping paint shall be latex, water-base emulsion, ready-mixed, complying with PS TT-P 1952.

### PART 3 – EXECUTION

#### 3.01 POROUS MEDIA BEDS

##### A. Grade Control

1. Establish and maintain required lines and elevations. The Owner's Representative shall be notified for review and approval of final stake lines for the work before construction work is to begin. Finished surfaces shall be true to grade and even, free of roller marks and free of low spots to form puddles. All areas must drain.
2. If, in the opinion of the Owner's Representative, based upon reports of the testing service and inspection, the quality of the work is below the standards which have been specified, additional work and testing will be required until satisfactory results are obtained.

##### B. Subgrade Preparation

1. The existing native subgrade material under all areas shall not be compacted or subject to excessive construction equipment traffic prior to stone bed placement.
2. Where erosion of the native material subgrade has caused accumulation of fine materials and/or surface ponding at the base of the excavation, this material shall be removed with light equipment and the underlying soils scarified to a minimum depth of 6 inches with a York rake or equivalent and light tractor.
3. Bring subgrade of stone porous media bed to line, grade, and elevations indicated. Fill and lightly regrade any areas damaged by erosion, ponding, or traffic compaction before the placing of the stone.

- C. The Owner's Representative shall be notified at least 24 hours prior to all porous media bed and porous pavement work.

##### D. Porous Media Bed Installation

1. Upon completion of subgrade work, the Owner's Representative shall be notified and shall inspect at his/her discretion before proceeding with the porous media bed installation.
2. Porous media bed aggregate shall be placed immediately after approval of the condition of the existing geotextile fabric and drainage. Any accumulation of debris or sediment which has taken place after approval of subgrade shall be removed prior to installation of geotextile at no extra cost to the Owner.
3. Install coarse aggregate in lifts no greater than 8-inches. Lightly compact each lift with equipment, keeping equipment movement over storage bed subgrades to a minimum. Install aggregate to grades indicated on the drawings.
4. Prior to installation of choker course aggregate the Contractor shall confirm infiltration of water through the compacted filter course. The infiltration rate shall be no less 5-30 ft/day or 50% of the hydraulic conductivity (D2434) at 95% standard proctor compaction.

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5. Install choker base course aggregate evenly over surface of filter course bed, sufficient to allow placement of pavement, and notify Owner's Representative for approval. Choker base course thickness shall be sufficient to allow for even placement of the porous asphalt but no less than 4-inches in depth.

### **3.02 POROUS ASPHALT MIX PRODUCTION**

#### **A. Mixing Plants**

1. Mixing plants shall meet the requirements of hot mix asphalts plants as specified in the state DOT or regional equivalent unless otherwise approved by the Owner's Representative.

#### **B. Preparation of Asphalt Binder**

1. The asphalt material shall be heated to the temperature specified in the state DOT specification (if using DOT spec for the mix) in a manner that will avoid local overheating. A continuous supply of asphalt material shall be furnished to the mixer at a uniform temperature.

#### **C. Preparation of Aggregates**

1. The aggregate for the mixture shall be dried and heated at the mixing plant before being placed in the mixer. Flames used for drying and heating shall be properly adjusted to avoid damaging the aggregate and depositing soot or unburned fuel on the aggregate.
2. Mineral filler, if required to meet the grading requirements, shall be added in a manner approved by the Owner's Representative after the aggregate have passed through the dryer.
3. The above preparation of aggregates does not apply for drum-mix plants.

#### **D. Mixing**

1. The dried aggregates shall be combined in the mixer in the amount of each fraction of aggregate required to meet the job-mix formula and thoroughly mixed prior to adding the asphalt material. The dried aggregates shall be combined with the asphalt material in such a manner as to produce a mixture that when discharged from the pugmill is at a target temperature in the range that corresponds to an asphalt binder viscosity of 700 to 900 centistokes and within a tolerance of  $\pm 11^{\circ}\text{C}$  ( $\pm 20^{\circ}\text{F}$ ).
2. The asphalt material shall be measured or gauged and introduced into the mixer in the quantity determined by the Owner's Representative for the particular material being used and at the temperature specified in the relevant specification.
3. After the required quantity of aggregate and asphalt material has been introduced into the mixer, the materials shall be mixed until a complete and uniform coating of the particles and a thorough distribution of the asphalt material throughout the aggregate is secured. The mixing time will be regulated by the Owner's Representative, and a suitable locking means shall be provided for these regulations.
4. All plants shall have a positive means of eliminating oversized and foreign material from being incorporated into the mixer.

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### 3.03 POROUS ASPHALT PAVEMENT INSTALLATION

- A. The mixing plant, hauling and placing equipment, and construction methods shall be in conformance with NAPA IS 131 and applicable sections of the state DOT's specification for asphalt mixes.
- B. The use of surge bins shall not be permitted.
- C. Hauling Equipment. Trucks used for hauling asphalt mixture shall have tight, clean, smooth metal bodies. The Contractor shall apply a thin coat of a non-petroleum based or soap solution to prevent the mixture from adhering to the bodies.
- D. Each truck shall have a cover of canvas or other suitable material of such size sufficient to protect the mixture from the weather. When necessary to ensure delivery of material at the specified temperature, truck bodies shall be insulated, and covers shall be securely fastened.
- E. Placing Equipment.
  - 1. The paver shall be a self-propelled unit with an activated screed or strike-off assembly, capable of being heated if necessary, and capable of spreading and finishing the mixture without segregation for the widths and thicknesses required. The screed shall be adjustable to provide the desired cross-sectional shape. The finished surface shall be of uniform texture and evenness and shall not show any indication of tearing, shoving, or pulling of the mixture. The machine shall, at all times, be in good mechanical condition and shall be operated by competent personnel.
  - 2. Pavers shall be equipped with the necessary attachments, designed to operate electronically, for controlling the grade of the finished surface.
  - 3. The adjustments and attachments of the paver will be checked and approved by the Owner's Representative before placement of asphalt material.
  - 4. Pavers shall be equipped with a sloped plate to produce a tapered edge at longitudinal joints. The sloped plate shall be attached to the paver screed extension.
  - 5. The sloped plate shall produce a tapered edge having a face slope of 1:3 (vertical: horizontal). The plate shall be so constructed as to accommodate compacted mat thickness from 35 to 100 mm (1 1/4 to 4 inches). The bottom of the sloped plate shall be mounted 10 to 15 mm (3/8 to 1/2 inch) above the existing pavement. The plate shall be interchangeable on either side of the screed.
  - 6. Pavers shall also be equipped with a joint heater capable of heating the longitudinal edge of the previously placed mat to a surface temperature of 95 °C (200 °F), or higher if necessary, to achieve bonding of the newly placed mat with the previously placed mat. This shall be done without undue breaking or fracturing of aggregate at the interface. The surface temperature shall be measured immediately behind the joint heater. The joint heater shall be equipped with automated controls that shut off the burners when pavement machine stops and reignite them with the forward movement of the paver. The joint heater shall heat the entire area of the previously placed wedge to the required temperature. Heating shall immediately precede placement of the asphalt material.

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- F.      Rollers
  - 1.      Roller shall be steel drum and non-vibratory.
  - 2.      Rollers shall be in good mechanical condition, operated by competent personnel, capable of reversing without backlash, and operated at speeds slow enough to avoid displacement of the asphalt mixture. The mass (weight) of the rollers shall be sufficient to compact the mixture to the required density without crushing of the aggregate. Rollers shall be equipped with tanks and sprinkling bars for wetting the rolls.
  - 3.      Rollers shall be two-axle tandem rollers with a gross mass (weight) of not less than 7 metric tons (8 tons) and not more than 10 metric tons (12 tons) and shall be capable of providing a minimum compactive effort of 44 kN/m (250 pounds per inch) of width of the drive roll. All rolls shall be at least 1 m (42 inches) in diameter.
  - 4.      A rubber tired roller will not be required on the open graded asphalt friction course surface.
- G.      Conditioning of Existing Surface: Contact surfaces such as curbing, gutters, and manholes shall be painted with a thin, uniform coat of Type RS-1 emulsified asphalt immediately before the asphalt mixture is placed against them.
- H.      Spreading and Finishing
  - 1.      The asphalt mixture, at the time of discharge from the haul vehicle, shall be within 6 °C (10 °F) of the compaction temperature for the approved mix design.
  - 2.      Porous Asphalt shall be placed in a single application at 4 inches thick.
  - 3.      The Contractor shall protect all exposed surfaces that are not to be treated from damage during all phases of the pavement operation.
  - 4.      The asphalt mixture shall be spread and finished with the specified equipment. The mixture shall be struck off in a uniform layer to the full width required and of such depth that each course, when compacted, has the required thickness and conforms to the grade and elevation specified. Pavers shall be used to distribute the mixture over the entire width or over such partial width as practical. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture shall be spread and raked by hand tools.
  - 5.      No material shall be produced so late in the day as to prohibit the completion of spreading and compaction of the mixture during daylight hours, unless night paving has been approved for the project.
  - 6.      No traffic will be permitted on material placed until the material has been thoroughly compacted and has been permitted to cool to below 60 °C (140 °F). The use of water to cool the pavement will not be permitted. The Owner's Representative reserves the right to require that all work adjacent to the pavement, such as guardrail, cleanup, and turf establishment, is completed prior to placing the wearing course when this work could cause damage to the pavement. On projects where traffic is to be maintained, the Contractor shall schedule daily pavement operations so that at the end of each working day all travel lanes of the roadway on which work is being performed are paved to the same limits. Suitable aprons to transition approaches where required shall be

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placed at side road intersections and driveways as directed by the Owner's Representative.

### I. Compaction

1. Immediately after the asphalt mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling.
2. The surface shall be rolled when the mixture is in the proper condition and when the rolling does not cause undue displacement, cracking, or shoving.
3. The number, mass (weight), and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition. Generally, one breakdown roller will be needed for each paver used in the spreading operation.
4. To prevent adhesion of the mixture to the rolls, rolls shall be kept moist with water or water mixed with very small quantities of detergent or other approved material. Excess liquid will not be permitted.
5. Along forms, curbs, headers, walls, and other places not accessible to the rollers, the mixture shall be thoroughly compacted with hot or lightly oiled hand tampers, smoothing irons or with mechanical tampers. On depressed areas, either a trench roller or cleated compression strips may be used under the roller to transmit compression to the depressed area.
6. Other combinations of rollers and/or methods of compacting may be used if approved in writing by the Owner's Representative, provided the compaction requirements are met.
7. Unless otherwise specified, the longitudinal joints shall be rolled first. Next, the Contractor shall begin rolling at the low side of the pavement and shall proceed towards the center or high side with lapped rollings parallel to the centerline. The speed of the roller shall be slow and uniform to avoid displacement of the mixture, and the roller should be kept in as continuous operation as practical. Rolling shall continue until all roller marks and ridges have been eliminated.
8. The Contractor shall take special care not to over-compact the asphalt material during rolling operations. Material that is over compacted so that it no longer infiltrates will be rejected, and will be replaced at the Contractor's expense.
9. Rollers will not be stopped or parked on the freshly placed mat.
10. It shall be the responsibility of the Contractor to conduct whatever process control the Owner's Representative deems necessary. Acceptance testing will be conducted by the Owner's Representative using cores provided by the Contractor.
11. Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective shall be removed and replaced with fresh hot mixture. The mixture shall be compacted to conform to the surrounding area. Any area showing an excess or deficiency of binder shall be removed and replaced. These replacements shall be at the Contractor's expense. Vibratory rollers shall not be used.
12. If the Owner's Representative determines that unsatisfactory compaction or surface distortion is being obtained or damage to highway components and/or

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adjacent property is occurring using vibratory compaction equipment, the Contractor shall immediately cease using this equipment and proceed with the work in accordance with the fourth paragraph of this Subsection.

13. The Contractor assumes full responsibility for the cost of repairing all damages that may occur to roadway or parking lot components and adjacent property if vibratory compaction equipment is used. After final rolling, no vehicular traffic of any kind shall be permitted on the surface until cooling and hardening has taken place, and in no case within the first 48 hours. Provide barriers as necessary at no extra cost to the Owner to prevent vehicular use; remove at the discretion of the Owner's Representative.

### J. Joints

1. Joints between old and new pavements or between successive day's work shall be made to ensure a thorough and continuous bond between the old and new mixtures. Whenever the spreading process is interrupted long enough for the mixture to attain its initial stability, the paver shall be removed from the mat and a joint constructed.
2. Butt joints shall be formed by cutting the pavement in a vertical plane at right angles to the centerline, at locations approved by the Owner's Representative. The Owner's Representative will determine locations by using a straightedge at least 4.9 m (16 feet) long. The butt joint shall be thoroughly coated with Type RS-1 emulsified asphalt just prior to depositing the pavement mixture when pavement resumes.
3. Tapered joints shall be formed by tapering the last 450 to 600 mm (18 to 24 inches) of the course being laid to match the lower surface. Care shall be taken in raking out and discarding the coarser aggregate at the low end of the taper, and in rolling the taper. The taper area shall be thoroughly coated with Type RS-1 emulsified asphalt just prior to resuming pavement. As the paver places new mixture on the taper area, an evenly graduated deposit of mixture shall complement the previously made taper. Shovels may be used to add additional mixture if necessary. The joint shall be smoothed with a rake, coarse material discarded, and properly rolled.
4. Longitudinal joints that have become cold shall be coated with Type RS-1 emulsified asphalt before the adjacent mat is placed. If directed by the Owner's Representative, joints shall be cut back to a clean vertical edge prior to applying the emulsion.

### K. Surface Tolerances

1. The surface will be tested by the Owner's Representative using a straightedge at least 4.9 m (16 feet) in length at selected locations parallel with the centerline. Any variations exceeding 3 mm (1/8 inch) between any two contact points shall be satisfactorily eliminated. A straightedge at least 3 m (10 feet) in length may be used on a vertical curve. The straightedges shall be provided by the Contractor.

- L. Work shall be done expertly throughout, without staining or injury to other work. Transition to adjacent impervious asphalt pavement shall be merged neatly with flush, clean line. Finished pavement shall be even, without pockets, and graded to elevations shown on drawing.

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- M. Porous pavement beds shall not be used for equipment or materials storage during construction, and under no circumstances shall vehicles be allowed to deposit soil on paved porous surfaces.
- N. Repair of Damaged Pavement. Any existing pavement on or adjacent to the site has been damaged as a result of construction work shall be repaired to the satisfaction of the Owner's Representative without additional cost to the Owner.
- O. Striping Paint
  - 1. Sweep and clean surface to eliminate loose material and dust.
  - 2. Paint 4 inch wide parking striping and traffic lane striping in accordance with layouts of plan. Apply paint with mechanical equipment to produce uniform straight edges. Apply in two coats at manufacturer's recommended rates. Provide clear, sharp lines using white traffic paint, installed in accordance with VAOT Specifications.

END OF SECTION

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SECTION 32 13 13

CEMENT CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 010000 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

- A. Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
  - 1. Cement concrete pavement at site furnishing pads and all other areas as indicated in the Drawings.

1.02 RELATED WORK UNDER OTHER SECTIONS

- A. Earthwork
- B. Porous Asphalt Pavement
- C. Site Furnishings

1.03 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirement shall govern.
- B. American Society for Testing and Materials (ASTM):
  - A 185 Welded Steel Wire Fabric for Concrete Reinforcement
  - C 33 Concrete Aggregates
  - C 91 Masonry Cement
  - C 94 Ready-Mix Concrete
  - C 143 Slump of Cement Concrete
  - C 150 Portland Cement
  - C 171 Sheet Materials for Curing Concrete
  - C 231 Air Content of Freshly Mixed Concrete by the Pressure Method
  - C 260 Air Entraining Admixtures for Concrete
  - C 309 Liquid Membrane-Forming Compounds for Curing Concrete
  - C 494 Chemical Admixtures for Concrete
  - D 1557 Moisture - Density Relations of Soils and Soil Aggregate Mixtures Using 10 lbs. (4.54-kg) Rammer and 18-in. (457 mm) Drop.
  - D 1752 Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- C. Massachusetts Highway Department Standard Specifications for Highways and Bridges (MHD Specifications).

