

PROJECT MANUAL

SAWYER ROAD CULVERT REPLACEMENT PROJECT BOLTON, MA

APRIL 2024

Project Engineer: DILLIS & ROY CIVIL DESIGN GROUP, INC.
1 MAIN STREET SUITE 1
LUNENBURG, MA 01462

Project Owner: TOWN OF BOLTON DEPARTMENT OF PUBLIC WORKS
FORBUSH MILL ROAD
BOLTON, MA 01740

APRIL 2024

DrCDG Project Number: 7073



DPW 2024-001

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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SECTION 001116 - INVITATION TO BID

Project: Sawyer Road Culvert Replacement

Owner: Town of Bolton DPW
12 Forbush Mill Road
Bolton, MA 01740

Engineer: Dillis & Roy Civil Design Group, Inc.
1 Main Street, Suite 1
Lunenburg, MA 01462

See attached Invitation for Bid

END OF DOCUMENT

SAWYER ROAD CULVERT REPLACEMENT PROJECT
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INVITATION FOR BID
Sawyer Road Culvert Replacement Project

Sealed bids are hereby invited for the furnishing of labor, materials and equipment necessary for the replacement of the existing 24" corrugated metal culvert under Sawyer Road with new high density polyethylene culvert, with associated headwalls and roadway resurfacing.

SEALED BIDS will be accepted at the office of the Department of Public Works, 12 Forbush Mill Road, until 11:00 am, local time, on Tuesday, May 21, 2024 at which time the bids received will be opened and read aloud.

Each Bid must be accompanied by a certified check, payable to the Town of Bolton, or Bid Bond for five percent (5%) of the total amount of the Bid.

A Payment Bond and Performance Bond each in the amount of one hundred percent (100%) of the contract price, with corporate surety approved by the Town, will be required for the faithful performance of the Contract.

Bidder Questions are due May 15, 2024 by 4:00PM.

Contract Documents may be examined at the following location:

Town of Bolton, Public Works Department

12 Forbush Mill Road

Bolton, MA 01740

978 779-6402

dpw@townofbolton.com

Contract documents may be obtained at the office of the engineer on or after April 24, 2024:

Dillis & Roy Civil Design Group, Inc.,
1 Main Street Suite 1, Lunenburg, MA 01462

Bid packages may also be obtained by calling **978-779-6091**. A non-refundable fee of \$50.00 is required for a copy of the project manual and drawings.

The project is subject to Minimum Wage rates as determined by the Executive Office of Labor and Workforce Development, Department of Labor Standards.

The project must be substantially complete by August 1, 2024.

The Town of Bolton Town Administrator is the awarding authority.

The Town reserves the right to reject any or all bids, to waive any irregularities or informalities in the best interest of the Town.

The Town of Bolton is an EEP and encourages MBE and WBE to bid.

Town of Bolton, Massachusetts
Donald A. Lowe, Town Administrator

SAWYER ROAD CULVERT REPLACEMENT PROJECT
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SECTION 002115 - INSTRUCTIONS TO BIDDERS - EJCDC

1.1 SUMMARY

- A. Related Documents:
 - 1. Document 00 11 16 - Invitation to Bid.
 - 2. Document 00 31 00 - Available Project Information.
 - 3. Document 00 41 13 - Bid Form - Stipulated Sum
 - 4. Document 00 43 00 - Procurement Form Supplements
 - 5. Document 00 73 14 - Supplementary Conditions - EJCDC:
 - a. Definitions.
 - b. Contract Time identification.
 - c. Tax rebate procedures.
 - d. Tax-exempt procedures.
 - e. Contractor's fees for changes.
 - f. Contractor's liability insurance.
 - g. Bond types and values.

1.2 DEFINED TERMS

- A. Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
 - 1. Issuing Office – The office from which the Bidding Documents are to be issued.

1.3 COPIES OF BIDDING DOCUMENTS

- A. Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid for a **non-refundable fee of \$50.00**.
- B. Digital copies of the Bidding Documents may be obtained from the Engineer for no fee by emailing fmcpartlan@dillisandroy.com.
- C. Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- D. Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

1.4 PRE-BID MEETING

- A. The Owner will not hold a pre-bid meeting.

1.5 QUALIFICATION OF BIDDERS

- A. To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 10 days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:
 - 1. Evidence of Bidder's authority to do business in Massachusetts.
 - 2. Bidder's state or other contractor license number, if applicable.
 - 3. Other required information regarding qualifications

1.6 SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE

- A. Site and Other Areas
 - 1. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- B. Existing Site Conditions
 - 1. The Existing Site Conditions are represented in the Bidding Documents.
- C. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- D. Site Visit by Bidders
 - 1. Bidder shall conduct the optional Site visit during normal working hours and shall not disturb any ongoing operations at the Site.
 - 2. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
 - 3. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.
 - 4. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
 - 5. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

1.7 BIDDER'S REPRESENTATION

- A. It is the responsibility of each Bidder before submitting a Bid to:
1. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
 2. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
 3. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
 4. carefully study all: all drawings of physical conditions relating to existing surface or subsurface structures at the Site;
 5. review and examine all conditions given in the Bolton Conservation Commission's Order of Conditions included in the Bidding Documents..
 6. review and examine all easements included in the Bidding Documents
 7. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
 8. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
 9. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
 10. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
 11. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
 12. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

1.8 INTERPRETATIONS AND ADDENDA

- A. All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

- B. Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

1.9 BID SECURITY

- A. A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- B. The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.
- C. The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- D. Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

1.10 CONTRACT TIMES

- A. The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

1.11 LIQUIDATED DAMAGES

- A. Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

1.12 SUBSTITUTE AND "OR-EQUAL" ITEMS

- A. The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.

1.13 SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- A. A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- B. Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- C. The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers which the Contractor proposes to use for various portions of the work.
- D. Owner reserves the right to reject any subcontractors or suppliers due to owners experience in the past with the selected subcontractor or supplier, or for any other reason.
- E. If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

1.14 PREPARATION OF BID

- A. The Bid Form is included with the Bidding Documents.
 - 1. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - 2. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- B. A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.
- C. A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- D. A Bid by an individual shall show the Bidder's name and official address.

- E. A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- F. All names shall be printed in ink below the signatures.
- G. Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- H. Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- I. The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

1.15 BASIS OF BID

- A. Lump Sum
 - 1. Bidders shall submit a Bid on a basis as set forth in the Bid Form.