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D. Americans with Disabilities Act (ADA) Appendix to Part 1191 Accessibility Guidelines for Building and Facilities.

E. Massachusetts Architectural Access Board (MAAB).

### **1.04 QUALITY ASSURANCE**

A. Unless otherwise specified, work and materials for construction of the cast-in-place concrete paving shall conform to ACI 316R.

B. Paving work, base course, etc., shall be done only after excavation and construction work, which might injure them, has been completed. Damage caused during construction shall be repaired before acceptance.

C. Existing paving areas shall, if damaged or removed during course of the project, be repaired or replaced under this Section of the specification. Workmanship and materials for such repair and replacement, except as otherwise noted, shall match as closely as possible those employed in existing work.

D. Pavement, base, or subbase shall not be placed on a muddy or frozen subgrade.

E. The Owner reserves the right to retain an independent testing laboratory to perform inspection and testing of paving and associated work.

### **1.05 SUBMITTALS**

A. Concrete mix design

### **1.06 ADA AND UNIVERSAL ACCESSIBILITY CODE**

A. Special attention is to be given to compliance with the American with Disabilities Act (ADA) and the requirements of the Universal Accessibility Code.

1. Walkway Slopes: The cross pitch (perpendicular to travel) for all pedestrian walkways of travel shall be constructed at 1.5% (2% maximum, 1% minimum). The longitudinal slope (parallel to travel) for all pedestrian walkways shall not exceed 4.5%. The slope of all handicapped curb cuts shall be constructed at 7.14% (8.3% maximum).

2. Verify slopes with a 2-foot electronic "Smart Level". Pedestrian pavements that do not meet these requirements shall be replaced at the Contractor's expense.

B. The above requirements shall supersede the grades shown on the grading plan. If the requirements cannot be met with the grades shown on the plans, the Contractor shall notify the Landscape Architect immediately.

C. The location and construction of all handicapped curb cuts shall be reviewed and approved by the Town Engineer prior to construction.

### **1.07 TESTING AND INSPECTION**

A. The Owner reserves the right to have tests made on mortar materials and mortar, at their discretion, as the job progresses. A recognized Testing Laboratory, selected by the Landscape Architect / Civil Engineer, with all costs paid by the Contractor, will perform tests. The Contractor shall agree to abide by the results of the tests; he shall make all adjustments and changes to mortar and materials to meet the specification requirements at no additional cost to the Owner.

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- B. Notwithstanding, Contractor to perform his/her own testing and results to be provided to Landscape Architect / Civil Engineer and Owner.

### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver manufactured products in manufacturer's original, unopened, and undamaged containers with labels intact and legible.
- B. Store and handle manufactured products to prevent damage and deterioration.

## **PART 2 - PRODUCTS**

### **2.01 DENSE GRADED CRUSHED STONE (AGGREGATE BASE COURSE)**

- A. Dense Graded Crushed Stone shall be as specified under Section 310000, EARTHWORK.
- B. The Contractor shall submit to the Landscape Architect a sieve analysis by an independent recognized testing laboratory of the material he intends to utilize. No material shall be placed until approved by the Landscape Architect in writing.
- C. Dense Graded Crushed Stone for all new pavement areas shall consist of two (2) lifts with a minimum finished depth after rolling and compaction of eight (8") inches for a 4" depth concrete pavement and twelve (12") inches. Refer to Drawings for required cover over existing ash like materials.

### **2.02 FIBROUS REINFORCEMENT**

- A. All cement concrete pavement shall contain a fibrous reinforcement of 100% virgin polypropylene fibrillated fibers of multi-design gradation as manufactured by Fibermesh, Synthetic Industries, 4019 Industry Drive, Chattanooga, Tennessee 37416 or an equal product approved by the Landscape Architect / Civil Engineer.

### **2.03 PORTLAND CEMENT CONCRETE**

- A. Portland cement concrete for pavements and slabs shall be air-entrained type with a maximum water-cement ratio of 5.0 conforming to ACI 316R. Minimum compressive strengths at 28 days shall be as follows: Flexural strength with third point loading - 650 psi; compressive strength - 4000 psi.
  - 1. Concrete shall be air-entrained type, conforming to ASTM C 94. Air content by volume shall be 6% +/- 1%, and shall be tested in accordance with ASTM C 231.
  - 2. Concrete slump shall be no less than 2 in. nor greater than 4 in., determined in accordance with ASTM C 143.
  - 3. Cement shall be Portland cement, conforming to ASTM C 150, Type I or II. Only one color of cement, all of the same manufacturer, shall be used for the work. Type III cement shall be used only with the prior approval of the Landscape Architect / Civil Engineer.
  - 4. Fine and coarse aggregates shall conform to ASTM C 33.
  - 5. Concrete shall contain a water reducing agent to minimize cement and water content of the concrete mix at the specified slump. Water reducing agent shall conform to ASTM C 494.
  - 6. No calcium chloride or admixtures containing calcium chloride shall be added to the concrete. No admixtures other than those specified shall be used in the concrete without the specific written permission of the Landscape Architect / Civil Engineer in each case.

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### **2.04 CURING MATERIALS**

- A. Curing shall be by moist curing or by use of curing compound.
- B. Curing paper shall be non-staining, fiber reinforced laminated kraft bituminous product conforming to ASTM C 171. Four mil polyethylene sheeting may be substituted for curing paper.
- C. Curing compound shall be a resin-base, white pigmented compound conforming to ASTM C 309, Type 2.

### **2.05 EXPANSION JOINTS**

- A. Unless otherwise indicated on the Drawings, expansion joints shall be located 30' on center, maximum.
- B. Expansion joint filler shall be preformed, non-bituminous type joint filler conforming to ASTM D 1752, Type II, similar to Sealtight Cork Expansion Joint Filler, manufactured by W.R. Meadows, Inc., Elgin, IL 60120, or approved equal.
  - 1. Premolded filler shall be one piece for the full depth and width of the joint leaving a sealant recess as recommended by the manufacturer.
  - 2. Use of multiple pieces of lesser dimensions to make up required depth and width of joints will not be permitted.
  - 3. Except as otherwise noted on the Drawings, joint filler shall be ½" thick.
- C. Expansion joints shall receive joint backer rod and shall be sealed with approved self leveling joint sealant/caulk.

### **2.06 CONTROL JOINTS**

- A. Control joints shall be sawcut and installed as indicated in the Drawings.

### **2.07 CONSTRUCTION JOINTS**

- A. Transverse construction joints shall be placed whenever placing of concrete is suspended for more than 30 minutes.
  - 1. Butt joint with dowels or thickened edge joint shall be used if construction joints occur at a location of a control joint.
  - 2. Keyed joints with tiebars shall be used if the construction joint occurs at any other location.

### **2.08 GROUT**

- A. Grout shall be mixed in the proportions of one part Portland cement to two parts sand, by volume. Only sufficient water shall be used to enable grout to barely hold its shape when squeezed into a ball in the hand. Sand for grout shall be "Fine Aggregate", conforming to ASTM C 33.
- B. Nonshrink grout shall be pre-mixed non-shrinking, high strength grout. Compressive strength in 28 days shall be 5,000 psi minimum, but in no case less than the specified strength of the adjacent concrete. Manufacturer shall provide evidence that the material meets the requirements of the COE CRDC 621 (558). Grout permanently exposed to view shall be nonoxidizing; metallic grout may be used in other locations.
  - 1. Nonshrink grout shall be one of the following, or approved equal:

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<u>Manufacturer</u>	<u>Product</u>
Gifford-Hill Co.	Supreme
Master Builders Co.	Embeco
U.S. Grout Corporation	Five Star Grout

### 2.09 BOND BREAKER

- A. Bond breaker shall be asphalt felt conforming to ASTM D 226, Type I or 6 mil polyethylene sheeting.

## PART 3 - EXECUTION

### 3.01 PREPARATION OF SUBGRADE

- A. Areas to be paved will be compacted and brought to subgrade elevation under Section 310000, EARTHWORK before work of this section is performed. Final fine grading, filling, and compaction of areas to receive paving, as required to form a firm, uniform, accurate, and unyielding subgrade at required elevations and to required lines, shall be done under this Section.
- B. Existing subgrade material, which will not readily compact as required, shall be removed and replaced with satisfactory materials. Additional materials needed to bring subgrade to required line and grade and to replace unsuitable material removed shall be material conforming to this Section.
- C. Subgrade of areas to be paved shall be re-compacted as required to bring top 8 in. of material immediately below gravel base course to a compaction at optimum moisture of at least 95% of maximum density, as determined by ASTM D 1557. Subgrade compaction shall extend for a distance of at least 1 ft. beyond pavement edge.
- D. Excavation required in pavement subgrade shall be completed before fine grading and final compaction of subgrade are performed. Where excavation must be performed in completed subgrade, subbase, base, or pavement, subsequent backfill and compaction shall be performed as directed by the Landscape Architect / Civil Engineer as specified in Section 310000 - Earthwork. Completed subgrade after filling such areas shall be uniformly and properly graded.
- E. Areas being graded or compacted shall be kept shaped and drained during construction. Ruts greater than or equal to 2 in. deep in subgrade, shall be graded out, reshaped as required, and re-compacted before placing pavement.
- F. Materials shall not be stored or stockpiled on subgrade.
- G. Disposal of debris and other material excavated under this section, and material unsuitable for or in excess of requirements for completing work of this section shall be disposed of off-site.
- H. Prepared subgrade will be observed by the Landscape Architect / Civil Engineer prior to installation of compacted dense graded crushed stone base course. Disturbance to subgrade caused by inspection procedures shall be repaired under this section of the specification.

### 3.02 DENSE GRADED CRUSHED STONE (AGGREGATE BASE COURSE)

- A. Dense graded crushed stone base course for paving and the spreading, grading, and compaction methods employed shall conform to standard requirements for usual base

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course of this type for first class road work, and the following: MHD Specifications Section 402, "Dense Graded Crushed Stone for Sub-Base."

- B. Compaction of dense graded crushed stone base course shall be to 95% of maximum density as determined by ASTM D 1557, Method D. Stone greater than 2-1/2 inches shall be excluded from aggregate base course materials.
- C. Width of dense graded crushed stone base course shall be greater than or equal to the width of pavement 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.
- D. Dense graded crushed stone material shall be applied in lifts less than or equal to 6 inches thick, compacted measure. Each lift shall be compacted to project specified density with compaction verified by performance of on-site field density testing.
  - 1. Material shall be placed adjacent to wall, manhole, catch basin, and other structures only after they have been set to required grade and level.
  - 2. 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.
  - 3. Surface irregularities which exceed 1/2 inch measured by means of a 10-foot long straightedge shall be replaced and properly compacted.
- E. Subgrade and base course shall be kept clean and uncontaminated. Less select materials shall not be permitted to become mixed with dense graded crushed stone base course. Materials spilled outside pavement lines shall be removed and area repaired.
- F. Portions of subgrade or of construction above which become contaminated, softened, or dislodged by passing of traffic, or otherwise damaged, shall be cleaned, replaced, and otherwise repaired to conform to the requirements of this specification before proceeding with next operation.

### 3.03 STEEL REINFORCEMENT

- A. Before being placed in position, reinforcing for reinforced concrete shall be thoroughly cleaned of loose mill and rust scale, dirt, ice, and other foreign material that may reduce the bond between the concrete and reinforcing. Where there is delay in placing concrete after reinforcement is in place, bars shall be re-inspected and cleaned when necessary.
- B. Unless otherwise indicated on the Drawings, reinforcing shall extend within 2 in. of formwork and expansion joints. Reinforcing shall continue through control joints.
- C. After forms have been coated with form release agent, but before concrete is placed, reinforcing steel shall be securely wired in the exact position called for, and shall be maintained in that position until concrete is placed and compacted. Chair bars and supports shall be provided in a number and arrangement satisfactory to the Landscape Architect / Civil Engineer.

### 3.04 PORTLAND CEMENT CONCRETE PAVING

- A. Paving mix, equipment, methods of mixing and placing, and precautions to be observed as to weather, condition of base etc., shall meet the requirements of ACI 316R. Pavement shall be constructed in accordance with the Drawings.
- B. The Landscape Architect / Civil Engineer shall be notified of concrete placement sufficiently in advance of start of operation to allow his representative to complete

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preliminary inspection of the work, including subgrade, forms, and reinforcing steel, if used.

- C. Normal concrete placement procedures shall be followed. Concrete shall arrive at the jobsite so that no additional water will be required to produce the desired slump. When conditions develop that required addition of water to produce the desired slump, permission of the Landscape Architect / Civil Engineer must be obtained. The concrete shall be transported from the mixer to its place of deposit by a method that will prevent segregation or loss of material.
- D. Work shall not be performed during rainy weather or when temperature is less than 40°F. (4.4°C).
- E. Adjacent work, etc., shall be protected from stain and damage during entire operation. Damaged and stained areas shall be replaced or repaired to equal their original conditions.
- F. Existing concrete, earth, and other water-permeable material against which new concrete is to be placed shall thoroughly damp when concrete is placed. There shall be no free water on surface.
- G. Concrete that has set or partially set before placing shall not be employed. Re-tempering of concrete will not be permitted.
- H. Concrete shall be thoroughly spaded and tamped to secure a solid and homogeneous mass, thoroughly worked around reinforcement and into corners of forms.
- I. When joining fresh concrete to concrete which has attained full set, latter shall be cleaned of foreign matter, and mortar scum and laitance shall be removed by chipping and washing. Clean, roughened base surface shall be saturated with water, but shall have no free water on surface. A coat of 1:1 cement-sand grout, approximately 1/8 in. thick, shall be well scrubbed into thoroughly dampened concrete base. New concrete shall be placed immediately, before grout has dried or set.

### 3.05 FINISHING

- A. Concrete flatwork surfaces shall be screeded off and finished true to line and grade, and free of hollows and bumps. Surface shall be dense, smooth, and at exact level and slope required.
  - 1. Finished concrete surface for concrete pads shall be wood-floated and steel troweled to a smooth surface. Surface shall not deviate more than 1/8 in. in 10 ft.
- B. Unless otherwise indicated, horizontal surfaces of concrete surfaces that will be exposed shall be given a light broomed finish, with direction of grooves in concrete surface perpendicular to length of concrete band, slab, or pad. After concrete has set sufficiently to prevent coarse aggregate from being torn from surface, but before it has completely set, brooms shall be drawn across it to produce a pattern of small parallel grooves. Broomed surface shall be uniform, with no smooth, unduly rough or porous spots, or other irregularities. Brooming operations shall not dislodge coarse aggregate.
- C. Where finishing is performed before end of curing period, concrete shall not be permitted to dry out, and shall be kept continuously moist from time of placing until end of curing period, or until curing membrane is applied.

### 3.06 CURING

- A. It is essential that concrete be kept continuously damp from time of placement until end

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of specified curing period. It is equally essential that water not be added to surface during floating and troweling operations, and not earlier than 24 hours after concrete placement. Between finishing operations surface shall be protected from rapid drying by a covering of waterproofing paper. Surface shall be damp when the covering is placed over it, and shall be kept damp by means of a fog spray of water, applied as often as necessary to prevent drying, but not sooner than 24 hours after placing concrete. None of the water so applied shall be troweled or floated into surface.

B. Concrete surfaces shall be cured by completely covering with curing paper or application of a curing compound.

1. Concrete cured using waterproof paper shall be completely covered with paper with seams lapped and sealed with tape. Concrete surface shall not be allowed to become moistened between 24 and 36 hours after placing concrete. During curing period surface shall be checked frequently, and sprayed with water as often as necessary to prevent drying, but not earlier than 24 hours after placing concrete.
2. If concrete is cured with a curing compound, compound shall be applied at a rate of 200 sq. ft. per gallon, in two applications perpendicular to each other.
3. Curing period shall be seven days minimum.

### 3.07 COLD WEATHER CONCRETING

- A. Materials for concrete shall be heated when concrete is mixed, placed, or cured when the mean daily temperature is below 40 degrees F. or is expected to fall to below 40 degrees F. within 72 hours, and the concrete after placing shall be protected by covering, heat, or both.
- B. Details of handling and protecting of concrete during freezing weather shall be subject to the approval and direction of the Landscape Architect / Civil Engineer. Procedures shall be in accordance with provisions of ACI 306R.

### 3.08 HOT WEATHER CONCRETING

- A. Concrete just placed shall be protected from the direct rays of the sun and the forms and reinforcement just prior to placing shall be sprinkled with cold water. Every effort shall be made to minimize delays which will result in excessive mixing of the concrete after arrival on the job.
- B. During periods of excessively hot weather (95 degrees F. or above), ingredients in the concrete shall be cooled insofar as possible and cold mixing water shall be used to maintain the temperature of the concrete at permissible levels all in accordance with the provisions of ACI 305. Any concrete with a temperature above 95 degrees F, when ready for placement will not be acceptable, and will be rejected.
- C. Temperature records shall be maintained throughout the period of hot weather giving air temperature, general weather conditions (calm, windy, clear, cloudy, etc.) and relative humidity. Records shall include checks on temperature of concrete as delivered and after placing in forms. Data should be correlated with the progress of the work so that conditions surrounding the construction of any part of the structure can be ascertained.

### 3.09 PROTECTION OF CONCRETE SURFACES

- A. Concrete surfaces shall be protected from traffic or damage until surfaces have hardened sufficiently. If necessary 1/2 in. thick plywood sheets shall be used to protect the exposed surface.

END OF SECTION

CEMENT CONCRETE PAVEMENT

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SECTION 32 16 00

GRANITE STAIRS AND WALLS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 – GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Work Included: Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
  - 1. Granite Stairs

1.03 RELATED WORK

- A. Cast-In-Place Concrete
- B. Site Furnishings
- C. Earthwork
- D. Loam and Seed

1.04 REFERENCES

- A. Work shall conform to codes and standards of the following:
  - 1. ASTM – American Society of Testing Materials
  - 2. Massachusetts Highway Department Standard Specifications for Highways and Bridges (MHD Specifications).
  - 3. Americans with Disabilities Act (ADA) Appendix to Part 1191 Accessibility Guidelines for Building and Facilities.
  - 4. Massachusetts Architectural Access Board (MAAB).

1.05 QUALITY ASSURANCE

- A. Granite Supply: Each type of granite shall come from a single quarry, with sufficient reserves to satisfy the requirements of the Project. The granite supplier shall have the capabilities to cut and finish the stone without delaying the Project.
- B. Codes and Standards: Perform site improvement work in compliance with applicable requirements of governing authorities having jurisdiction.
- C. Qualifications of workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work in this Section.

GRANITE STAIRS AND WALLS

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- D. Layout and Grading: After staking and laying out the work, and before beginning final construction, obtain the Landscape Architect's approval of layout and grades. Contactor shall make minor adjustments as determined by the Landscape Architect as necessary.
- E. The Contractor and his Subcontractors shall inspect all subbases for unstable, unsuitable or improperly prepared areas. Do not begin work over unacceptable areas. Beginning work means the Contactor and his Subcontractors accept the subbase, previous work and conditions and shall be held responsible for any corrections required to properly implement the Construction Documents.

### **1.06 SUBMITTALS**

- A. Product Data: For each granite type and each manufactured product shown on Drawings or specified.
- B. Shop Drawings: Show fabrication and installation details for granite stairs, cheek wall and related work.
  - 1. Include dimensions and profiles of granite stairs and related work.
  - 2. Show fabrication and installation details for granite stairs.
  - 3. Show widths, details and locations of expansion, contraction, control, and isolation joints in substrates and finished granite stair surfaces.
- C. Granite Samples: Submit samples of each granite type required, exhibiting the full range of color characteristics expected in the completed work.
  - 1. Submit a minimum of 2 each, 12 inches by 12 inches in size, and in each color and finish specified.

### **1.07 DELIVERY, STORAGE AND HANDLING**

- A. Deliver, store and handle materials to prevent deterioration or damage.
  - 1. Carefully pack and load granite for shipment using reasonable care and customary precautions against damage in transit. Do not use material for blocking or packing, which may cause staining or discoloration.
  - 2. Stack granite on timber or platforms at least 4 inches above the ground. Use care to prevent staining or discoloration during storage.
  - 3. If storage is to be for a prolonged period, use polyethylene or other suitable plastic film placed between wood blocking and finished surfaces of completely dry stone. Ventilate under covers to prevent condensation.
  - 4. Lift granite with wide-belt slings; do not use wire rope or totes that might cause damage. Move granite, if required, using dollies with cushioned wood supports.
  - 5. Store installation accessories, including metal items, to prevent corrosion and contamination.

## **PART 2 - PRODUCTS**

### **2.01 GRANITE STAIRS AND WALLS**

- A. Granite shall be a structural granite conforming to ASTM C 615, Class I Engineering Grade, suitable for stair treads and cheek walls.
  - 1. Granite shall be equivalent to Woodbury Grey thermally finished as supplied by Swenson Granite Works or approved equal.
  - 2. Use only one source for each type of granite throughout entire project.

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B. MORTAR

1. Mortar shall be composed of equal parts of cement and clean sand with sufficient water to make a workable mixture. The material shall conform to the requirements of ASTM C 91 and C 144.

PART 3 - EXECUTION

3.01 GENERAL

- A. Set stairs and walls in accordance with approved shop drawings.
- B. Field cut granite as necessary during setting of treads. Field cuts shall be limited to the extent practicable. Cut lines straight and true and finish field-cut edges to match shop-cut edges.
- C. Scribe and field-cut granite as necessary to fit at obstructions. Produce neat joints of size specified or indicated on the drawings.
- D. Top of stair treads shall slope in accordance with Drawings.

END OF SECTION

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SECTION 32 33 00

SITE FURNISHINGS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 – GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Work Included: Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
  - 1. Site Benches
  - 2. Accessible Picnic Tables
  - 3. Flagpole
  - 4. Handrails

1.03 RELATED WORK

- A. Cast-In-Place Concrete
- B. Cement Concrete Pavement
- C. Porous Asphalt Pavement
- D. Loam and Seed
- E. Planting

1.04 REFERENCES

- A. Work shall conform to codes and standards of the following:
  - 1. ASTM – American Society of Testing Materials
  - 2. Massachusetts Highway Department Standard Specifications for Highways and Bridges (MHD Specifications)
  - 3. United States Flag Code

1.05 QUALITY ASSURANCE

- A. Source: For each type of product required for the work of this Section, provide products of one manufacturer and source for consistency.
- B. Codes and Standards: Perform site improvement work in compliance with applicable requirements governing authorities having jurisdiction. Workmanship and finish shall be equal to the best practice of modern shops for each item of work.
- C. Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and

EXTERIOR SITE FURNISHINGS

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methods needed for proper performances of the work of this Section.

- D. The work of this Section shall be completely coordinated with the work of other Sections. Verify dimensions and work of other trades, which adjoin materials of this Section before installing items specified.

### 1.06 SUBMITTALS

- A. Shop Drawings: Supply shop drawings at an approved scale for location, installation and erection of each site furnishing item under this Section.
- B. Product Information: Provide manufacturer's data showing installation and limitations in use of each site-furnishing item. Supply Certificates of Compliance for all materials required for fabrication and installation.
- C. Material Selection and Samples: Submit samples showing the complete range of colors, textures and finishes available for all components required for construction. Work includes but is not limited to the following:
  - 1. Provide one sample, 6 inch x 6 inch of shop-applied finish for each site furnishings item.

## PART 2 - PRODUCTS

### 2.01 SITE BENCHES

- A. Site Benches shall be equivalent to:
  - 1. Harpo Bench as manufactured by Landscape Forms Inc., 7800 E. Michigan Avenue, Kalamazoo, MI 49048, (800) 521-2546.
  - 2. Benches shall be 69" long with back and end armrests.
  - 3. Seat panel style shall be wide wood boards.
  - 4. Wood shall be unfinished ipe.
  - 5. Bench steel end frames shall be powder coated black.
  - 6. Benches shall be surface mounted.
  - 7. Quantity: Seven (7), refer to Drawings.

### 2.02 ACCESSIBLE PICNIC TABLE

- A. General: DCR accessible picnic table shall have integral table and benches and steel tube legs and framing. The tabletop shall be roughly 28 inches wide x 8 foot long. Seats shall be attached to steel legs/frame and shall be roughly 12" wide x 6' long.
- B. Accessibility: All tables shall be ADA accessible with overhangs on both ends of roughly 19".
- C. Frame: Legs/Frame shall be 2-3/8" OD galvanized steel pipe. Legs and cross members/framing shall be 1-1/4" OD galvanized steel pipe. All steel shall be powder coated. Color of powder coating to be selected by DCR.
- D. Wood Slats: Wood for tabletop and bench seats shall be 2" x 10" ipe or douglas fir.
- E. Anchoring: Tables shall be surface mounted as shown on the details. Contractor shall provide tamper resistant, stainless steel, expansion bolts sized for use.
- F. Acceptable models and manufacturers include:
  - 1. Model ST-5 as manufactured by Victor Stanley, Dunkirk, MD., 800-368-2573.
  - 2. Table 72 as manufactured by DuMor, Mifflintown, PA., 800-598-4018 – has 30 inch overhang on 1 end
  - 3. New York Picnic Table, NY6-2000-ADA, by SITESCAPES, ipe 72" table and benches and 24 inch ADA extension on 1 end. Douglas Fir.
- G. Quantity: Two (2), refer to Drawings.

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### 2.03 FLAGPOLE

- A. Flagpole shall be aluminum fabricated from seamless extruded tubing complying with ASTM B241, alloy 6063-T6, having a minimum wall thickness of .188" tensile strength of not less than 30,000 psi. Heat-treated and age-harden after fabrication. Height to be 30'.
- B. Provide a flagpole where shown on drawings for a complete and proper installation. Provide flagpole as a complete unit produced by a single manufacturer, including all fittings and accessories. Halyard to be internal type system.
- C. Construct pole and ship to site in one piece. Spiral wrap flagpole with heavy Kraft paper or other protective wrapping and ship in hard fiber tubes or other protective containers.
- D. Aluminum ground set internal halyard flagpole shall be set in aluminum tube 1" to 3" larger in diameter than the shaft.
- E. Fittings:
  - 1. Finial 14 gauge spun aluminum ball with flush seam sized to match butt diameter of shaft.
  - 2. Truck cast aluminum-revolving, non-fouling, with 26 stainless steel ball bearings and two cast nylon sheaves.
  - 3. Internal halyard, one set of #10 white waterproof polypropylene, equipped with two chrome swivel-snaps to secure the flag.
  - 4. Cleat One internally mounted cam-action cleat with integral sheave, factory mounted.
- F. Provide one American flag for flagpole. Size for flag shall be 6'x10'.
- G. Flagpole quantity: One (1), refer to Drawings.
- H. Flagpole shall be manufactured by the following or equal:
  - 1. American Flagpole, 26252 Hilman Highway, P.O. Box 547, Abingdon, VA 24210, (703)628-4188. Model Number ICC40D81-AE.
  - 2. Color shall be Anodized black.

### 2.04 HANDRAILS

- A. Ferrous Metals
  - 1. Metal Surfaces: For fabrication of metal work, which may be exposed to view, use only materials, which are smooth and free of surface blemishes, including pitting, seam marks, roller marks, rolled trade names, and roughness.
  - 2. Steel Tubing: Welded and seamless carbon steel structural tubing in round shapes, ASTM A 500-01A; Hot-rolled, ASTM A501.
  - 3. Bolts, Nuts and Washers, ASTM A307 Grade A.
  - 4. Galvanized Components: ASTM A153.
  - 5. Galvanized Steel Sleeve: Hot dipped heavy duty pipe sleeve having outside dimension 1/4" greater than outside diameter of post to be inserted therein.
  - 6. Welding Materials: As per AWS D1.1: type as required for materials being welded.

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### B. HYDRAULIC CEMENT

1. Hydraulic cement for installing bolts and fastenings into concrete and for setting pipe posts into sleeves: Quick setting, non-staining, non-shrinking type, as approved.

### C. FABRICATION

#### 1. General:

- a. Use materials of the size and thickness indicated or, if not indicated, as required to produce the strength and durability in finished product for use intended.
- b. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrications and support.
- c. Fit and shop assemble items in largest practical sections for delivery to site.
- d. Fabricate items with joints fitted and secured.
- e. Weld corners of joined members by continuous welds, complying with AWS recommendations.
- f. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- g. Use flush countersunk screws or bolts, unobtrusively located, consistent with design of component.
- h. Fabricate joints, which will be exposed to weather in a manner, which will exclude water.

#### 2. Handrails:

- a. At tee and cross intersections, provide coped joints.
- b. Provide returns at ends of handrails as shown on the drawings.
- c. Provide sleeves, and enclosures, flanges, and miscellaneous fittings for connecting handrail to concrete work.
- d. All handrails shall be painted black, minimum two coats – preferred powder coated black.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. All site furnishings shall be laid out in the field for approval by the Landscape Architect/Civil Engineer prior to installation.
- B. Site furnishings shall be erected as indicated on the Drawings, plumb, level, snug, and free from rocking. Make necessary shimming and final adjustments.
  1. Shims shall be stainless steel sized so that they do not protrude beyond the base of the item so as to be visible in completed installation.

### 3.02 SITE BENCHES

- A. Install per manufacturer's recommendations and approved shop drawings.

### 3.03 ACCESSIBLE PICNIC TABLE

- A. Install manufactured site tables, in accordance with the manufacturer's instructions on

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aggregate surfacing where shown and detailed on the drawings or as directed by DCR. Install tables in the orientation shown. Ensure that ADA access paths align with the portion of the table that is ADA accessible.

- B. Site tables to be installed level. Shim to level, so that rocking doesn't occur.
- C. Anchor site tables to concrete surface as detailed on the drawings.
- D. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by DCR.
- E. For component damage, remove and replace damaged components that cannot be repaired as determined by DCR.

**3.04 FLAGPOLE**

- A. Install per Manufacturer's recommendations and approved shop drawings.

**3.05 HANDRAILS**

- A. Handrails at all stairways and at boardwalk shall be field measured prior to development of shop drawings and fabrication.
- B. Core cement concrete stairs and install plumb and true on stairways.
- C. Install handrails at boardwalk using bracket mounts secured to rails
- D. Secure with an approved grout and seal with an approved self-leveling, weatherproof caulk.

END OF SECTION

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SECTION 32 92 19

LOAM AND SEED

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 010000 – GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

- A. Refer to the Drawings for the extent and details of this work.
- B. The work of this Section consists of all seeding and related work as shown on the Drawings or required herein and includes, but is not limited to the following:
  - 1. Providing all topsoil required for work of this Section.
  - 2. Screening stripped and stockpiled topsoil.
  - 3. Providing all soil amendments, fertilizers, erosion controls and mulches as required for work in this Section.
  - 4. Scarification of subsoil in preparation for loaming.
  - 5. Spreading and fine grading topsoil for all lawn areas.
  - 6. Seeding required for work in this Section.
  - 7. Maintenance and guarantee.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Site Preparation
- B. Earthwork
- C. Erosion and Sediment Control

1.04 SUBMITTALS

- A. Materials list: Submit a complete list of all materials proposed for use in this work, demonstrating complete conformance with the requirements specified.

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1. Submit grass seed mixes for approval.
2. Submit topsoil analysis results for review by the Landscape Architect. State recommended quantities of amendments necessary to produce satisfactory topsoil as stated in the specifications herein. If on-site stockpiled topsoil is to be used, submit topsoil analysis of screened products.
3. Submit product information with mix ratios and amounts for hydro mulching to be used during hydroseeding for Landscape Architect 's approval.
4. Submit fertilizer, herbicide and fungicide products for application as required for Landscape Architect 's approval.
5. Submit mechanical analysis of any soil amendments.