1.16 SUBMITTAL OF BID

- A. With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- B. A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to Bolton Department of Public Works 12 Forbush Mill Road, Bolton, MA 01740.
- C. Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

1.17 MODIFICATION AND WITHDRAWAL OF BID

- A. A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

- B. If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- C. If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

1.18 OPENING OF BIDS

- A. Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

1.19 BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- A. All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

1.20 EVALUATION OF BIDS AND AWARD OF CONTRACT

- A. Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- B. If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.
- C. Evaluation of Bids
 1. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 2. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner shall announce to all bidders a “Base Bid plus alternates” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

- D. In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- E. Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

1.21 BONDS AND INSURANCE

- A. Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

1.22 SIGNING OF AGREEMENT

- A. When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

END OF DOCUMENT

SECTION 003100 - AVAILABLE PROJECT INFORMATION

1.1 SUMMARY

- A. Document Includes:
 - 1. Sawyer Road Culvert Replacement Project Plans
 - 2. Wetland Protection Act and Town of Bolton Order of Conditions.
 - 3. Construction Easements & Right of Entry
- B. Available Project information has been furnished by Owner to Engineer for use in designing this Project.
 - 1. Each Bidder shall be fully familiar with available Project information, which has been prepared for Owner by separate consultants.
 - 2. Available Project information is offered solely for reference and shall not be considered part of Contract Documents. Data contained in Documents prepared by Owner's separate consultants is believed to be reliable; however, Owner and Engineer do not guarantee their accuracy or completeness.
 - 3. In preparing their Bids, Bidders shall consider and evaluate data contained in available Project information as well as Contract Documents prepared by Engineer.
- C. Related Documents:
 - 1. Document 00 21 15 - Instructions to Bidders - EJCDC: Site examination.

1.2 SAWYER ROAD CULVERT REPLACEMENT PLANS

- A. A copy of the plans are available from the Town of Bolton DPW and via electronic download from the Engineer as listed in 002115 – INSTRUCTIONS TO BIDDERS.
- B. The plans identify existing conditions, required demolition, and proposed improvements to the project area. The plans do not identify properties of below-grade conditions.
- C. Recommendations described are not requirements of the Contract unless specifically referenced in Contract Documents.

1.3 WETLAND PROTECTION ACT AND TOWN OF BOLTON ORDER OF CONDITIONS

- A. An Order of Conditions has been obtained pursuant to the requirements of the Massachusetts Wetlands Protection Act and the Town of Bolton Wetland Protection Bylaw and associated Regulations. A copy of the Order of Conditions is included as an attachment to the Document.
- B. The Contractor is responsible for executing all requirements of the Order of Conditions.
- C. The contractor is responsible for reading and understanding the contents of the Order of Conditions prior to placing the bid for the work. No extras will be considered based on the Contractors failure to read and understand the requirements.

1.4 CONSTRUCTION EASEMENTS & RIGHT OF ENTRY

- A. Construction Easements & Right of Entry have been obtained for areas outside of the Town of Bolton Right-of-Way. A copy of these documents is attached to the Document.
- B. The Contractor is responsible for delineation of these areas and maintaining a work zone that remains within these areas.

END OF DOCUMENT

SECTION 004113 - BID FORM - STIPULATED SUM

See attached Proposal and other forms to be returned with the bid.

END OF DOCUMENT

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Authority of Bid Signatory

The bidder shall indicate which of the following is the source of the bid signatory's authority to sign the bid on behalf of the bidder. The bidder shall follow the instructions noted.

_____ The party bidding is a sole partnership. Below the signature affixed on the Proposal Sheet, a sole proprietorship's owner shall write "sole owner" or "doing business as (name of bidder)".

_____ The party bidding is a partnership and the party signing is one of the partners. Below the signature affixed on the Proposal Sheet, a signatory for a partnership shall write "member of the firm"

_____ The party bidding is a corporation. The signing party is authorized to sign on behalf of the corporation. A copy of the resolution of the corporation's board of directors which delegates signatory authority to the individual signing is to be attached to this bid form. This resolution can be a general delegation of authority for signing bids or can be a specific authorization for this project. The Secretary of the corporation shall authenticate the resolution as currently being in full force and effect.

_____ Signatory authority is evidenced by other means noted below:

Name of Bidder: _____

(Return This Page with the Bid)

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NON-DISCRIMINATION AND AFFIRMATIVE ACTION CERTIFICATION

The Contractor agrees to comply with all applicable Federal and State statutes, rules and regulations prohibiting discrimination in employment, including but not limited to, the Americans with Disabilities Act 42 USC 12101, 28 CFR Part 35, or as amended; 29 USC S.791 et. seq.; Executive Orders 227, 237, 246; or any amendments to these provisions. Pursuant to Executive Orders 227 and 246, the Contractor is required to take affirmative actions designed to eliminate the patterns and practices of discrimination including providing written notice of its commitment to non-discrimination to any labor association with which it has an employment agreement, and to certified minority and women-owned businesses and organizations or businesses owned by individuals with disabilities. The Town of Bolton shall not be liable for any costs associated with the Contractor's defense of claims of discrimination.

(Name of Business)

(Signature of Person Signing Proposal)

(Print Name & Title of Person Signing)

(RETURN THIS PAGE WITH BID)

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Bidder's Affidavit: Foreign Corporation*

The undersign certifies that _____ is a foreign corporation incorporated in the State (Commonwealth) of _____, whose principal place of business is _____ and is required to obtain a license to transact business in the State of Massachusetts.

The undersigned bidder further certifies that said license has been obtained and is in effect and has designated a statutory agent upon whom process against bidder corporation may be served within the State Massachusetts. The designated statutory agent

is _____
(name and address)

Process served upon the designated statutory agent named above shall be effective service, unless the Owner has been informed, by certified mail or its equivalent (return receipt), of a change in the agent upon whom process can be served.

Date

Signed

Title

Note: This statement is to be reproduced on the bidder's letterhead, signed by the President, Vice-President or General Manager, notarized and submitted with the bid.

* Any Corporation that is not incorporated in the State of Massachusetts is a foreign corporation.

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INDEMNITY AGREEMENT

The undersigned agrees to indemnify and hold harmless the Town of Bolton, Massachusetts from any and all claims for property damage and/or personal injury which may arise as a result of the undersigned's performance of the terms of this agreement, including, but not limited to, any attorneys fees and associated legal expenses which may be incurred by the Town in defending itself from any claims which may arise.

Company Name

Date

Authorized Signature

Above Signature Typed or Printed

PROJECT: _____

(SUBMIT THIS SHEET WITH BID)

SAWYER ROAD CULVERT REPLACEMENT PROJECT
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REQUIRED CERTIFICATIONS

1. **CERTIFICATION OF GOOD FAITH** Pursuant to section 10 of chapter 30B of the general laws, (and the Town’s policy for all contract pursuant to MGL c. 30.39M or c. 149.44a-H) the following certificate must be completed and attached to the bid or proposal:

The undersigned certifies under the penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word “person” shall mean any natural person, business, partnership, corporation, union, committee, club or other organization, entity, or group of individuals.