### **1.05 QUALITY ASSURANCE**

- A. All seed and amendments shall comply with all Federal, State and local laws and regulations requiring inspection for plant disease and insect control.

### **1.06 PRODUCT HANDLING**

#### **A. Delivery and Storage:**

1. Deliver all items to the job site in their original containers with all labels intact and legible at time of Landscape Architect 's inspection.
2. Immediately remove from the site all materials which do not comply with the specified requirements
3. Use all means necessary to protect seed from moisture and other contaminants which may adversely effect proper germination.
4. Use all means necessary to protect fertilizers, amendments and other materials from moisture and other contaminants which may adversely effect their efficacy.

### **1.07 JOB CONDITIONS**

- A. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate as required. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Landscape Architect before spreading topsoil.

## **PART 2 - PRODUCTS**

### **2.01 LAWN PRODUCTS**

- A. Topsoil (Upland Seed Mix Areas): ASTM D 5268, pH range of 5.5 to 7, a minimum of 4 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.
  1. Topsoil stockpiled from on-site stripping shall be utilized for all meadow-seeded areas.
  2. Topsoil stockpiled from on-site stripping may be utilized for Composted Manufactured Topsoil if in compliance with the requirements for manufactured topsoil.
  3. All topsoil that was stripped and stockpiled shall be screened to a maximum

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stone size of ½ in.

4. The existing topsoil was testing, and the amendment recommendations are provided in the Project Manual. The contractor is responsible for modifying the existing topsoil as required to meet the specification for new topsoil.
5. The soil should not require lime unless the pH is below 5.5. Do not apply nitrogen fertilizer to the meadow seed mix. Phosphorus and potassium may be added if the soil test indicates a deficiency of these minerals.

### B. Permeable Planting Soil (Rain Garden Areas)

1. The Contractor shall use a soil substrate that meets or exceeds the criteria specified in Volume 2, Chapter 2 of the Massachusetts Stormwater Handbook (latest edition).

### C. New Topsoil (Lawn Areas)

1. New Topsoil: Shall be natural, fertile loam typical of cultivated topsoils of the locality, containing not less than 3.5% or more than 8% by weight, of decayed organic matter (humus) as determined by ASTM F-1647. If organic amendments are needed to obtain the specified matter content of the topsoil, the organic matter source may be a compost material. Compost shall be created in an in-vessel system, with an ash content not exceeding 40%.
2. Topsoil shall be taken from a well-drained, arable site, free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris.
3. Topsoil shall be free of Quack-grass rhizomes, Agropyron Repens, and the nut-like tubers of Nutgrass, Cyperus Esculentus, and all other primary noxious weeds.
4. Topsoil shall have a pH not less than 6.0 or greater than 7.0.
5. Topsoil shall not be delivered or used while in a frozen or muddy condition.
6. Topsoil shall conform to the following particle size distribution, as determined by pipette method in compliance with ASTM F-1632:

Sand	40-60%
Silt	30-40%
Clay	5-20%

### D. Soil Analyses

1. The Contractor shall submit representative samples of all topsoil he intends to bring onto the site, and samples of topsoil that were stockpiled from on-site stripping, to a Soil Plant Testing Laboratory acceptable to the Landscape Architect. All reports shall be sent to the Landscape Architect for approval. The cost for testing and analysis of the soils shall be borne by the Contractor.
2. Samples of topsoil to be brought to the site must be approved prior to delivery. Deficiencies in the topsoil shall be corrected by the Contractor.

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3. Testing reports shall include the following tests and recommendations:
  - a. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System;
  - b. The silt and clay content shall be determined by a Pipette Test of soil passing the No. 270 sieve;
  - c. Percent of organics shall be determined by an Ash Burn Test or Walkley/Black Test (ASTM F-1647);
  - d. Tests for gradation and organics shall be performed by a private testing laboratory approved by the Landscape Architect. Tests for soil chemistry and pH may be performed by a public extension service agency;
  - e. Chemical analysis shall be undertaken for Phosphorus, Potassium, Calcium, Aluminum, Soluble Salts, and acidity (pH);
  - f. Soil analysis tests shall include recommendations for soil additives to correct soils deficiencies as necessary, and for additives necessary to accomplish particular objectives noted;
  - g. All tests shall be performed in accordance with the current standards of the Association of Official Agriculture Chemists.

## E. Soil Amendments

1. Washed screened sand for use as a soil amendment to improve drainage properties and to reduce compaction of existing stripped topsoil or new topsoil, shall meet the following mechanical analysis:

Sieve Size	% Passing by Weight
4 in.	100
No. 4	93
No. 8	83
No. 16	71
No. 30	49
No. 50	18
No. 100	2
No. 2000	2

2. Lime
  - a. Lime shall be an approved agricultural limestone containing no less than fifty (50%) percent of total carbonates and twenty-five (25%) percent total magnesium with a neutralizing value of at least one hundred (100%) percent
  - b. The material shall be ground to such a fineness that forty (40%) percent will pass through a Number 100 U.S. Standard Sieve, and ninety-eight (98%) percent will pass through a Number 20 U.S. Standard Sieve.
  - c. The lime shall be uniform in composition, dry and free flowing and shall be delivered to the site in the original, unopened containers,

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- d. each bearing the manufacturer's guaranteed analysis.  
Any lime which becomes caked or otherwise damaged making it unsuitable for use, will be rejected.
- 3. Fertilizer
  - a. Shall be determined based on soil test conducted by an approved soil testing laboratory.
- 4. Herbicides, Pesticides and Fungicides
  - a. Herbicides, pesticides, and fungicides may be used subject to the approval of the Landscape Architect and handled by State Licensed operators only.
- F. Water
  - 1. Water shall be supplied by the Contractor unless otherwise specified.
  - 2. The Contractor is responsible for providing all equipment, hoses, etc. for watering throughout the project and until final acceptance of lawn and turf areas by the Landscape Architect. The proposed irrigation system may be used if available.
- G. Seed
  - 1. Grass seed shall be clean, new crop seed, composed of a mixture of varieties, mixed in proportion by weight and tested for minimum percentages of purity and germination. Submit proposed mixture to the Landscape Architect for approval.
  - 2. Hydroseed Mix
    - a. All seeding shall be completed using a hydroseeding process.
    - b. All work will be carried out by an approved spraying machine specifically used for this work. Amounts of fertilizer used shall reflect recommendations outlined in the Soil Analysis. The Contractor shall submit to the Landscape Architect for approval, prior to the start of work, a certified statement as to number of pounds of fertilizer, amounts and types of grass seed, and processed fiber, per one hundred (100) gallons of
    - c. Hydromulch: Shall be Terra-Sorb GB, or an approved equal. Add Terra-Sorb to the hydroseed tank at the amount of 60 pounds per acre.
  - 3. General Lawn Area Mix: Shall be equivalent to Barendsburg Seed as provided by  
  
EH Turf Supply, Inc.DBA Allen's Seed  
695 South County Trail  
Exeter, RI. 02822  
Phone: 401-294-2722  
  
RPR Perennial Ryegrass 50%  
Watersaver Turf-type Tall Fescue 25%

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Turfsaver Turf-type Tall Fescue 25%

4. Upland Seed Mix: Shall be equivalent to a custom seed mix provided by:

New England Wetland Plants, Inc.  
820 West Street  
Amherst, MA 01002  
Phone: 413-548-8000

Virginia Wildrye	33%
Indiangrass	18%
Early Goldenrod	15%
Begger Ticks	15%
Red Fescue	4%
Little Bluestem	4%
Partridge Pea	4%
Showy Tick Trefoil	2%
Butterfly Milkweed	2%
Switch Grass	1%
Purple Joe Pye Weed	1%
Big Bluestem	1%

## PART 3 - EXECUTION

### 3.01 SEEDED LAWN

#### A. Preparation of Subsoil

1. Prior to spreading topsoil, subsoil should be rough graded to correspond with finish grades as indicated on the Drawings. Subgrade shall slope to allow for subsurface drainage. Depressions shall be filled, and areas which are highly compacted shall be loosened to a depth which is adequate for the passage of gravitational water through the subsoil.
2. After acceptance of subsoil grades, loosen and mix subgrade material two inches to four inches (2"-4") deep. Remove stones over two (2") inches, sticks, rubbish, and other deleterious materials which may impede the healthy and vigorous growth of grass. Move no heavy objects or machinery, except as necessary for the spreading of topsoil, over sod and seed beds after preparation of subgrade.
3. Subsoil which becomes compacted due to excessive construction activity, shall be loosened as directed by the Landscape Architect at no additional cost to the Owner.

#### B. Spreading of Topsoil

1. Immediately after approval of subgrade, evenly spread and lightly compact approved topsoil to finish grades as indicated on the Drawings.
2. Do not spread topsoil which is in a muddy or frozen condition. Handle no topsoil when dry or above the plastic limit.

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3. When possible, spreading of topsoil shall be performed from the edge of lawn area outward. Contractor may use alternate spreading pattern as approved in writing by the Landscape Architect .
4. Caution should be exercised to minimize or eliminate travel over areas previously covered with topsoil. Topsoil which becomes compacted due to excessive construction activity, shall be stripped and re-spread, or loosened as directed by the Landscape Architect at no additional cost to the Owner.

### **C. Seed Bed Preparation**

1. Contractor is responsible for supplying all topsoil needed from off-site sources if stockpiles are inadequate.
2. Grade all lawn areas to finish grades as indicated on the Drawings. When no grades are shown, areas shall have a smooth and continuous grade between existing or fixed controls and elevations shown on plans. Roll, scarify, rake and level as necessary to obtain true even lawn surfaces. All lawn areas shall slope to drain. Finish grades shall be approved by the Landscape Architect prior to commencing any seeding work. Install soil additive per manufacturer's instructions and as indicated on the Drawings.
3. Place soil amendment in the areas of the lawn as shown on the Drawings. Follow the manufacturer's recommendations for installation.
4. Spreading Limestone: Spread ground limestone evenly over the topsoiled surface. Incorporate limestone within the top two (2") inches of soil prior to finish raking. Apply limestone at the rate recommended by the testing and analysis agency.

### **D. Seeding**

1. Schedule for Seeding: Sow grass seed between April 1 and May 31, or between August 15 and October 1, except as otherwise approved in writing by the Landscape Architect.
2. If seeding out of season as described above, the Contractor is still obligated by all conditions and responsibilities described under 3.01.F LAWN MAINTENANCE, until final acceptance of all lawn areas.
3. Before seed is sown, scarify soil and rake until surface is smooth, friable, and of uniformly fine texture. Seed evenly at supplier's recommended rates, lightly rake and water with fine spray. It is the Contractor's responsibility to establish a smooth, uniform turf composed of approved grasses. Do not use wet seed which is moldy or otherwise damaged in transit or storage.
4. Mulch bank areas with 3 to 1 slope or greater with straw mulch, 1-1/2 to 2 tons per acre. Secure mulch at Contractor's discretion as to method or need. Wood fiber mulch may be substituted at rate of 1,400 pounds per acre at same time as seed and fertilizer.

### **E. Fertilizing**

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1. Contractor to have the topsoil tested for soil fertility by an approved soil testing laboratory, and a complete fertilization program will be recommended by the testing laboratory and Landscape Architect for the installation maintenance period.

### **F. Lawn Maintenance**

1. Maintenance of the grass areas shall begin immediately, and generally consist of watering, weeding, mowing and edging, reseeding, disease and insect pest control, repair of all erosion, and any other procedure consistent with good horticultural practice, necessary to insure normal, vigorous and healthy growth.
2. Maintenance shall also include filling, regrading, and reseeding as necessary to correct depressions caused by settling, subsidence, or other physical or mechanical damage.
3. Maintenance for the seeded and hydroseeded areas shall also include all temporary protection fences, barriers, signs and all other work incidental to proper maintenance around general lawn areas.
4. The Contractor shall be responsible for maintenance to establish a uniform stand of the approved grasses until acceptance. After the grass has started, all areas and parts of areas showing poor germination or growth shall be re-seeded, repeatedly, until all areas are covered with a satisfactory growth of grass. At the time of the first cutting, mow lawn with sharp mowing units not less than two and one half (2-1/2") inches high. Lawn shall be maintained between two and one half inches to three and one half inches (2-1/2"-3-1/2") high. Do not remove more than one third (1/3) of the grass blade. All lawns shall receive a minimum of three mowings before Contractor's request for inspection and acceptance. Additional mowings may be required before acceptance.
5. Watering: The Contractor shall include cost for daily, and if necessary, continuous watering of all grass areas during a normal 8 hour working day. The seed bed shall be maintained in a continuous moist condition, satisfactory for good germination and growth of grass, as specified. Seeded grass areas must be kept in a moist condition until acceptance.
6. Full and complete written instructions for maintenance of the lawn areas are to be furnished to the Owner, by the Contractor at least ten (10) days prior to the end of the contractual maintenance period, to familiarize him with the maintenance requirements for proper care and development of the lawns.

### **3.02 UPLAND SEED MIX**

#### **A. Preparation of Subsoil**

1. Topsoil stockpiled from on-site stripping shall be utilized for all meadow areas.
2. Prior to spreading topsoil subsoil should be rough graded to correspond with finish grades as indicated on the Drawings. Subgrade shall slope to allow for subsurface drainage. Depressions shall be filled, and areas which are highly compacted shall be loosened to a depth which is adequate for the passage of gravitational water through the subsoil.
3. After acceptance of subsoil grades, loosen and mix subgrade material two

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inches to four inches (2"-4") deep. Remove stones over two (2") inches, sticks, rubbish, and other deleterious materials which may impede the healthy and vigorous growth of grass. Move no heavy objects or machinery, except as necessary for the spreading of topsoil, over sod and seed beds after preparation of subgrade.

4. Subsoil which becomes compacted due to excessive construction activity, shall be loosened as directed by the Landscape Architect at no additional cost to the Owner.

### **B. Spreading of Topsoil**

1. Immediately after approval of subgrade, evenly spread and lightly compact approved topsoil to finish grades as indicated on the Drawings. If compacted beyond 3" rototill 1"-2" of well-decomposed compost into the soil.
2. Do not spread topsoil which is in a muddy or frozen condition. Handle no topsoil when dry or above the plastic limit.
3. When possible, spreading of topsoil shall be performed from the edge of lawn area outward. Contractor may use alternate spreading pattern as approved in writing by the Landscape Architect.
4. Caution should be exercised to minimize or eliminate travel over areas previously covered with topsoil. Topsoil which becomes compacted due to excessive construction activity, shall be stripped and re-spread, or loosened as directed by the Landscape Architect at no additional cost to the Owner.

### **C. Seed Bed Preparation**

1. Contractor is responsible for supplying all topsoil needed from off-site sources if stockpiles are inadequate.
2. Grade all lawn areas to finish grades as indicated on the Drawings. When no grades are shown, areas shall have a smooth and continuous grade between existing or fixed controls and elevations shown on plans. Roll, scarify, rake and level as necessary to obtain true even lawn surfaces. All lawn areas shall slope to drain. Finish grades shall be approved by the Landscape Architect prior to commencing any seeding work. Install soil additive per manufacturer's instructions and as indicated on the Drawings.
3. Place soil amendment in the areas of the lawn as recommended from the soil analysis. Follow the manufacturer's recommendations for installation.
4. Spreading Limestone: The soil should not require lime unless the pH is below 5.5.

### **D. Seeding**

1. Schedule for Seeding: Optimal seeding time is after the first fall killing frost or at spring green up. If planting in late fall/early winter. Sow grass between April 1 and May 31, or between September 15 and October 1, except as otherwise approved in writing by the Landscape Architect.
2. If seeding out of season as described above, the Contractor is still obligated by all conditions and responsibilities described under 3.02.F UPLAND SEED MIX

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MAINTENANCE, until final acceptance of all lawn areas.

3. Before seed is sown, scarify soil and rake until surface is smooth, friable, and of uniformly fine texture. Seed evenly at supplier's recommended rates, lightly rake and water with fine spray. It is the Contractor's responsibility to establish a smooth, uniform turf composed of approved grasses. Do not use wet seed which is moldy or otherwise damaged in transit or storage.
4. The upland seed mix areas should be planted by broadcasting (hand or mechanical), drilling or hydroseeding. Seeds should be planted approximately  $\frac{1}{4}$ " –  $\frac{1}{2}$ " deep.
5. For hand and mechanical broadcasting, mix 50 lb of clay-based kitty litter per acre (43,560 sq ft) with your seed prior to planting, dividing this mix and applying half in one direction of passes, then applying the other half in a series of passes that are perpendicular to the first passes.
6. Following broadcasting, use a garden rake or spring-tooth harrow to incorporate the seed into the soil. The seedbed should then be firmed using a cultipacker, lawn roller or ATV tires. For small sites, firm the seedbed by walking on it. Firing the seedbed will ensure good seed-to-soil contact, leading to greater establishment success.
7. Mulch the area with weed-free wheat or oat straw at a rate that covers approximately half of the soil (approximately 1,000- 4,000 lb per acre).
8. When hydro-seeding, we recommend a two-step application of no more than 500 lb of mulch per acre as an application marker with the seed and 1,000 lb of mulch over the top. Generally, hydro-seeding is not followed up with firming the seedbed.

### E. Fertilizing

1. Contractor to have the topsoil tested for soil fertility by an approved soil testing laboratory, and a complete fertilization program will be recommended by the testing laboratory and Landscape Architect for the installation maintenance period.

### F. Upland Seed Mix Maintenance

1. Maintenance of the grass areas shall begin immediately, and generally consist of watering, weeding, edging, reseeding, disease and insect pest control, repair of all erosion, and any other procedure consistent with good horticultural practice, necessary to insure normal, vigorous and healthy growth.
2. Maintenance shall also include filling, cutting, regrading, and reseeding as necessary to correct depressions caused by settling, subsidence, or other physical or mechanical damage.
3. Maintenance for the Meadow Mix shall include, black snow fencing with (20) 18"x 24" "Keep Off Grass" signs shall be installed as shown on the contract drawings to protect the seeded areas. The fence and signage should be maintained and repaired until the final acceptance of the meadow for 2 years.
4. During the first growing season after planting, all vegetation should be cut

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back to a height of 8" when growth reaches 18"-20". The meadow will need to be trimmed 3-5 times with a string trimmer or 3-point hitch brush hog. Mowing lower than 4" can kill seedlings of some of the species. No trimming should be done after mid-September. Trimming back the growth during the first season reduces weed seed production and allows sunlight to reach the slower-growing, native seedlings.

5. All lawns shall receive a minimum of three mowings before Contractor's request for inspection and acceptance. Additional mowings may be required before acceptance.
6. Before new growth begins in the second and subsequent growing seasons, the meadow should be trimmed to a height of 2"-4" and the chaff removed to allow faster warming of the soil, which helps the native species compete with weedy species. Between the onset of new growth and late-June, problem weeds should be removed by hoeing or spot spraying with an approved herbicide applied by a licensed applicator.
7. The Contractor shall be responsible for maintenance to establish a uniform stand of the approved grasses until acceptance. After the grass has started, all areas and parts of areas showing poor germination or growth shall be re-seeded, repeatedly, until all areas are covered with a satisfactory growth of grass.
8. Watering: The Contractor shall include cost for daily, and if necessary, continuous watering of all grass areas during a normal 8 hour working day. The seed bed shall be maintained in a continuous moist condition, satisfactory for good germination and growth of grass, as specified. Seeded grass areas must be kept in a moist condition until acceptance.
9. Full and complete written instructions for maintenance of the lawn areas are to be furnished to the Owner, by the Contractor at least ten (10) days prior to the end of the contractual maintenance period, to familiarize him with the maintenance requirements for proper care and development of the lawns.

### 3.03 RAIN GARDEN AREAS

#### A. Preparation of Subsoil

1. Permeable planting soil that meets or exceeds the criteria specified in Volume 2, Chapter 2 of the Massachusetts Stormwater Handbook (latest edition) be utilized for all rain garden areas.
2. Prior to spreading, permeable planting soil should be rough graded to correspond with finish grades as indicated on the Drawings. Subgrade shall slope to allow for subsurface drainage. Depressions shall be filled, and areas which are highly compacted shall be loosened to a depth which is adequate for the passage of gravitational water through the subsoil.
3. After acceptance of subsoil grades, loosen and mix subgrade material two inches to four inches (2"-4") deep. Remove stones over two (2") inches, sticks, rubbish, and other deleterious materials which may impede the healthy and vigorous growth of grass. Move no heavy objects or machinery, except as necessary for the spreading of topsoil, over sod and seed beds after preparation of subgrade.
4. Subsoil which becomes compacted due to excessive construction activity,

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shall be loosened as directed by the Landscape Architect at no additional cost to the Owner.

### B. Seed Bed Preparation

1. Contractor is responsible for supplying all permeable planting soil from off-site sources.
2. Grade all rain garden areas to finish grades as indicated on the Drawings. When no grades are shown, areas shall have a smooth and continuous grade between existing or fixed controls and elevations shown on plans. Roll, scarify, rake and level as necessary to obtain true even lawn surfaces. All rain garden areas shall slope to drain. Finish grades shall be approved by the Landscape Architect prior to commencing any seeding work. Install soil additive per manufacturer's instructions and as indicated on the Drawings.
3. Spreading Limestone: Spread ground limestone evenly over the topsoiled surface. Incorporate limestone within the top two (2") inches of soil prior to finish raking. Apply limestone at the rate recommended by the testing and analysis agency.

### C. Seeding

1. Schedule for Seeding: Newly constructed rain garden areas should be seeded as soon as possible after construction. Optimal seeding time is between April 1 and May 31, or between August 15 and October. Seeding can be done outside this window, but some loss of seedlings will likely occur due to a lack of hardiness prior to frost. Dormant seed in the mix can compensate for a portion of these losses. Supplemental seed may be applied as necessary following a stand evaluation 2-4 weeks after the onset of new growth in the second growing season.
2. If seeding out of season as described above, the Contractor is still obligated by all conditions and responsibilities described under 3.03.E RAIN GARDEN AREA MAINTENANCE, until final acceptance of all lawn areas.
3. Before seed is sown, scarify soil and rake until surface is smooth, friable, and of uniformly fine texture. Seed evenly at supplier's recommended rates, lightly rake and water with fine spray. It is the Contractor's responsibility to establish a smooth, uniform turf composed of approved grasses. Do not use wet seed which is moldy or otherwise damaged in transit or storage.
4. If the water table is drawn down, your rain garden area can be planted by mechanical broadcasting or drilling. If mechanical broadcasting, mix 50 lb of clay-based kitty litter per acre (43,560 sq ft) with your seed prior to planting, dividing this mix and applying half in one direction of passes, then applying the other half in a series of passes that are perpendicular to the first passes. Following broadcasting, use a garden rake or spring-tooth harrow to incorporate the seed into the soil. The seedbed should then be firmed by rolling over the site with a lawn roller, ATV tires or by walking on it. When drilling, seed is incorporated into the soil and the seedbed firmed during the planting process.
5. If the water table is high, apply seed by hand broadcasting or hydro-seeding. As most upland seed mix species seeds can float, they should not be scattered on the water. Instead, beginning at the water's edge, apply the seeds to the moist areas across the site. For greater uniformity with a

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hand broadcast planting, prior to spreading seed, mix it with 50 lb of clay-based kitty litter per acre. When hydro-seeding, we recommend a two-step application of no more than 500 lb of mulch per acre as an application marker with the seed and 1,000 lb of mulch over the top.

6. Mulch bank areas with 3 to 1 slope or greater with weed free wheat or oat straw at a rate that covers approximately half of the soil (2,000-4,000 lb per acre). Secure mulch at Contractor's discretion as to method or need.

### D. Fertilizing

1. Contractor to have the topsoil tested for soil fertility by an approved soil testing laboratory, and a complete fertilization program will be recommended by the testing laboratory and Landscape Architect for the installation maintenance period.

### E. Rain Garden Area Maintenance

1. Maintenance of the upland seed mix within the rain garden areas shall begin immediately, and generally consist of watering, weeding, mowing and edging, reseeding, disease and insect pest control, repair of all erosion, and any other procedure consistent with good horticultural practice, necessary to insure normal, vigorous and healthy growth. Acceptance of the replication area shall be two (2) years following installation.
2. Maintenance shall also include filling, regrading, and reseeding as necessary to correct depressions caused by settling, subsidence, or other physical or mechanical damage.
3. Maintenance for the rain garden areas shall include, black snow fencing with (20) 18"x 24" "Keep Off Grass" signs shall be installed as shown on the contract drawings to protect the seeded areas. The fence and signage should be maintained and repaired until the final acceptance of the meadow for 2 years.
4. The Contractor shall be responsible for maintenance to establish a uniform stand of the approved grasses until acceptance. After the grass has started, all areas and parts of areas showing poor germination or growth shall be re-seeded, repeatedly, until all areas are covered with a satisfactory growth of grass.
5. During the first growing season after planting, trim back all vegetation to a height of 8" when growth reaches 18"-20". Trimming lower than 4" can kill seedlings of some of the species. No trimming should be done after mid-September. Spot control of problem weeds should be done by hand weeding or with an appropriate herbicide applied by a licensed applicator. All lawns shall receive a minimum of two mowings before Contractor's request for inspection and acceptance. Additional mowings may be required before acceptance.
6. In the second and subsequent growing seasons, problem weeds should be removed by spot spraying or hoeing. Early spring trimming with a string trimmer may be appropriate if aesthetic concerns or control of woody species warrants it. Trimming should be done prior to the development of more than 2"-4" of new growth and no lower than 2"-4" above the top of tussocks (clumps) from which some sedge and bulrush species regrow. Problem weeds should be controlled by hand weeding or with an

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appropriate herbicide applied by a licensed applicator.

7. Watering: The Contractor shall include cost for daily, and if necessary, continuous watering of all grass areas during a normal 8 hour working day. The seed bed shall be maintained in a continuous moist condition, satisfactory for good germination and growth of grass, as specified. Seeded grass areas must be kept in a moist condition until acceptance.
8. Full and complete written instructions for maintenance of the lawn areas are to be furnished to the Owner, by the Contractor at least ten (10) days prior to the end of the contractual maintenance period, to familiarize him with the maintenance requirements for proper care and development of the lawns.

### 3.04 INSPECTION AND ACCEPTANCE

- A. The Landscape Architect shall inspect the lawns upon written request by the Contractor. The request shall be received at least ten (10) days before the anticipated date of inspection.
- B. Final acceptance will not be granted until all seeded areas are in satisfactory conditions.
  1. If the grass is in satisfactory condition, the Contractor's care and maintenance responsibilities will end. If the grass stand is unsatisfactory, the Contractor's maintenance responsibility shall continue, including a normal program of mowing, irrigation, reseeding, fertilization and repair until an acceptable stand of grass is achieved.
  2. None of the three most dominant plant species within the seeded areas shall include Reed Canary Grass, Common Reed, Purple Loosestrife, cattails and other noxious weeds.
  3. No less than 75% of the seeded species within the wetland replication planting area shall be alive and growing in a healthy condition.

### 3.05 CLEAN UP

- A. 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 Landscape Architect, at no cost to the Owner.

END OF SECTION

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PLANTING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 – GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section, whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all under the Contract.

1.02 DESCRIPTION OF WORK

- A. Refer to the Drawings for extent and details of this work.
- B. The work of this Section consists of all landscaping and related work as shown on the Drawings or required herein and includes, but is not limited to the following:
  - 1. Planting of trees, shrubs and perennials
  - 2. Maintenance and guarantee

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Earthmoving
- B. Loam & Seed

1.04 QUALITY ASSURANCE

- A. All plant materials shall be true to name according to "Standardized Plant Names", published by the American Joint Committee on Horticulture Nomenclature, 1942 edition. Each plant or bundle shall be tagged with the name and size of plants in accordance with the standards of the American Association of Nurserymen (AAN). In all cases, botanical names shall take precedence over common names.
- B. Quality and size shall conform to the current edition of "Horticultural Standards" for number one grade nursery stock as adopted by the AAN.
- C. All plants and plant materials shall comply with all Federal, State and local laws and regulations requiring inspection for plant disease and insect control.
- D. All trees shall installed in accordance to the International Society of Arboriculture (ISA) specifications for Planting, Planting Soil and Tree Protection.

1.05 SUBMITTALS

- A. Refer to Division 1 for specific requirements.

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- B. Materials list: Submit a complete list of all materials proposed for use in this work, demonstrating complete conformance with the requirements specified.
- C. Submit soil analysis results for review by the Landscape Architect.
- D. Submit a list of plant nurseries to the Landscape Architect for approval of selected plant material species.
- E. Manufacturer's certificate of compliance for controlled release fertilizer issued by the manufacturer only, showing quantity of material order and specific job application.
- F. For all plant materials, submit a complete list showing each type, each source of materials, and the measured size of each.

### **1.06 PRODUCT HANDLING**

- A. Delivery and Storage:
  - 1. Deliver all items to the job site in their original containers with all labels intact and legible at time of Landscape Architect's inspection.
  - 2. Immediately remove from the site all plants which are not true to name, and all materials which do not comply with the specified requirements.
  - 3. Use all means necessary to protect plant materials before, during, and after installation and to protect the work and materials of all other trades.
  - 4. Replacements: in the event of damage, immediately make all repairs and replacements necessary to the approval of the Landscape Architect and at no additional cost to the Owner.

### **1.07 JOB CONDITIONS**

- A. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate as required. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Landscape Architect before planting.

## **PART 2- PRODUCTS**

### **2.01 GENERAL**

- A. Loam – friable, typical of local cultivated topsoil containing 5% (min.) decayed organic matter (humus), no toxic materials, from well drained, arable site, reasonably free of subsoil, stones, earth, cods, sticks, roots, or debris.
  - 1. Test for acidity, fertility and general texture by a recognized commercial or government agency. Report findings and recommendations to the Landscape Architect. Add soil conditioners as per report findings and recommendations, by the Landscape Architect.
  - 2. Deliver no topsoil in frozen or muddy condition.

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- B.
- C. Superphosphate – finely ground phosphate rock eighteen percent (18%) minimum available phosphoric acid.
- D. Bone Meal – commercial raw bone meal, finely ground, 1% nitrogen and 18% phosphorus acid (min.).
- E. Manure – well rotted, unleached, cattle manure, reasonably free of wood shavings, sawdust, or other litter and no chemicals or other ingredients harmful to plants. Dehydrated manure (Bovung) is acceptable.
- F. Fertilizer – all plants will be fertilized with a controlled release 16-8-16 analysis fertilizer contained in polyethylene perforated bags with micropore holes. The bag shall contain 4 ounces minimum of water soluble fertilizer to be effective for 8 years. Pills, spikes, tablets and injections are not considered controlled release packets.
  - 1. Deliver as specified in standard containers, showing weight, analysis and manufacturer. Store in weather-proof place.
- G. Peat – domestic or imported, of partially decomposed vegetable matter of natural occurrence, brown, clean, low in content of mineral and woody material; mildly acid, granulated or shredded, free from weedy grasses, sedges or rushes.
- H. Lime – ground, dolomite limestone, 95% passing 100 mesh screen.
- I. Planting mixture – topsoil thoroughly incorporated with well rotted manure or equivalent dehydrated manure or bone meal and peat proportioned 1 c.y. to 7 c.y. topsoil.
- J. Mulch – aged pine bark consisting of the outer bark of pine trees with minimum hardwood bark. Bark shall be thoroughly mixed and aged in stock piles a minimum of 6 months, partially decomposed, dark brown in color, and generally free of chunks of wood thicker than 1/4". Aged pine bark containing an excess of fine particles will not be acceptable. (Mulch is to be provided as part of Base bid.)
- K. Water – The Contractor will furnish hose, hose connections and required watering all plant materials until completion of the project.