BY: _____ SIGNATURE: _____
(COMPANY NAME)

TITLE: _____ DATE: _____

2. **CERTIFICATION THAT STATE TAXES ARE FILED AND PAID** Pursuant to section forty-nine A of Chapter sixty-two C of the General Laws, the following certification must be completed and attached to the bid or proposal:

I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required by law. My social security number (voluntary) or Federal Identification number is: _____.

BY: _____ SIGNATURE: _____
(COMPANY NAME)

TITLE: _____ DATE: _____

Approval of a contract or other contract or other agreement will not be granted unless this certification clause is signed by the applicant(s). Your Social Security Number will be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filings or tax payment obligations. Providers who fail to correct non-filing or delinquency will not have a contract or other agreement issued, renewed or extended.

3. **CERTIFICATE OF NON-CONFLICT OF INTEREST**

The undersigned certifies under penalties of perjury that no official or employee of the governmental body for which the attached solicitation is proposed is pecuniarily interested in this proposal or bid or in the contract which it offers to execute or in expected profits to arise therefrom; and further that no official or employee of said governmental body will receive an commission, discount, bonus, gift, contribution, or received from or share in the profits of any person making or performing such contract. As used in this certification, the word “person” shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of **individuals**.

BY: _____ SIGNATURE: _____
(COMPANY NAME)

TITLE: _____ DATE: _____

(Return This Page with the Bid)

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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TOWN OF BOLTON, MASSACHUSETTS
BUSINESS AND TAXPAYER IDENTIFICATION INFORMATION

(T I N)

THIS BUSINESS IS A: (Please check one)

- Individual
- Corporation
- Sole Proprietorship
- Partnership
- Non-Profit Entity
- Other, Please Describe: _____

2. LICENSED OR OTHERWISE AUTHORIZED TO DO BUSINESS BY THE STATE OF: _____

3. TAXPAYER IDENTIFICATION NO. (TIN) : () () - () () () () () () ()
OR

SOCIAL SECURITY NUMBER () () () - () () - () () () ()

LEGALLY ISSUED IN THE NAME OF: _____

DOING BUSINESS AS (D/B/A): _____

ADDRESS: _____

TOWN/TOWN, STATE, ZIP: _____

NOTE:

Your bid may be rejected if you do not complete and submit this page with your bid.

Checks in payment of obligations by the Town will be made payable to your legally issued name unless you state a D/B/A (doing business as). Federal Tax reporting, if required, will also be in your legal name.

Failure to provide a Taxpayer Identification Number (T.I.N.) will subject you to a 31% Federal Back-up Withholding.

Failure to submit this form with your Bid/RFP response may result in your Bid/Proposal being rejected as unresponsive.

IRS FORM W-9 may be substituted for this form

Completion of this form (or W-9) will be required at Contract execution

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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**Sawyer Road Culvert Replacement Project
References**

Bidder shall supply at least 3 references (preferably Municipalities) for work similar to what is proposed with this project

Contact _____	Name:	Organization: _____
Contact Number: _____	Nature of Work Contracted: _____	
Contact email: _____		_____

Contact _____	Name:	Organization: _____
Contact Number: _____	Nature of Work Contracted: _____	
Contact email: _____		_____

Contact _____	Name:	Organization: _____
Contact Number: _____	Nature of Work Contracted: _____	
Contact email: _____		_____

Contact _____	Name:	Organization: _____
Contact Number: _____	Nature of Work Contracted: _____	
Contact email: _____		_____

Bidder may submit a separate sheet if desired

(Submit References with Bid)

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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TO BE RETURNED WITH BID

PROPOSAL: To the Town of Bolton, herein called the Owner, acting through its Department of Public works, for **Sawyer Road Culvert Replacement Project** as required by the Town of Bolton, for the Department of Public Works.

Bidder's attention is called to Chapter 268A of the Massachusetts General Laws. In connection with this statute, bidder is requested to submit the following information and any other information deemed necessary by the bidder. All of the following information regarding the Bidder must be completed.

Please indicate the Business Type by placing an "X" next to the appropriate category:

Corporation _____ Partnership _____ Proprietorship _____

If a Corporation

Full Legal Name _____

State of Incorporation _____

If a Partnership

Full Legal Name _____

If a Proprietorship

Name of Owner of d/b/a _____

Principal Place of Business _____

Place of Business in Massachusetts _____

Business Mailing Address _____

Telephone Number _____

Email Address _____

Qualified to do business in Massachusetts YES _____ NO _____

Give full names and titles of all the persons and parties interested in foregoing proposals. (Note, give first and last names in full; in cases of corporations, give names of President, Treasurer and Manager, and in case of partnerships give names of the individual partners.)

Name	Title
_____	_____
_____	_____
_____	_____

A foreign corporation is required to submit its certification of corporation from the Massachusetts State Secretary's Office, as required by Chapter 181 of the Massachusetts General Laws.

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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TO BE RETURNED WITH BID

Proposal - **Sawyer Road Culvert Replacement Project**. If this proposal shall be accepted by the Owner, and the undersigned shall fail to contract as aforesaid within ten (10) days (not including Sunday or Legal Holiday) from the Owner to him, according to the address given herewith, that the contract is ready for signature, The Owner may by option determine that the bidder has abandoned the contract and thereupon the proposal (if required) shall be come the property of the Owner as liquidated damages.

Pursuant to MGL CH 62C Sec. 49A, I/we certify under the penalties of perjury that to the best of my/our knowledge and belief, I/we have filed all state tax returns and paid all state taxes required under law.

The undersigned certifies under penalties of perjury that this bid is made in good faith and is in all respects bona fide, fair, and made without collusion or fraud with any other person. As used in this section the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity. The undersigned certifies that no official or employee of the Town of Bolton is pecuniary interested in this proposal or in the contract which the bidder offers to execute or in expected profits to arise there from.

The undersigned as bidder declares that the only parties interested in this proposal as principals are names herein; that the bidder has carefully examined the specifications therein referred to; and they propose and agree that if this proposal is accepted they will contract with the Owner in accordance with the specifications, to provide all necessary work to be done and also furnish all the materials specified in the manner and time prescribed and according to the requirements as set forth; and that they will take in full payment the following sum(s) to wit;

_____	_____
Social Security Number or	Type Name of Person Signing Bid
_____	_____
Date	Signature

	Title
_____	_____
Company Name	Street Address

	City, State, Zip

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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SAWYER ROAD CULVERT REPLACEMENT PROJECT

Bid Price:

Sawyer Road,	\$	_____	_____
Drainage Improvements		(IN WORDS)	(AMOUNT)

As Specified and Depicted on Contract Documents listed in 003100.