### 2.02 PLANT MATERIALS

- A. Furnish all plant materials consistent with the kinds and sizes indicated in these Specifications.
- B. All plants nursery grown unless authorized to be collected.
- C. Plants – in accordance with USDA Standard for Nursery Stock, latest edition, Hardy under climatic conditions similar to locality of project, typical of species or variety, normal habit of growth, sound, healthy, vigorous, well-branched, densely foliated when in leaf, free of disease, insect pests, eggs, or larvae, with well developed root systems.
- D. If plants of specified kind or size are not available, substitutions may be made upon request, if approved by Landscape Architect.
- E. Plant Dimensions – conform to USDA Standard for Nursery Stock, latest edition, as specified. Exceptions as follows:
  - 1. Plants larger than specified may be used if approved by Landscape Architect at no

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increase in contract price. Increase spread of roots or earth ball in proportion to size of plant.

2. Undersize plants (10% max.) in any one variety or grade may be used if approved by the Landscape Architect. Provide sufficient plants above size to make average size of next smaller grade.
- F. Balled and burlapped (B & B) plants – dig with firm natural earth roots. Made balls are unacceptable.
- G. Container grown plants – grown in container long enough for root system to have developed sufficiently to hold its soil together firm and whole. Plants loose in container will not be acceptable.
- H. Protect B & B plants not planted immediately upon delivery with soil, wet moss, or other acceptable material. Prevent voids among roots with careful filling. Bind no plants with wire or rope so as to damage bark or break branches.
- I. Plants are subject to inspection and approval at place of growth for conformity to Specifications as to quality, size, and variety. The cost of expenses incurred by the Landscape Architect for such inspections shall be born by the Contractor. Landscape Architect reserves right of inspection upon delivery at the site or during progress of work or right of rejection due to damage suffered in handling or transportation. Remove defective plants immediately from site. Plants to be accompanied by State Nursery inspection certification, if required.

### PART 3- EXECUTION

#### 3.01 INSPECTION

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

#### 3.02 PLANTING OPERATIONS

- A. Plant nursery stock immediately upon delivery to the site and approval by the Landscape Architect. Layout individual tree and shrub locations and areas for multiple plantings. Stake locations, outline plant beds and obtain the Landscape Architects approval before proceeding with planting work.
- B. Planting may be done whenever weather and soil conditions are favorable or as otherwise authorized by Landscape Architect. If this is not feasible, heel-in material with damp soil or mulch to protect from sun and wind.
- C. Notify Landscape Architect at least one week prior to beginning planting operations. Stake locations of all plant material with surveyors bean poles 48 hours prior to planting for approval by Landscape Architect.
- D. Excavate tree pits as shown on plans.
- E. Locate pits prepared and backfilled with planting mixture to grade prior to planting by staking and recording on plans for location when planting proceeds.
- F. Set plants in center of pits, plumb and straight, with crown of plant 1" higher, after settlement, than surrounding finished grade.

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- G. When B & B trees are set, compact topsoil mixture around bases of balls to fill all voids. Remove burlap, ropes or wires from tops of balls and tuck them down on the sides before filling in with loam.
- H. Container grown plants with well developed root systems shall have roots cut vertically along sides of rootball with utility knife to encourage outward root growth.
- I. Thoroughly compact planting mixture around roots or balls and water immediately after plant pit is backfilled. Form a shallow basin slightly larger than pit with a ridge of sod to facilitate and contain watering. Cultivate soil shrub beds, rake smooth and neatly outline after planting. Provide 12" (min.) of loam between all shrubs and 6" (min.) between all ground covers.
- J. Distribute controlled release fertilizer packets equidistant within the planting pit adjacent to the rootball but not in direct contact with the roots. Placement depth shall be 6 to 8 inches. Packets shall not be cut, ripped or damaged.

- 1. Application rates as follows:

<u>Planting Item</u>	<u>Size</u>	<u>No. of Packets</u>
Deciduous Trees:	2 ½-3" cal.	3
	4-6" cal.	4
Shrubs:	2-3'	2
	Over 3'	3
Evergreen Trees:	6-10'	4
	Over 10'	5
Groundcover:	1 packet per four plants	

- K. Prune each plant in accordance with AAN standards to preserve natural character. Remove all dead wood, suckers, and or broken or badly bruised branches. Prune with clean, sharp tools. Paint cuts over 1" in diameter with approved tree paint; cover all exposed cambium and living tissue.
- L. Cover all tree and shrub pits immediately after planting with 3" (min.) layer on specified mulch. Limit of mulch for trees shall be area of pit; for shrubs in beds, entire area of shrub bed.
- M. If rock or underground obstructions are encountered in plant pit excavation, remove obstructions to 3' (min.) below grade and 12" (min.) below bottom of ball or roots.
- N. Contractor shall furnish plans showing locations of underground utilities, as required.

### 3.03 MAINTENANCE - PLANTING

#### A. Planting Maintenance

- 1. Maintenance shall begin immediately after each plant is planted and shall continue for a minimum of ninety days following the completion of all planting installations, and until the final acceptance of all planting work.
- 2. Maintenance shall consist of keeping the plants in a healthy growing condition and shall include but is not limited to watering, weeding, cultivating, re-mulching, tightening and repairing of guys, removal of dead material, resetting plants to proper grades or upright position, and maintaining the planting saucer.

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- a. Plants shall be inspected for watering needs at least twice each week and watered as necessary to promote plant growth and vitality.
  - b. Stakes shall be kept plumb and neat in appearance. Guys, wires and anchoring cables shall be tightened and repaired weekly.
  - c. Planting beds and individual plant pits shall be kept free of weeds, and mulch shall be replaced as required to maintain the specified layer of mulch. Beds and individual pits shall be neat in appearance and maintained to the designed layout.
  - d. Plants that die during the maintenance period shall be removed and replaced at once, unless designated otherwise by the Landscape Architect.
  - e. Spraying for both insect pests and diseases shall be included during the maintenance period as required and as directed.
3. During the maintenance period, any decline in the condition of plantings shall require the Contractor to take immediate action to identify the potential problems and undertake corrective measures. If required, the Contractor shall engage professional arborists and/or horticulturalists to inspect plant materials and to identify problems and recommend corrective procedures.

### 3.04 ACCEPTANCE STANDARDS FOR PLANTING

- A. Following the minimum required maintenance periods for planting, the Contractor shall request the Landscape Architect in writing for a formal inspection of the completed work. If the plant materials and workmanship for the site are acceptable, written notice will be given to the Contractor stating that the work has received acceptance and that the guarantee period has commenced from the date of acceptance.
- B. If a number of plants are sickly or dead at the time of inspection, or if the Landscape Architect's opinion, workmanship is unacceptable, written notice will be given by the Landscape Architect to the Contractor in the form of a punch list, which itemizes necessary planting replacements and/or other deficiencies to be remedied. The Contractor's responsibility for maintenance of all the plants shall be extended until replacements are made or other deficiencies are corrected. All dead and unsatisfactory plants shall be removed promptly from the project. Replacements shall conform in all respects to the Specifications for new plants and shall be planted in the same manner.

### 3.05 GUARANTEE FOR PLANT MATERIALS

- A. Plants shall be guarantee period of one (1) year after written notification of acceptance and shall be alive and in satisfactory growth at the end of the guarantee period.
- B. At the end of the guarantee period, a final inspection will be held to determine whether any plant material replacements are required. Each plant shall show at least 75% healthy growth and shall have the natural character of its species as determined by the Landscape Architect. Plants found unacceptable shall be removed promptly from the site and replaced during the normal planting season, until the plants live through one year. A final inspection for acceptance will be made after the replacement plantings have lived through one (1) year.

END OF SECTION

**MASSACHUSETTS DCR  
CROW HILL  
POND BEACH  
IMPROVEMENTS**

CONTRACT NO. P25-35866-C2A

**DIVISION 33 00 00**  
UTILITIES

**ACTIVITAS**

**MASSACHUSETTS DCR- CROW HILL POND BEACH IMPROVEMENTS**

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SECTION 33 40 00

STORM DRAINAGE SYSTEM

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.
- D. Provide all facilities, labor, materials, tools, equipment, appliances, transportation, supervision, and related work necessary to complete the work specified in this section, and as shown on the Drawings
- E. Materials shall conform with Town of Reading DPW / Engineering Standards.

1.02 WORK INCLUDED

- A. Site storm drainage piping, fittings and accessories, and bedding
- B. Connection of drainage system to existing storm drainage system
- C. Structures, area drains, cleanouts and site surface drainage

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Carefully examine all of the Contract Documents for requirements which affect the work in this section. Other specification sections which directly relate to the work of this section include, but are not limited to, the following:
  - 1. Erosion and Sediment Control
  - 2. Earthwork
  - 3. Cast-in-place Concrete
  - 4. Bituminous Concrete Paving
  - 5. Portland Cement Concrete Pavement
  - 6. Loam and Seed
  - 7. Planting

1.04 REFERENCES

- A. References herein to any technical society, organization, group or body are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable:
  - 1. ASTM American Society for Testing and Materials
  - 2. ACI American Concrete Institute
  - 3. ANSI American National Standards Institute
  - 4. AASHTO American Association of State Highway and Transportation Officials

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5. MHD Massachusetts Highway Department's "Standard Specifications for Highways and Bridges", latest Edition
- B. All work shall comply with the pertinent standards of the latest editions of the following Codes and Specifications, unless designated otherwise herein:
  1. American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19101.
  2. American National Standards Institute (ANSI), 1430 Broadway, New York, NY 10018.
  3. American Association of State Highway and Transportation Officials (AASHTO), 341 National Press Building, Washington, D.C. 20004.
- C. The following standards and definitions are applicable to the work of this Section to the extent referenced herein:
  1. ASTM A48 Standard Specification for Gray Iron Castings
  2. ASTM C32 Standard Specification for Sewer and Manhole Brick
  3. ASTM C55 Standard Specification for Concrete Brick
  4. ASTM C62 Standard Specification for Building Brick
  5. ASTM C76 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
  6. ASTM C139 Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
  7. ASTM C270 Standard Specification for Mortar for Unit Masonry
  8. ASTM C443 Joints for Circular Concrete Sewer and Culvert Pipe, using Rubber Gaskets.
  9. ASTM C 478 Standard Specification for Precast Reinforced Concrete Manhole Sections
  10. ASTM C923 Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
  11. ASTM D1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures using 10 lb. (4.54 kg) Rammer and 18 inch (457 mm) Drop.
  12. ASTM D2729 Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
  13. ASTM D2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
  14. ASTM D3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

### 1.05 SCHEDULING

- A. The Contractor shall submit to the Landscape Architect/Civil Engineer, for approval by the Owner, a progress schedule as specified in the GENERAL CONDITIONS. All schedules shall be reviewed by the Contractor with the Owner for compliance with street opening and Town Engineering Department requirements.

### 1.06 SUBMITTALS FOR REVIEW

- A. Product Data: Provide data indicating pipe and pipe accessories, manholes, catch basins, leaching basins, clean-outs, frames, grates and covers, and all other pertinent information and equipment to be used.

### 1.07 SUBMITTALS FOR INFORMATION

- A. Manufacturer's Instructions: Indicate special procedures required to install products specified.
- B. Certificates: Certify that products meet or exceed specified requirements.

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### 1.08 SUBMITTALS AT PROJECT CLOSEOUT

- A. Accurately record actual locations, both horizontally and vertically, of pipe runs, connections, catch basins, all manholes, stormwater treatment system structures, stormwater detention/recharge systems, and other stormwater infrastructure.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

### 1.09 REGULATORY REQUIREMENTS

- A. All work under this Section of the Specifications shall be installed in accordance with the Laws, Ordinances, Rules and Regulations of all Local, State and Federal authorities having jurisdiction, the Rules and Regulations of the National Board of Fire Underwriters, and the Public Utility Companies.

### 1.10 COORDINATION

- A. Coordinate work under provisions of the applicable Sections of these Specifications.

### 1.11 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions of the site before submitting his bid, and shall be fully responsible for carrying out all site work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed, except those conditions described in the GENERAL CONDITIONS.

### 1.12 DELIVERY, STORAGE AND HANDLING

- A. All materials furnished under this section shall be delivered to the job adequately protected from damage during transit. Pipes shall not be dropped. All pipes shall be examined before laying and no piece shall be installed which is found to be defective.
- B. Pipe and other appurtenances, which are defective from any cause, including damage caused by handling, and determined by the Engineer irreparable shall be unacceptable for installation and shall be replaced at no cost to the Owner.
- C. Storage and handling of pipes, pre-cast structures and other storm drainage appurtenances shall be in accordance with the manufacturer's recommendations, subject to the approval of the Engineer.

## PART 2 - PRODUCTS

### 2.01 GENERAL

- A. Materials shall meet the requirements specified in the following Subsections of Division III, Materials - Massachusetts Highway Department, Standard Specifications for Highway and Bridges:

1.	Reinforced Concrete Pipe	M5.02.1
2.	Reinforced Concrete Pipe Flared Ends	M5.02.2
3.	Ductile Iron Pipe and Fittings	M5.05.3
4.	Plastic (PVC) Pipe	M5.03.7

## STORM DRAINAGE SYSTEM

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5.	Corrugated Plastic (Polyethylene) Pipe	M5.03.10
6.	Mortar for Pipe Joint	M4.02.15
7.	Crushed Stone	M2.01.5

### 2.02 STORM DRAIN PIPE MATERIALS

- A. High Density Corrugated Polyethylene Pipe: Pipe shall have a full circular cross section with an outer corrugated pipe wall and a smooth inner wall. Pipe shall be Hancor "HI-Q" pipe, ADS N-12, Prinsco "Goldflo" dual-wall pipe, or approved equal. Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions and markings found in AASHTO Designations M252, and M294. Pipe shall be made from virgin PE compounds which conform to the applicable current edition of the AASHTO Material Specifications for cell classification as defined and described in ASTM D 3350.
1. Joints and Fittings: Standard 45 Degree "Y" connections, tees, bends, and other fittings shall be fabricated to sizes shown on the drawings. Coupling Bands shall be per manufacturer's specifications. Couplers shall cover not less than one corrugation on each section of pipe. Fittings shall be made from virgin PE compounds which conform to the applicable current edition of the AASHTO Material Specifications for cell classification as defined and described in ASTM D 3350.

### 2.03 PRECAST UNITS (MANHOLES, CATCH BASINS, LEACHING BASINS/DRY WELLS)

- A. Precast units shall be manufactured in accordance with ASTM Designation C478, the diameter and depth as detailed on the Drawings and utilize 4000psi concrete. All walls shall be a minimum of 6" thick.
- B. Precast unit joints shall be butyl rubber section joints per ASTM C443.
- C. Exterior of precast unit shall have a bituminous coating.
- D. Manholes
1. Shall utilize eccentric cones at the top section or a flat top slab as needed if grades and elevations do not allow for a coned top section.
2. Steps shall be the drop-front extruded aluminum type with 12-inch wide stepping surface.
3. Castings shall be equivalent to "Massachusetts Standard" - 26" manhole frame and cover as provided by EJ Prescott and shall read "DRAIN" on the cover.
- E. Catch Basin
1. All catch basins shall have a minimum 48" sump.
2. Unit shall utilize a concentric cone at the top section or a flat top slab as needed if grades and elevations do not allow for a coned top section.
3. All proposed catch basins shall be constructed with oil hoods. Oil hoods shall be "The Eliminator" as manufactured by Ground Water Rescue, Inc. of Quincy or approved equal.
4. Castings shall be equivalent to "Maine, Mass & Vermont Catch Basin" - heavy Duty Catch Basin with 2" Square Openings as provided by EJ Prescott.
- a. Provide a three flange model where adjacent to a curb and a 4 flange model when not adjacent to a curb.
5. All catch basins will be equipped with hoods on the outlet pipe.
- F. Leaching Basin / Dry Well

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1. Leaching Basins / Dry Wells shall be a minimum of 1200 gallon and 6' diameter unless otherwise noted on the Utility Plan.
  2. Shall utilize an eccentric cone or a flat top slab as needed if grades and elevations do not allow for a coned top section.
  3. Castings shall be equivalent to "Maine, Mass & Vermont Catch Basin" – heavy Duty Catch Basin with 2" Square Openings as provided by EJ Prescott.
    - a. Provide a three flange model where adjacent to a curb and a 4 flange model when not adjacent to a curb.
- G. Precast Unit Alternative (Shallow Structures Only and with Approval of Landscape Architect/Civil Engineer).
1. When approved by the Landscape Architect/Civil Engineer, precast units may be constructed with brick or concrete block walls and poured reinforced concrete bases as an alternative to precast concrete units. Brick shall conform to ASTM C 62, Grade SW; ASTM C 55, Grade S-I or S-II; or ASTM C 32, Grade MS. Precast concrete segmental block shall conform to ASTM C 139, not more than 200 mm (8 inches) 8 inches thick, not less than 200 mm (8 inches) 8 inches long, and of such shape that joints can be sealed effectively and bonded with cement mortar.
- 2.04 AREA DRAINS
- A. Area drains shall be equivalent to 12" H-10 Pedestrian Grate as manufactured by ADS-Pipe.
- 2.05 CLEANOUTS
- A. Cast iron frames and covers shall conform to ASTM A48, latest issue, Class 30.
    1. Provide concrete collars as shown on the Drawings
- 2.06 BEDDING AND COVER MATERIALS
- A. Bedding: Crushed stone as specified in Section EARTHWORK.
  - B. Cover: Gravel as specified in Section EARTHWORK.