Signature of Authorized Agent

Company Name (Please Print or Type)

Printed Name & Title

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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TO BE RETURNED WITH BID

SAWYER ROAD CULVERT REPLACEMENT PROJECT

Certificate of Non-Collusion

The undersigned certifies that under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or any other organization, entity, or group of individuals.

Signature of Individual Submitting Bid or Proposal

Name of Business

Tax Compliance Certification

Pursuant to MGL c 62C Sec. 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Signature of Individual Submitting Bid or Proposal

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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SECTION 004300 - PROCUREMENT FORM SUPPLEMENTS

To: Town of Bolton Department of Public Works
Project Title: Sawyer Road Drainage Improvements Project (DPW #2024-001)
Date:
Submitted by:
(full name and address)

According to Document 00 21 15 - Instructions to Bidders - EJCDC and Document004143 - Bid Form – Stipulated Sum we include the Appendices to Bid Form Supplements listed below. The information provided shall be considered an integral part of the Bid Form.

The following Appendices are attached to this Document:

Appendix A - List of Subcontractors: Include names of all Subcontractors and portions of the Work each Subcontractor will perform.

Appendix B - List of Unit Prices: Include list of Unit Prices specifically requested by Contract Documents.

BID FORM SUPPLEMENT SIGNATURES

The Corporate Seal of

.....
(Bidder - print the full name of firm)
was hereunto affixed in the presence of

.....
(Authorized signing officer and title)
(Seal)

.....
(Authorized signing officer and title)
(Seal)

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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APPENDIX A - LIST OF SUBCONTRACTORS

The list of Subcontractors submitted below is an integral part of the Bid Form and is referenced in the Bid submitted by
(Bidder)
To (Owner) Town of Bolton DPW
Dated

The following work will be performed (or provided) by Subcontractors and coordinated by us:

WORK SUBJECT	NAME

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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APPENDIX B - LIST OF UNIT PRICES

The following list of Unit Prices is an integral part of the Bid Form and is referenced in the Bid submitted by (Bidder)

To (Owner) Town of Bolton DPW

Dated

The following Unit Prices are for specific portions of the Work as listed and are applicable to authorized variations from the Contract Documents:

ITEM DESCRIPTION	UNIT	UNIT VALUE
321123.001 – Subbase Aggregate	CY	
321123.002 – Base Aggregate	CY	
321216.001 – Binder Course	TON	
321213.002 – Wearing Course	TON	
321213.003 – Overlay Course	TON	
321213.004 – Excavation by Cold Planing	SY	

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
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OCTOBER 2023

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SECTION 005215 - AGREEMENT FORM – EJCDC STIPULATED SUM

1.1 SUMMARY

A. Document Includes:

1. Agreement.

B. Related Documents:

1. Document 00 72 15 - General Conditions - EJCDC (Single-Prime Contract).
2. Document 00 73 14 - Supplementary Conditions - EJCDC.

1.2 AGREEMENT

- A. Standard General Agreement Contract for Professional Services (EJCDC C-520) as follows.

END OF DOCUMENT



STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
 - C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
 - D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
 - E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
 - F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

Supplemental Conditions

Standard General Conditions of the Construction Contract (EJCDC C-700)

SC Article 6.02 Insurance

Bidders must submit copies of their current certificate(s) of insurance prior to execution of the Contract. Failure to do so may cause rejection of the Bid.

PRIOR TO AWARD OF THE CONTRACT, THE SUCCESSFUL BIDDER SHALL SUBMIT CERTIFICATE(S) OF INSURANCE EVIDENCING THE REQUIRED COVERAGES AND SPECIFICALLY PROVIDING THAT THE TOWN OF BOLTON IS AN ADDITIONAL NAMED INSURED OR ADDITIONAL INSURED WITH RESPECT TO THE REQUIRED COVERAGE AND THE OPERATIONS OF THE SUCCESSFUL BIDDER UNDER THE CONTRACT. Insurance Companies selected must be acceptable to the TOWN. All of the policies of insurance so required to be purchased and maintained shall contain a provision or endorsement that the coverage afforded shall not be canceled, materially changed or renewal refused until at least thirty (30) calendar days written notice has been given to the TOWN by certified mail.

The Successful Bidder shall procure and maintain at its own expense and keep in effect during the full term of the Contract a policy or policies of insurance which must include the following coverage and minimum limits of liability:

Worker's Compensation Insurance for statutory obligations imposed by Worker's Compensation or Occupational Disease Laws, including, where applicable, the United States Longshoremen's and Harbor Worker's Act, the Federal Employer's Liability Act and the Homes Act. Employer's Liability Insurance shall be provided with a minimum of One Hundred Thousand and xx/100 dollars (\$100,000.00) per accident. Successful Bidder shall agree to be responsible for the employment, conduct and control of its employees and for any injury sustained by such employees in the course of their employment.

Comprehensive Automobile Liability Insurance for all owned, non-owned and hired automobiles and other vehicles used by the Successful Bidder in the performance of the work with the following minimum limits of liability:

\$1,000,000 Combined Single Limit, Bodily Injury
and Property Damage Liability per occurrence

Comprehensive General Liability with the following minimum limits of liability:

\$1,000,000 Combined Single Limit, Bodily Injury
and Property Damage Liability per occurrence

Coverage shall specifically include the following with minimum limits not less than those required for Bodily Injury Liability and Property Damage:

Premises and Operations;

Independent Contractors;

Product and Completed Operations Liability;

Broad Form Property Damage;

Broad Form Contractual Coverage applicable to the Contract and specifically confirming the indemnification and hold harmless agreement in the Contract; and

Personal Injury coverage with employment contractual exclusions removed and deleted.

The required insurance coverage shall be issued by an insurance company authorized and licensed to do business in the Commonwealth of Massachusetts, with the following minimum qualifications of Financial Stability B+ to A+ in accordance with the latest edition of A.M. Best's Insurance Guide:

The Successful Bidder shall require each of its sub-contractors of any tier to maintain the insurance required herein (except as respects limits of coverage for employers and public liability insurance which may not be less than One Million Dollars, \$1,000,000 for each category), and the Successful Bidder shall provide verification thereof to the TOWN upon request of the TOWN.

All required insurance policies shall preclude any underwriter's rights of recovery or subrogation against the TOWN with the express intention of the parties being that the required insurance coverage protect both parties as the primary coverage for any and all losses covered by the above described insurance.

The Successful Bidder shall ensure that any company issuing insurance to cover the requirements contained in this Contract agrees that they shall have no recourse against the TOWN for payment or assessments in any form on any policy of insurance.

The clauses "other Insurance Provisions" and "Insurers Duties in the Event of an Occurrence, Claim or Suit" as it appears in any policy of insurance in which the TOWN is named as an additional named insured shall not apply to the TOWN. The TOWN shall provide written notice of occurrence within fifteen (15) working days of the TOWN's actual notice of such an event.

The Successful Bidder shall not commence work under the Contract until after he has obtained all of the minimum insurance herein described.

The Successful Bidder agrees to perform the work under the Contract as an independent contractor, and not as a sub-contractor, agent or employee of the TOWN.

Violation of the terms of this paragraph and its sub-parts shall constitute a breach of the Contract and the TOWN, at its sole discretion, may cancel the Contract and all rights, title and interest of the Successful Bidder shall thereupon cease and terminate.

The Town of Bolton, MA shall be named as an additional insured.

SECTION 007215 - GENERAL CONDITIONS - EJCDC STIPULATED SUM

1.1 SUMMARY

A. Document Includes:

1. General Conditions.

B. Related Documents:

1. Document 00 52 15 - Agreement Form - EJCDC
2. Document 00 73 14 - Supplementary Conditions - EJCDC.

1.2 GENERAL CONDITIONS

- A. EJCDC C-700 - Standard General Conditions of the Construction Contract is the General Conditions of the Contract (attached).

1.3 SUPPLEMENTARY CONDITIONS

- A. Refer to Document 00 73 14 - Supplementary Conditions - EJCDC for amendments and supplements to General Conditions.

END OF DOCUMENT

SECTION 007314 - SUPPLEMENTARY CONDITIONS - EJCDC

1.1 SUMMARY

- A. Document Includes:
 - 1. Supplementary Conditions.
- B. Related Documents:
 - 1. Document 00 41 43 - Bid Form – Unit Price
 - 2. Document 00 52 15 - Agreement Form - EJCDC
 - 3. Document 00 72 15 - General Conditions - EJCDC

1.2 SUPPLEMENTARY CONDITIONS

- A. These Supplementary Conditions amend or supplement EJCDC C-700 - Standard General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions not amended or supplemented remain in full force.
- B. The terms used in these Supplementary Conditions, which are defined in EJCDC C-700, have the meanings assigned to them in the General Conditions.

SC-1.01.A. Add the following Paragraph to Paragraph 1.01.A.:

1.01.A.32.	Products: New material, machinery, components, equipment, fixtures, and systems forming the Work, not including machinery and equipment used for preparation, fabrication, conveying, and erection of the Work. Products may also include existing materials or components required for reuse.
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SC-2.03.A. Delete Paragraph 2.03.A. in its entirety and insert the following in its place:

2.03.A.	Contract Times are identified in Document 00 21 15 - Instructions to Bidders - EJCDC
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SC-3.01.D. Add the following Paragraph immediately after Paragraph 3.01.C:

3.01.D.	Sections of Division 01 govern the execution of the Work of all Sections of the Specifications.
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SC-4.06 Delete Paragraphs 5.06.A. and insert the following:

4.06.A.	No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
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SC-13.03 Delete Paragraphs 13.03A – 13.03E an insert the following:

13.03.A.	There is no unit price work.
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END OF DOCUMENT

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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SECTION 007343 – WAGE RATE REQUIREMENTS

1.1 SUMMARY

A. Document Includes:

1. General Conditions.

B. Related Documents:

1. Document 00 52 73 - Agreement Form - EJCDC
2. Document 00 73 14 - Supplementary Conditions - EJCDC.
3. Department of Labor Standards Prevailing Wage Schedule.

1.2 GENERAL CONDITIONS

- A. Federal Wages pursuant to the Department of Labor Standards Prevailing Wage Schedule (attached) shall apply to this project.

END OF DOCUMENT

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: Town of Bolton DPW
Contract Number: **City/Town:** BOLTON
Description of Work: Replacement of existing 24-inch culvert under Sawyer Road with new 24-inch culvert, along with associated block headwall, pavement restoration, and beaver deterrence.
Job Location: 137 Sawyer Road

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- **The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor.** For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The annual update requirement is not applicable to 27F "rental of equipment" contracts. **The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.**
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$38.95	\$15.07	\$18.67	\$0.00	\$72.69
	06/01/2024	\$39.95	\$15.07	\$18.67	\$0.00	\$73.69
	12/01/2024	\$39.95	\$15.07	\$20.17	\$0.00	\$75.19
	01/01/2025	\$39.95	\$15.57	\$20.17	\$0.00	\$75.69
	06/01/2025	\$40.95	\$15.57	\$20.17	\$0.00	\$76.69
	12/01/2025	\$40.95	\$15.57	\$21.78	\$0.00	\$78.30
	01/01/2026	\$40.95	\$16.17	\$21.78	\$0.00	\$78.90
	06/01/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$79.90
	12/01/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$81.64
	01/01/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.02	\$15.07	\$18.67	\$0.00	\$72.76
	06/01/2024	\$40.02	\$15.07	\$18.67	\$0.00	\$73.76
	12/01/2024	\$40.02	\$15.07	\$20.17	\$0.00	\$75.26
	01/01/2025	\$40.02	\$15.57	\$20.17	\$0.00	\$75.76
	06/01/2025	\$41.02	\$15.57	\$20.17	\$0.00	\$76.76
	12/01/2025	\$41.02	\$15.57	\$21.78	\$0.00	\$78.37
	01/01/2026	\$41.02	\$16.17	\$21.78	\$0.00	\$78.97
	06/01/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$79.97
	12/01/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$81.71
	01/01/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.14	\$15.07	\$18.67	\$0.00	\$72.88
	06/01/2024	\$40.14	\$15.07	\$18.67	\$0.00	\$73.88
	12/01/2024	\$40.14	\$15.07	\$20.17	\$0.00	\$75.38
	01/01/2025	\$40.14	\$15.57	\$20.17	\$0.00	\$75.88
	06/01/2025	\$41.14	\$15.57	\$20.17	\$0.00	\$76.88
	12/01/2025	\$41.14	\$15.57	\$21.78	\$0.00	\$78.49
	01/01/2026	\$41.14	\$16.17	\$21.78	\$0.00	\$79.09
	06/01/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$80.09
	12/01/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$81.83
	01/01/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
	06/01/2024	\$39.94	\$9.65	\$17.14	\$0.00	\$66.73
	12/01/2024	\$41.27	\$9.65	\$17.14	\$0.00	\$68.06
	06/01/2025	\$42.66	\$9.65	\$17.14	\$0.00	\$69.45
	12/01/2025	\$44.04	\$9.65	\$17.14	\$0.00	\$70.83
	06/01/2026	\$45.48	\$9.65	\$17.14	\$0.00	\$72.27
	12/01/2026	\$46.92	\$9.65	\$17.14	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)</i>	12/01/2023	\$40.80	\$14.50	\$11.05	\$0.00	\$66.35
	06/01/2024	\$41.80	\$14.50	\$11.05	\$0.00	\$67.35
	12/01/2024	\$42.80	\$14.50	\$11.05	\$0.00	\$68.35
	06/01/2025	\$43.80	\$14.50	\$11.05	\$0.00	\$69.35
	12/01/2025	\$44.80	\$14.50	\$11.05	\$0.00	\$70.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
	06/01/2024	\$39.94	\$9.65	\$17.14	\$0.00	\$66.73
	12/01/2024	\$41.27	\$9.65	\$17.14	\$0.00	\$68.06
	06/01/2025	\$42.66	\$9.65	\$17.14	\$0.00	\$69.45
	12/01/2025	\$44.04	\$9.65	\$17.14	\$0.00	\$70.83
	06/01/2026	\$45.48	\$9.65	\$17.14	\$0.00	\$72.27
	12/01/2026	\$46.92	\$9.65	\$17.14	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2024	\$48.12	\$7.07	\$20.60	\$0.00	\$75.79

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
2	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
3	70	\$33.68	\$7.07	\$14.23	\$0.00	\$54.98
4	75	\$36.09	\$7.07	\$15.24	\$0.00	\$58.40
5	80	\$38.50	\$7.07	\$16.25	\$0.00	\$61.82
6	85	\$40.90	\$7.07	\$17.28	\$0.00	\$65.25
7	90	\$43.31	\$7.07	\$18.28	\$0.00	\$68.66
8	95	\$45.71	\$7.07	\$19.32	\$0.00	\$72.10

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2024	\$60.26	\$11.49	\$22.90	\$0.00	\$94.65
BRICKLAYERS LOCAL 3 (WORCESTER)	08/01/2024	\$62.36	\$11.49	\$22.90	\$0.00	\$96.75
	02/01/2025	\$63.66	\$11.49	\$22.90	\$0.00	\$98.05
	08/01/2025	\$65.81	\$11.49	\$22.90	\$0.00	\$100.20
	02/01/2026	\$67.16	\$11.49	\$22.90	\$0.00	\$101.55
	08/01/2026	\$69.36	\$11.49	\$22.90	\$0.00	\$103.75
	02/01/2027	\$70.76	\$11.49	\$22.90	\$0.00	\$105.15

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Worcester

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.13	\$11.49	\$22.90	\$0.00	\$64.52
2	60	\$36.16	\$11.49	\$22.90	\$0.00	\$70.55
3	70	\$42.18	\$11.49	\$22.90	\$0.00	\$76.57
4	80	\$48.21	\$11.49	\$22.90	\$0.00	\$82.60
5	90	\$54.23	\$11.49	\$22.90	\$0.00	\$88.62

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.18	\$11.49	\$22.90	\$0.00	\$65.57
2	60	\$37.42	\$11.49	\$22.90	\$0.00	\$71.81
3	70	\$43.65	\$11.49	\$22.90	\$0.00	\$78.04
4	80	\$49.89	\$11.49	\$22.90	\$0.00	\$84.28
5	90	\$56.12	\$11.49	\$22.90	\$0.00	\$90.51

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
<i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN	12/01/2023	\$45.48	\$9.65	\$18.22	\$0.00	\$73.35
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2024	\$46.96	\$9.65	\$18.22	\$0.00	\$74.83
	12/01/2024	\$48.43	\$9.65	\$18.22	\$0.00	\$76.30
	06/01/2025	\$49.93	\$9.65	\$18.22	\$0.00	\$77.80
	12/01/2025	\$51.43	\$9.65	\$18.22	\$0.00	\$79.30
	06/01/2026	\$52.98	\$9.65	\$18.22	\$0.00	\$80.85
	12/01/2026	\$54.48	\$9.65	\$18.22	\$0.00	\$82.35

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
<i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2024	\$47.12	\$9.83	\$19.97	\$0.00	\$76.92
	09/01/2024	\$48.37	\$9.83	\$19.97	\$0.00	\$78.17
	03/01/2025	\$49.62	\$9.83	\$19.97	\$0.00	\$79.42
	09/01/2025	\$50.87	\$9.83	\$19.97	\$0.00	\$80.67
	03/01/2026	\$52.12	\$9.83	\$19.97	\$0.00	\$81.92
	09/01/2026	\$53.37	\$9.83	\$19.97	\$0.00	\$83.17
	03/01/2027	\$54.62	\$9.83	\$19.97	\$0.00	\$84.42

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 03/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$21.20	\$9.83	\$1.73	\$0.00	\$32.76
2	45	\$21.20	\$9.83	\$1.73	\$0.00	\$32.76
3	55	\$25.92	\$9.83	\$3.40	\$0.00	\$39.15
4	55	\$25.92	\$9.83	\$3.40	\$0.00	\$39.15
5	70	\$32.98	\$9.83	\$16.51	\$0.00	\$59.32
6	70	\$32.98	\$9.83	\$16.51	\$0.00	\$59.32
7	80	\$37.70	\$9.83	\$18.24	\$0.00	\$65.77
8	80	\$37.70	\$9.83	\$18.24	\$0.00	\$65.77

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$21.77	\$9.83	\$1.73	\$0.00	\$33.33
2	45	\$21.77	\$9.83	\$1.73	\$0.00	\$33.33
3	55	\$26.60	\$9.83	\$3.40	\$0.00	\$39.83
4	55	\$26.60	\$9.83	\$3.40	\$0.00	\$39.83
5	70	\$33.86	\$9.83	\$16.51	\$0.00	\$60.20
6	70	\$33.86	\$9.83	\$16.51	\$0.00	\$60.20
7	80	\$38.70	\$9.83	\$18.24	\$0.00	\$66.77
8	80	\$38.70	\$9.83	\$18.24	\$0.00	\$66.77

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER WOOD FRAME <i>CARPENTERS-ZONE 3 (Wood Frame)</i>	10/01/2023	\$25.55	\$7.02	\$4.80	\$0.00	\$37.37
	10/01/2024	\$26.65	\$7.02	\$4.80	\$0.00	\$38.47
	10/01/2025	\$27.75	\$7.02	\$4.80	\$0.00	\$39.57
	10/01/2026	\$28.85	\$7.02	\$4.80	\$0.00	\$40.67

All Aspects of New Wood Frame Work

Apprentice - CARPENTER (Wood Frame) - Zone 3

Effective Date - 10/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.33	\$7.02	\$0.00	\$0.00	\$22.35
2	60	\$15.33	\$7.02	\$0.00	\$0.00	\$22.35
3	65	\$16.61	\$7.02	\$1.00	\$0.00	\$24.63
4	70	\$17.89	\$7.02	\$1.00	\$0.00	\$25.91
5	75	\$19.16	\$7.02	\$4.80	\$0.00	\$30.98
6	80	\$20.44	\$7.02	\$4.80	\$0.00	\$32.26
7	85	\$21.72	\$7.02	\$4.80	\$0.00	\$33.54
8	90	\$23.00	\$7.02	\$4.80	\$0.00	\$34.82