### PART 3 - EXECUTION

- 3.01 GENERAL:
- A. The bedding for the Pipe shall be shaped to conform reasonably close to the lower 10% of the pipe and recesses excavated for bells of bell and spigot pipes. All pipe shall be laid to the specified line and grade, with a firm bearing throughout each length and with bell ends uphill.
  - B. Drainage pipe shall be backfilled with gravel having no stone greater than 3 inches unless otherwise noted on plans.
  - C. The joint of reinforced concrete pipe shall be thoroughly cleaned and wetted with water before being joined. Reinforced concrete pipe shall be joined using a flexible water tight rubber gasket conforming to ASTM C443 and the filling the joint be completed with cement mortar. Any alternative joint design must be pre-approved by the Landscape Architect/Civil Engineer. The invert shall be kept smooth and free of obstructions.

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- D. The drain trench shall be excavated to the depth designated on the plans or, if directed, to a stratum of impervious material.
- E. The excavation shall proceed in advance of the actual drain construction only to the extent the Landscape Architect/Civil Engineer direct.
- F. 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.
- G. Joints shall be grouted or sealed when using reinforced concrete pipe and corrugated plastic pipe shall be firmly joined with an approved coupling.
- H. The Contractor shall be responsible for keeping the backfill material clean and free of objectionable material from a line one inch below the flow line of the pipe to the top of the trench.
- I. Existing drainage infrastructure is to be field cored with the proper equipment approved and satisfactory to the Landscape Architect/Civil Engineer. Contractor shall confirm the invert of the proposed tie-in prior to beginning drainage excavations.
- J. Removal and disposal of the existing drain pipe within the trenching area of proposed pipe shall be included in contract unit price per foot of kind of pipe at no additional compensation to the Contractor.
- K. Removal and disposal of the existing drain pipe outside of the trenching area of proposed pipe shall be excavated and completely removed then backfilled and compacted with the proper material.

### **3.02 EXAMINATION**

- A. Verify that trench cut and excavation base is ready to receive work and excavations, dimensions and elevations are as indicated on drawings.

### **3.03 PREPARATION**

- A. Hand trim excavations to required elevations. Correct over excavation with coarse aggregate.
- B. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

### **3.04 BEDDING**

- A. Excavate pipe trench in accordance with Section 02200 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches compacted depth.
- C. Maintain optimum moisture content of bedding material to attain required compaction density.

### **3.05 INSTALLATION - PIPE**

- A. Install pipe, fittings and accessories in accordance with applicable standards and manufacturer's instructions. Seal joints watertight.

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- B. Place pipe on bedding to depths indicated on drawings. Notch under pipe bells and joints, where applicable to provide for uniform bearing under entire length of pipe.
- C. Lay pipe to slope gradients noted on drawings with maximum variation from true slopes of 1/8 inch per foot.
- D. Install bedding at sides and over top of pipe. Provide top cover to minimum compacted thickness as indicated on drawings. Compact to 95%.
- E. Refer to EARTHWORK Section for trenching, bedding, backfilling and compaction requirements. Do not displace or damage pipe when compacting.

### **3.06 INSTALLATION – PRECAST UNITS**

- A. Manholes, Catch Basins and Outlet Control Structures shall be constructed at the locations and to the lines, grades, dimensions and design noted on Drawings or as required.
- B. Precast Concrete Construction shall be done in a manner to insure watertight construction and all leaks in precast concrete shall be sealed. If required, precast concrete shall be repaired or replaced to obtain watertight construction.
- C. Concrete barrels, cones and slabs shall be precast concrete sections.
- D. Bases shall be either precast with a barrel integrally cast with the base, or poured concrete suitably shaped by means of accurate bell-rung forms to receive the barrel sections. Manhole invert channels in manholes shall be formed in concrete.
- E. Precast units shall have an adjustment ring at the top of the cone to permit the frame and cover to meet the finished surface. This shall consist of courses of brick or reinforced grading rings not to exceed 11 inches.
- F. Stubs shall be short pieces cut from the bell ends of the appropriate size and class of pipe. Concrete stubs shall be plugged with brick masonry unless otherwise directed.
- G. Manhole sections shall contain manhole steps accurately positioned and embedded in the concrete when the section is cast. Precast-reinforced concrete manhole sections shall be set so as to be vertical and with sections and steps in true alignment.
- H. All holes in sections used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose or with mortar. The mortar shall be one part cement to 1-1/2 parts sand, mixed slightly damp to the touch (just short of "balling"), hammered into the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush with the adjoining surfaces.
- I. The Contractor may, as an alternate to suitable nonshrink mortar joints, use premolded elastomeric-sealed joints for pipe into precast manhole bases.
- J. All materials, accessories and construction methods used in making the joints shall be supplied or approved by the manufacturer of the premolded elastomeric-sealed joint.
- K. Openings for pipe and materials to be embedded in the walls of the base for these joints shall be cast in the base at the required locations during the manufacture of the base. Incorrectly cast and patched pipe openings will be rejected.
- L. Manhole risers and tops shall be installed using approved "o-ring" type, neoprene gaskets for sealing joints. Units shall be installed level and plumb. Water shall not be permitted to rise over newly made joints nor until after inspection as to their acceptability. All jointing

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shall be done in a manner to insure watertightness.

- M. Openings shall be provided in the risers to receive entering pipes. These openings may be made at the place of manufacture or cut in the field. The openings shall be sized to provide a uniform 3/4 inch maximum annular space between the outside of the pipe wall and the opening in the riser. After the pipe is in position, the annular space shall be solidly filled with nonshrink mortar. Care shall be taken to assure that the openings are located to permit setting of the entering pipe at its correct elevation as indicated.
- N. Openings which are cut in the risers in the field shall be carefully made so as not to damage the riser. Damaged risers will be rejected and shall be replaced at no additional expense to the Owner.
- O. Where required by the Drawings, a slot and opening shall be cast in the catch basin wall suitable for mounting the cast iron hood and discharge pipe. The hood hinge may be furnished to the precast supplier by the Contractor for incorporation into the casting.

### **3.07 BRICK MASONRY**

- A. Brick Masonry Construction shall be done in a manner to insure watertight construction and all leaks in brick masonry shall be sealed. All workmanship shall conform to the best standard practice and all brick masonry shall be laid by skilled workmen.
- B. All beds on which masonry is to be laid shall be cleaned and wetted properly. Brick shall be wetted as required and shall be damp but free of any surface water when placed in the work. Bed joints shall be formed of a thick layer of mortar which shall be smoothed or furrowed slightly. Head joints shall be formed by applying to the brick to be laid a full coat of mortar on the entire end, or on the entire side as the case requires, and then shoving the mortar covered end or side of the brick tightly against the bricks laid previously. The practice of buttering at the corners of the brick and then throwing the mortar or crappings in the empty joints will not be permitted. Dry or butt joints will not be permitted. Joints shall be uniform in thickness and shall be approximately 1-1/4 inch thick.
- C. Brickwork shall be constructed accurately to dimensions and brickwork at top of manholes shall be to the dimensions of the flanges of the cast-iron frames.
- D. Joints on the inside face of walls shall be tooled slightly concave with an approved jointer when the mortar is thumbprint hard. The mortar shall be compressed with complete contact along the edges to seal the surface of the joints.
- E. All castings to be embedded in the brickwork shall be accurately set and built-in as the work progresses. Cast-iron frames and manhole covers shall be well bedded in mortar and accurately set to finished grades indicated or as directed.
- F. Water shall not be allowed to flow against brickwork or to rise on the masonry for 60 hours after it has been laid, and any brick masonry damaged in this manner shall be replaced as directed at no additional expense to the Owner. Adequate precautions shall be taken in freezing weather to protect the masonry from damage by post.

### **3.08 CONCRETE MASONRY UNITS**

- A. Concrete Masonry Unit Construction shall be soaked in water before laying. As circular concrete block walls are laid-up, the horizontal joints and keyways shall be flushed full with mortar. As rectangular blocks are laid-up, all horizontal and vertical joints shall be flushed full with mortar. Plastering of the outside of block structures will not be required. The joints in precast units shall be wetted and completely mortared immediately prior to setting a section. No structure shall be backfilled until all mortar has completely set.

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### **3.09 MANHOLE STEPS**

- A. Placement of steps into the precast walls shall be by a proven method as recommended by the supplier of the precast manhole sections. Details of the steps and method of placement shall be submitted for approval.
- B. Aluminum steps shall have an anchoring lip if cast into the wall or serrated legs if driven into the green concrete or polypropylene inserts after casting. Those parts of aluminum steps which will be in contact with the concrete shall be thoroughly cleaned and given a protective coating of an acceptable heavy-bodied bituminous material.

### **3.10 CASTINGS**

- A. Cast-Iron Frames for grates and covers shall be well bedded in cement mortar and accurately set to the grades indicated or as directed. The frames shall be encased with a thick cement-mortar collar around the entire perimeter of the frames.
- B. All voids between the bottom flange shall be completely filled to make a watertight fit. A ring of mortar, at least one-inch thick and pitched to shed water away from the frame shall be placed over and around the outside of the bottom flange. The mortar shall extend to the outer edge of the masonry all around its circumference and shall be finished smooth. No visible leakage will be permitted.
- C. Structures within the limits of bituminous concrete pavement shall be temporarily set at the elevation of the bottom of the binder course or as ordered. After the binder course has been compacted, these structures shall be set at their final grade. Backfill necessary around such structures after the binder course has been completed shall be made with Class A concrete unless otherwise ordered. [Landscape Architect/Civil Engineer to review Concrete section to verify Class A included in Specifications.]

### **3.11 ADJUSTING DRAINAGE STRUCTURE FRAME AND GRATE/COVER**

- A. Frames and grates or covers shall be adjusted in accordance with MHD Sections 201 and 220.

### **3.12 OIL HOODS**

- A. Install oil hoods in accordance with the details on the Contract Drawings and the manufacturer's instructions and recommendations

### **3.13 AREA DRAINS**

- A. Area drains shall be installed in accordance with the details on the Contract Drawings and the manufacturer's instructions and recommendations

### **3.14 CLEANOUTS**

- A. Cleanouts shall be installed in accordance with the details on the Contract Drawings and the manufacturer's instructions and recommendations.

### **3.15 CLEANING**

- A. At the completion of the work, clean all piping, structures, as well as open drainage courses through and to which water from this construction is directed to the satisfaction of the Landscape Architect/Civil Engineer.

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3.16 PROTECTION

- A. Protect finished work under provisions of applicable sections of these specifications.
- B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

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## SECTION 33 40 00

### STORM DRAINAGE SYSTEM

#### PART 1 - GENERAL

##### 1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.
- D. Provide all facilities, labor, materials, tools, equipment, appliances, transportation, supervision, and related work necessary to complete the work specified in this section, and as shown on the Drawings
- E. Materials shall conform with Town of Reading DPW / Engineering Standards.

##### 1.02 WORK INCLUDED

- A. Site storm drainage piping, fittings and accessories, and bedding
- B. Connection of drainage system to existing storm drainage system
- C. Structures, area drains, cleanouts and site surface drainage

##### 1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Carefully examine all of the Contract Documents for requirements which affect the work in this section. Other specification sections which directly relate to the work of this section include, but are not limited to, the following:
  - 1. Erosion and Sediment Control
  - 2. Earthwork
  - 3. Cast-in-place Concrete
  - 4. Bituminous Concrete Paving
  - 5. Portland Cement Concrete Pavement
  - 6. Loam and Seed
  - 7. Planting

##### 1.04 REFERENCES

- A. References herein to any technical society, organization, group or body are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable:
  - 1. ASTM American Society for Testing and Materials
  - 2. ACI American Concrete Institute
  - 3. ANSI American National Standards Institute
  - 4. AASHTO American Association of State Highway and Transportation Officials

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5. MHD Massachusetts Highway Department's "Standard Specifications for Highways and Bridges", latest Edition
- B. All work shall comply with the pertinent standards of the latest editions of the following Codes and Specifications, unless designated otherwise herein:
  1. American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19101.
  2. American National Standards Institute (ANSI), 1430 Broadway, New York, NY 10018.
  3. American Association of State Highway and Transportation Officials (AASHTO), 341 National Press Building, Washington, D.C. 20004.
- C. The following standards and definitions are applicable to the work of this Section to the extent referenced herein:
  1. ASTM A48 Standard Specification for Gray Iron Castings
  2. ASTM C32 Standard Specification for Sewer and Manhole Brick
  3. ASTM C55 Standard Specification for Concrete Brick
  4. ASTM C62 Standard Specification for Building Brick
  5. ASTM C76 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
  6. ASTM C139 Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
  7. ASTM C270 Standard Specification for Mortar for Unit Masonry
  8. ASTM C443 Joints for Circular Concrete Sewer and Culvert Pipe, using Rubber Gaskets.
  9. ASTM C 478 Standard Specification for Precast Reinforced Concrete Manhole Sections
  10. ASTM C923 Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
  11. ASTM D1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures using 10 lb. (4.54 kg) Rammer and 18 inch (457 mm) Drop.
  12. ASTM D2729 Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
  13. ASTM D2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
  14. ASTM D3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

### 1.05 SCHEDULING

- A. The Contractor shall submit to the Landscape Architect/Civil Engineer, for approval by the Owner, a progress schedule as specified in the GENERAL CONDITIONS. All schedules shall be reviewed by the Contractor with the Owner for compliance with street opening and Town Engineering Department requirements.

### 1.06 SUBMITTALS FOR REVIEW

- A. Product Data: Provide data indicating pipe and pipe accessories, manholes, catch basins, leaching basins, clean-outs, frames, grates and covers, and all other pertinent information and equipment to be used.

### 1.07 SUBMITTALS FOR INFORMATION

- A. Manufacturer's Instructions: Indicate special procedures required to install products specified.
- B. Certificates: Certify that products meet or exceed specified requirements.

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### 1.08 SUBMITTALS AT PROJECT CLOSEOUT

- A. Accurately record actual locations, both horizontally and vertically, of pipe runs, connections, catch basins, all manholes, stormwater treatment system structures, stormwater detention/recharge systems, and other stormwater infrastructure.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

### 1.09 REGULATORY REQUIREMENTS

- A. All work under this Section of the Specifications shall be installed in accordance with the Laws, Ordinances, Rules and Regulations of all Local, State and Federal authorities having jurisdiction, the Rules and Regulations of the National Board of Fire Underwriters, and the Public Utility Companies.

### 1.10 COORDINATION

- A. Coordinate work under provisions of the applicable Sections of these Specifications.