Effective Date - 10/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.99	\$7.02	\$0.00	\$0.00	\$23.01
2	60	\$15.99	\$7.02	\$0.00	\$0.00	\$23.01
3	65	\$17.32	\$7.02	\$1.00	\$0.00	\$25.34
4	70	\$18.66	\$7.02	\$1.00	\$0.00	\$26.68
5	75	\$19.99	\$7.02	\$4.80	\$0.00	\$31.81
6	80	\$21.32	\$7.02	\$4.80	\$0.00	\$33.14
7	85	\$22.65	\$7.02	\$4.80	\$0.00	\$34.47
8	90	\$23.99	\$7.02	\$4.80	\$0.00	\$35.81

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$18.52/ 3&4 \$21.07/ 5&6 \$28.70/ 7&8 \$31.26

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING <i>BRICKLAYERS LOCAL 3 (WORCESTER)</i>	01/01/2024	\$49.33	\$13.00	\$23.57	\$1.30	\$87.20
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CEMENT MASONRY/PLASTERING - Worcester

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.67	\$13.00	\$15.93	\$0.00	\$53.60
2	60	\$29.60	\$13.00	\$18.57	\$1.30	\$62.47
3	65	\$32.06	\$13.00	\$19.57	\$1.30	\$65.93
4	70	\$34.53	\$13.00	\$20.57	\$1.30	\$69.40
5	75	\$37.00	\$13.00	\$21.57	\$1.30	\$72.87
6	80	\$39.46	\$13.00	\$22.57	\$1.30	\$76.33
7	90	\$44.40	\$13.00	\$23.57	\$1.30	\$82.27

Notes:
Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$56.13	\$15.00	\$16.40	\$0.00	\$87.53
	06/01/2024	\$57.45	\$15.00	\$16.40	\$0.00	\$88.85
	12/01/2024	\$58.93	\$15.00	\$16.40	\$0.00	\$90.33
	06/01/2025	\$60.26	\$15.00	\$16.40	\$0.00	\$91.66
	12/01/2025	\$61.73	\$15.00	\$16.40	\$0.00	\$93.13
	06/01/2026	\$63.06	\$15.00	\$16.40	\$0.00	\$94.46
	12/01/2026	\$64.54	\$15.00	\$16.40	\$0.00	\$95.94

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
	06/01/2024	\$36.47	\$15.00	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.42	\$15.00	\$16.40	\$0.00	\$68.82
	06/01/2025	\$38.27	\$15.00	\$16.40	\$0.00	\$69.67
	12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
	06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
	12/01/2026	\$41.03	\$15.00	\$16.40	\$0.00	\$72.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.63	\$9.95	\$0.00	\$0.00	\$38.58
2	55	\$31.49	\$9.95	\$6.66	\$0.00	\$48.10
3	60	\$34.36	\$9.95	\$7.26	\$0.00	\$51.57
4	65	\$37.22	\$9.95	\$7.87	\$0.00	\$55.04
5	70	\$40.08	\$9.95	\$20.32	\$0.00	\$70.35
6	75	\$42.95	\$9.95	\$20.93	\$0.00	\$73.83
7	80	\$45.81	\$9.95	\$21.53	\$0.00	\$77.29
8	90	\$51.53	\$9.95	\$22.74	\$0.00	\$84.22

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN 12/01/2023 \$44.48 \$9.65 \$18.07 \$0.00 \$72.20
LABORERS - ZONE 2

For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR 12/01/2023 \$45.48 \$9.65 \$18.07 \$0.00 \$73.20
LABORERS - ZONE 2

For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS 12/01/2023 \$45.23 \$9.65 \$18.07 \$0.00 \$72.95
LABORERS - ZONE 2

For apprentice rates see "Apprentice- LABORER"

DEMO: CONCRETE CUTTER/SAWYER 12/01/2023 \$45.48 \$9.65 \$18.07 \$0.00 \$73.20
LABORERS - ZONE 2

For apprentice rates see "Apprentice- LABORER"

DEMO: JACKHAMMER OPERATOR 12/01/2023 \$45.23 \$9.65 \$18.07 \$0.00 \$72.95
LABORERS - ZONE 2

For apprentice rates see "Apprentice- LABORER"

DEMO: WRECKING LABORER 12/01/2023 \$44.48 \$9.65 \$18.07 \$0.00 \$72.20
LABORERS - ZONE 2

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 96</i>	09/03/2023	\$45.99	\$13.00	\$18.84	\$0.00	\$77.83
	09/01/2024	\$47.05	\$13.99	\$19.22	\$0.00	\$80.26
	09/07/2025	\$48.16	\$14.98	\$19.60	\$0.00	\$82.74
	09/06/2026	\$49.38	\$15.96	\$20.00	\$0.00	\$85.34

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 96

Effective Date - 09/03/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.40	\$13.00	\$0.55	\$0.00	\$31.95
2	45	\$20.70	\$13.00	\$0.62	\$0.00	\$34.32
3	48	\$22.08	\$13.00	\$15.49	\$0.00	\$50.57
4	55	\$25.29	\$13.00	\$15.94	\$0.00	\$54.23
5	65	\$29.89	\$13.00	\$16.59	\$0.00	\$59.48
6	80	\$36.79	\$13.00	\$17.55	\$0.00	\$67.34

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.82	\$13.99	\$0.56	\$0.00	\$33.37
2	45	\$21.17	\$13.99	\$0.64	\$0.00	\$35.80
3	48	\$22.58	\$13.99	\$15.79	\$0.00	\$52.36
4	55	\$25.88	\$13.99	\$16.26	\$0.00	\$56.13
5	65	\$30.58	\$13.99	\$16.91	\$0.00	\$61.48
6	80	\$37.64	\$13.99	\$17.90	\$0.00	\$69.53

Notes:

Steps 1-2 are 1000 hrs; Steps 3-6 are 1500 hrs.

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2024	\$61.98	\$16.18	\$20.96	\$0.00	\$99.12
ELEVATOR CONSTRUCTORS LOCAL 41	01/01/2025	\$62.83	\$16.28	\$21.36	\$0.00	\$100.47
	01/01/2026	\$63.68	\$16.38	\$21.76	\$0.00	\$101.82
	01/01/2027	\$64.53	\$16.48	\$22.16	\$0.00	\$103.17

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELEVATOR CONSTRUCTOR - Local 41

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.99	\$16.18	\$0.00	\$0.00	\$47.17
2	55	\$34.09	\$16.18	\$20.96	\$0.00	\$71.23
3	65	\$40.29	\$16.18	\$20.96	\$0.00	\$77.43
4	70	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
5	80	\$49.58	\$16.18	\$20.96	\$0.00	\$86.72

Effective Date - 01/01/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.42	\$16.28	\$0.00	\$0.00	\$47.70
2	55	\$34.56	\$16.28	\$21.36	\$0.00	\$72.20
3	65	\$40.84	\$16.28	\$21.36	\$0.00	\$78.48
4	70	\$43.98	\$16.28	\$21.36	\$0.00	\$81.62
5	80	\$50.26	\$16.28	\$21.36	\$0.00	\$87.90

Notes:

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER	01/01/2024	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
<i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2025	\$43.98	\$16.28	\$21.36	\$0.00	\$81.62
	01/01/2026	\$44.58	\$16.38	\$21.76	\$0.00	\$82.72
	01/01/2027	\$45.17	\$16.48	\$22.16	\$0.00	\$83.81

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
<i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	11/01/2023	\$50.30	\$14.50	\$16.15	\$0.00	\$80.95
<i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2024	\$51.54	\$14.50	\$16.15	\$0.00	\$82.19
	11/01/2024	\$52.83	\$14.50	\$16.15	\$0.00	\$83.48
	05/01/2025	\$54.27	\$14.50	\$16.15	\$0.00	\$84.92
	11/01/2025	\$55.56	\$14.50	\$16.15	\$0.00	\$86.21
	05/01/2026	\$57.00	\$14.50	\$16.15	\$0.00	\$87.65
	11/01/2026	\$58.29	\$14.50	\$16.15	\$0.00	\$88.94
	05/01/2027	\$59.72	\$14.50	\$16.15	\$0.00	\$90.37

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2023	\$51.87	\$14.50	\$16.15	\$0.00	\$82.52
	05/01/2024	\$53.12	\$14.50	\$16.15	\$0.00	\$83.77
	11/01/2024	\$54.42	\$14.50	\$16.15	\$0.00	\$85.07
	05/01/2025	\$55.87	\$14.50	\$16.15	\$0.00	\$86.52
	11/01/2025	\$57.17	\$14.50	\$16.15	\$0.00	\$87.82
	05/01/2026	\$58.62	\$14.50	\$16.15	\$0.00	\$89.27
	11/01/2026	\$59.92	\$14.50	\$16.15	\$0.00	\$90.57
	05/01/2027	\$61.37	\$14.50	\$16.15	\$0.00	\$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2023	\$24.93	\$14.50	\$16.15	\$0.00	\$55.58
	05/01/2024	\$25.66	\$14.50	\$16.15	\$0.00	\$56.31
	11/01/2024	\$26.42	\$14.50	\$16.15	\$0.00	\$57.07
	05/01/2025	\$27.27	\$14.50	\$16.15	\$0.00	\$57.92
	11/01/2025	\$28.03	\$14.50	\$16.15	\$0.00	\$58.68
	05/01/2026	\$28.88	\$14.50	\$16.15	\$0.00	\$59.53
	11/01/2026	\$29.64	\$14.50	\$16.15	\$0.00	\$60.29
	05/01/2027	\$30.49	\$14.50	\$16.15	\$0.00	\$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 96</i>	09/03/2023	\$45.99	\$13.00	\$18.84	\$0.00	\$77.83
	09/01/2024	\$47.05	\$13.99	\$19.22	\$0.00	\$80.26
	09/07/2025	\$48.16	\$14.98	\$19.60	\$0.00	\$82.74
	09/06/2026	\$49.38	\$15.96	\$20.00	\$0.00	\$85.34
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINT/COMMISSIONING <i>ELECTRICIANS LOCAL 96</i>	09/03/2023	\$45.99	\$13.00	\$18.84	\$0.00	\$77.83
	09/01/2024	\$47.05	\$13.99	\$19.22	\$0.00	\$80.26
	09/07/2025	\$48.16	\$14.98	\$19.60	\$0.00	\$82.74
	09/06/2026	\$49.38	\$15.96	\$20.00	\$0.00	\$85.34
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$44.47	\$15.00	\$16.40	\$0.00	\$75.87
	06/01/2024	\$45.53	\$15.00	\$16.40	\$0.00	\$76.93
	12/01/2024	\$46.71	\$15.00	\$16.40	\$0.00	\$78.11
	06/01/2025	\$47.77	\$15.00	\$16.40	\$0.00	\$79.17
	12/01/2025	\$48.94	\$15.00	\$16.40	\$0.00	\$80.34
	06/01/2026	\$50.00	\$15.00	\$16.40	\$0.00	\$81.40
	12/01/2026	\$51.18	\$15.00	\$16.40	\$0.00	\$82.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$25.48	\$9.65	\$17.14	\$0.00	\$52.27
	06/01/2024	\$26.51	\$9.65	\$17.14	\$0.00	\$53.30
	12/01/2024	\$26.51	\$9.65	\$17.14	\$0.00	\$53.30
	06/01/2025	\$27.59	\$9.65	\$17.14	\$0.00	\$54.38
	12/01/2025	\$27.59	\$9.65	\$17.14	\$0.00	\$54.38
	06/01/2026	\$28.71	\$9.65	\$17.14	\$0.00	\$55.50
	12/01/2026	\$28.71	\$9.65	\$17.14	\$0.00	\$55.50
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE II</i>	03/01/2024	\$49.47	\$8.83	\$20.27	\$0.00	\$78.57

Apprentice - FLOORCOVERER - Local 2168 Zone II

Effective Date - 03/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.74	\$8.83	\$1.76	\$0.00	\$35.33
2	55	\$27.21	\$8.83	\$1.76	\$0.00	\$37.80
3	60	\$29.68	\$8.83	\$3.52	\$0.00	\$42.03
4	65	\$32.16	\$8.83	\$3.52	\$0.00	\$44.51
5	70	\$34.63	\$8.83	\$16.75	\$0.00	\$60.21
6	75	\$37.10	\$8.83	\$16.75	\$0.00	\$62.68
7	80	\$39.58	\$8.83	\$18.51	\$0.00	\$66.92
8	85	\$42.05	\$8.83	\$18.51	\$0.00	\$69.39

Notes: Steps are 750 hrs.
 % After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$32.63/ 3&4 \$39.28/ 5&6 \$59.86/ 7&8 \$66.52

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
	06/01/2024	\$36.47	\$15.00	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.42	\$15.00	\$16.40	\$0.00	\$68.82
	06/01/2025	\$38.27	\$15.00	\$16.40	\$0.00	\$69.67
	12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
	06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
	12/01/2026	\$41.03	\$15.00	\$16.40	\$0.00	\$72.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	01/01/2024	\$45.56	\$9.95	\$23.95	\$0.00	\$79.