### 1.11 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions of the site before submitting his bid, and shall be fully responsible for carrying out all site work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed, except those conditions described in the GENERAL CONDITIONS.

### 1.12 DELIVERY, STORAGE AND HANDLING

- A. All materials furnished under this section shall be delivered to the job adequately protected from damage during transit. Pipes shall not be dropped. All pipes shall be examined before laying and no piece shall be installed which is found to be defective.
- B. Pipe and other appurtenances, which are defective from any cause, including damage caused by handling, and determined by the Engineer irreparable shall be unacceptable for installation and shall be replaced at no cost to the Owner.
- C. Storage and handling of pipes, pre-cast structures and other storm drainage appurtenances shall be in accordance with the manufacturer's recommendations, subject to the approval of the Engineer.

## PART 2 - PRODUCTS

### 2.01 GENERAL

- A. Materials shall meet the requirements specified in the following Subsections of Division III, Materials - Massachusetts Highway Department, Standard Specifications for Highway and Bridges:

1.	Reinforced Concrete Pipe	M5.02.1
2.	Reinforced Concrete Pipe Flared Ends	M5.02.2
3.	Ductile Iron Pipe and Fittings	M5.05.3
4.	Plastic (PVC) Pipe	M5.03.7

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5.	Corrugated Plastic (Polyethylene) Pipe	M5.03.10
6.	Mortar for Pipe Joint	M4.02.15
7.	Crushed Stone	M2.01.5

### 2.02 STORM DRAIN PIPE MATERIALS

- A. High Density Corrugated Polyethylene Pipe: Pipe shall have a full circular cross section with an outer corrugated pipe wall and a smooth inner wall. Pipe shall be Hancor "HI-Q" pipe, ADS N-12, Prinsco "Goldflo" dual-wall pipe, or approved equal. Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions and markings found in AASHTO Designations M252, and M294. Pipe shall be made from virgin PE compounds which conform to the applicable current edition of the AASHTO Material Specifications for cell classification as defined and described in ASTM D 3350.
1. Joints and Fittings: Standard 45 Degree "Y" connections, tees, bends, and other fittings shall be fabricated to sizes shown on the drawings. Coupling Bands shall be per manufacturer's specifications. Couplers shall cover not less than one corrugation on each section of pipe. Fittings shall be made from virgin PE compounds which conform to the applicable current edition of the AASHTO Material Specifications for cell classification as defined and described in ASTM D 3350.

### 2.03 PRECAST UNITS (MANHOLES, CATCH BASINS, LEACHING BASINS/DRY WELLS)

- A. Precast units shall be manufactured in accordance with ASTM Designation C478, the diameter and depth as detailed on the Drawings and utilize 4000psi concrete. All walls shall be a minimum of 6" thick.
- B. Precast unit joints shall be butyl rubber section joints per ASTM C443.
- C. Exterior of precast unit shall have a bituminous coating.
- D. Manholes
1. Shall utilize eccentric cones at the top section or a flat top slab as needed if grades and elevations do not allow for a coned top section.
2. Steps shall be the drop-front extruded aluminum type with 12-inch wide stepping surface.
3. Castings shall be equivalent to "Massachusetts Standard" - 26" manhole frame and cover as provided by EJ Prescott and shall read "DRAIN" on the cover.
- E. Catch Basin
1. All catch basins shall have a minimum 48" sump.
2. Unit shall utilize a concentric cone at the top section or a flat top slab as needed if grades and elevations do not allow for a coned top section.
3. All proposed catch basins shall be constructed with oil hoods. Oil hoods shall be "The Eliminator" as manufactured by Ground Water Rescue, Inc. of Quincy or approved equal.
4. Castings shall be equivalent to "Maine, Mass & Vermont Catch Basin" - heavy Duty Catch Basin with 2" Square Openings as provided by EJ Prescott.
- a. Provide a three flange model where adjacent to a curb and a 4 flange model when not adjacent to a curb.
5. All catch basins will be equipped with hoods on the outlet pipe.
- F. Leaching Basin / Dry Well

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1. Leaching Basins / Dry Wells shall be a minimum of 1200 gallon and 6' diameter unless otherwise noted on the Utility Plan.
  2. Shall utilize an eccentric cone or a flat top slab as needed if grades and elevations do not allow for a coned top section.
  3. Castings shall be equivalent to "Maine, Mass & Vermont Catch Basin" – heavy Duty Catch Basin with 2" Square Openings as provided by EJ Prescott.
    - a. Provide a three flange model where adjacent to a curb and a 4 flange model when not adjacent to a curb.
- G. Precast Unit Alternative (Shallow Structures Only and with Approval of Landscape Architect/Civil Engineer).
1. When approved by the Landscape Architect/Civil Engineer, precast units may be constructed with brick or concrete block walls and poured reinforced concrete bases as an alternative to precast concrete units. Brick shall conform to ASTM C 62, Grade SW; ASTM C 55, Grade S-I or S-II; or ASTM C 32, Grade MS. Precast concrete segmental block shall conform to ASTM C 139, not more than 200 mm (8 inches) 8 inches thick, not less than 200 mm (8 inches) 8 inches long, and of such shape that joints can be sealed effectively and bonded with cement mortar.
- 2.04 AREA DRAINS
- A. Area drains shall be equivalent to 12" H-10 Pedestrian Grate as manufactured by ADS-Pipe.
- 2.05 CLEANOUTS
- A. Cast iron frames and covers shall conform to ASTM A48, latest issue, Class 30.
    1. Provide concrete collars as shown on the Drawings
- 2.06 BEDDING AND COVER MATERIALS
- A. Bedding: Crushed stone as specified in Section EARTHWORK.
  - B. Cover: Gravel as specified in Section EARTHWORK.

### PART 3 - EXECUTION

- 3.01 GENERAL:
- A. The bedding for the Pipe shall be shaped to conform reasonably close to the lower 10% of the pipe and recesses excavated for bells of bell and spigot pipes. All pipe shall be laid to the specified line and grade, with a firm bearing throughout each length and with bell ends uphill.
  - B. Drainage pipe shall be backfilled with gravel having no stone greater than 3 inches unless otherwise noted on plans.
  - C. The joint of reinforced concrete pipe shall be thoroughly cleaned and wetted with water before being joined. Reinforced concrete pipe shall be joined using a flexible water tight rubber gasket conforming to ASTM C443 and the filling the joint be completed with cement mortar. Any alternative joint design must be pre-approved by the Landscape Architect/Civil Engineer. The invert shall be kept smooth and free of obstructions.

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- D. The drain trench shall be excavated to the depth designated on the plans or, if directed, to a stratum of impervious material.
- E. The excavation shall proceed in advance of the actual drain construction only to the extent the Landscape Architect/Civil Engineer direct.
- F. 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.
- G. Joints shall be grouted or sealed when using reinforced concrete pipe and corrugated plastic pipe shall be firmly joined with an approved coupling.
- H. The Contractor shall be responsible for keeping the backfill material clean and free of objectionable material from a line one inch below the flow line of the pipe to the top of the trench.
- I. Existing drainage infrastructure is to be field cored with the proper equipment approved and satisfactory to the Landscape Architect/Civil Engineer. Contractor shall confirm the invert of the proposed tie-in prior to beginning drainage excavations.
- J. Removal and disposal of the existing drain pipe within the trenching area of proposed pipe shall be included in contract unit price per foot of kind of pipe at no additional compensation to the Contractor.
- K. Removal and disposal of the existing drain pipe outside of the trenching area of proposed pipe shall be excavated and completely removed then backfilled and compacted with the proper material.

### **3.02 EXAMINATION**

- A. Verify that trench cut and excavation base is ready to receive work and excavations, dimensions and elevations are as indicated on drawings.

### **3.03 PREPARATION**

- A. Hand trim excavations to required elevations. Correct over excavation with coarse aggregate.
- B. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

### **3.04 BEDDING**

- A. Excavate pipe trench in accordance with Section 02200 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches compacted depth.
- C. Maintain optimum moisture content of bedding material to attain required compaction density.

### **3.05 INSTALLATION - PIPE**

- A. Install pipe, fittings and accessories in accordance with applicable standards and manufacturer's instructions. Seal joints watertight.

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- B. Place pipe on bedding to depths indicated on drawings. Notch under pipe bells and joints, where applicable to provide for uniform bearing under entire length of pipe.
- C. Lay pipe to slope gradients noted on drawings with maximum variation from true slopes of 1/8 inch per foot.
- D. Install bedding at sides and over top of pipe. Provide top cover to minimum compacted thickness as indicated on drawings. Compact to 95%.
- E. Refer to EARTHWORK Section for trenching, bedding, backfilling and compaction requirements. Do not displace or damage pipe when compacting.

### **3.06 INSTALLATION – PRECAST UNITS**

- A. Manholes, Catch Basins and Outlet Control Structures shall be constructed at the locations and to the lines, grades, dimensions and design noted on Drawings or as required.
- B. Precast Concrete Construction shall be done in a manner to insure watertight construction and all leaks in precast concrete shall be sealed. If required, precast concrete shall be repaired or replaced to obtain watertight construction.
- C. Concrete barrels, cones and slabs shall be precast concrete sections.
- D. Bases shall be either precast with a barrel integrally cast with the base, or poured concrete suitably shaped by means of accurate bell-rung forms to receive the barrel sections. Manhole invert channels in manholes shall be formed in concrete.
- E. Precast units shall have an adjustment ring at the top of the cone to permit the frame and cover to meet the finished surface. This shall consist of courses of brick or reinforced grading rings not to exceed 11 inches.
- F. Stubs shall be short pieces cut from the bell ends of the appropriate size and class of pipe. Concrete stubs shall be plugged with brick masonry unless otherwise directed.
- G. Manhole sections shall contain manhole steps accurately positioned and embedded in the concrete when the section is cast. Precast-reinforced concrete manhole sections shall be set so as to be vertical and with sections and steps in true alignment.
- H. All holes in sections used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose or with mortar. The mortar shall be one part cement to 1-1/2 parts sand, mixed slightly damp to the touch (just short of "balling"), hammered into the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush with the adjoining surfaces.
- I. The Contractor may, as an alternate to suitable nonshrink mortar joints, use premolded elastomeric-sealed joints for pipe into precast manhole bases.
- J. All materials, accessories and construction methods used in making the joints shall be supplied or approved by the manufacturer of the premolded elastomeric-sealed joint.
- K. Openings for pipe and materials to be embedded in the walls of the base for these joints shall be cast in the base at the required locations during the manufacture of the base. Incorrectly cast and patched pipe openings will be rejected.
- L. Manhole risers and tops shall be installed using approved "o-ring" type, neoprene gaskets for sealing joints. Units shall be installed level and plumb. Water shall not be permitted to rise over newly made joints nor until after inspection as to their acceptability. All jointing

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shall be done in a manner to insure watertightness.

- M. Openings shall be provided in the risers to receive entering pipes. These openings may be made at the place of manufacture or cut in the field. The openings shall be sized to provide a uniform 3/4 inch maximum annular space between the outside of the pipe wall and the opening in the riser. After the pipe is in position, the annular space shall be solidly filled with nonshrink mortar. Care shall be taken to assure that the openings are located to permit setting of the entering pipe at its correct elevation as indicated.
- N. Openings which are cut in the risers in the field shall be carefully made so as not to damage the riser. Damaged risers will be rejected and shall be replaced at no additional expense to the Owner.
- O. Where required by the Drawings, a slot and opening shall be cast in the catch basin wall suitable for mounting the cast iron hood and discharge pipe. The hood hinge may be furnished to the precast supplier by the Contractor for incorporation into the casting.

### **3.07 BRICK MASONRY**

- A. Brick Masonry Construction shall be done in a manner to insure watertight construction and all leaks in brick masonry shall be sealed. All workmanship shall conform to the best standard practice and all brick masonry shall be laid by skilled workmen.
- B. All beds on which masonry is to be laid shall be cleaned and wetted properly. Brick shall be wetted as required and shall be damp but free of any surface water when placed in the work. Bed joints shall be formed of a thick layer of mortar which shall be smoothed or furrowed slightly. Head joints shall be formed by applying to the brick to be laid a full coat of mortar on the entire end, or on the entire side as the case requires, and then shoving the mortar covered end or side of the brick tightly against the bricks laid previously. The practice of buttering at the corners of the brick and then throwing the mortar or crappings in the empty joints will not be permitted. Dry or butt joints will not be permitted. Joints shall be uniform in thickness and shall be approximately 1-1/4 inch thick.
- C. Brickwork shall be constructed accurately to dimensions and brickwork at top of manholes shall be to the dimensions of the flanges of the cast-iron frames.
- D. Joints on the inside face of walls shall be tooled slightly concave with an approved jointer when the mortar is thumbprint hard. The mortar shall be compressed with complete contact along the edges to seal the surface of the joints.
- E. All castings to be embedded in the brickwork shall be accurately set and built-in as the work progresses. Cast-iron frames and manhole covers shall be well bedded in mortar and accurately set to finished grades indicated or as directed.
- F. Water shall not be allowed to flow against brickwork or to rise on the masonry for 60 hours after it has been laid, and any brick masonry damaged in this manner shall be replaced as directed at no additional expense to the Owner. Adequate precautions shall be taken in freezing weather to protect the masonry from damage by post.

### **3.08 CONCRETE MASONRY UNITS**

- A. Concrete Masonry Unit Construction shall be soaked in water before laying. As circular concrete block walls are laid-up, the horizontal joints and keyways shall be flushed full with mortar. As rectangular blocks are laid-up, all horizontal and vertical joints shall be flushed full with mortar. Plastering of the outside of block structures will not be required. The joints in precast units shall be wetted and completely mortared immediately prior to setting a section. No structure shall be backfilled until all mortar has completely set.

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### **3.09 MANHOLE STEPS**

- A. Placement of steps into the precast walls shall be by a proven method as recommended by the supplier of the precast manhole sections. Details of the steps and method of placement shall be submitted for approval.
- B. Aluminum steps shall have an anchoring lip if cast into the wall or serrated legs if driven into the green concrete or polypropylene inserts after casting. Those parts of aluminum steps which will be in contact with the concrete shall be thoroughly cleaned and given a protective coating of an acceptable heavy-bodied bituminous material.

### **3.10 CASTINGS**

- A. Cast-Iron Frames for grates and covers shall be well bedded in cement mortar and accurately set to the grades indicated or as directed. The frames shall be encased with a thick cement-mortar collar around the entire perimeter of the frames.
- B. All voids between the bottom flange shall be completely filled to make a watertight fit. A ring of mortar, at least one-inch thick and pitched to shed water away from the frame shall be placed over and around the outside of the bottom flange. The mortar shall extend to the outer edge of the masonry all around its circumference and shall be finished smooth. No visible leakage will be permitted.
- C. Structures within the limits of bituminous concrete pavement shall be temporarily set at the elevation of the bottom of the binder course or as ordered. After the binder course has been compacted, these structures shall be set at their final grade. Backfill necessary around such structures after the binder course has been completed shall be made with Class A concrete unless otherwise ordered. [Landscape Architect/Civil Engineer to review Concrete section to verify Class A included in Specifications.]

### **3.11 ADJUSTING DRAINAGE STRUCTURE FRAME AND GRATE/COVER**

- A. Frames and grates or covers shall be adjusted in accordance with MHD Sections 201 and 220.

### **3.12 OIL HOODS**

- A. Install oil hoods in accordance with the details on the Contract Drawings and the manufacturer's instructions and recommendations

### **3.13 AREA DRAINS**

- A. Area drains shall be installed in accordance with the details on the Contract Drawings and the manufacturer's instructions and recommendations

### **3.14 CLEANOUTS**

- A. Cleanouts shall be installed in accordance with the details on the Contract Drawings and the manufacturer's instructions and recommendations.

### **3.15 CLEANING**

- A. At the completion of the work, clean all piping, structures, as well as open drainage courses through and to which water from this construction is directed to the satisfaction of the Landscape Architect/Civil Engineer.

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3.16 PROTECTION

- A. Protect finished work under provisions of applicable sections of these specifications.
- B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION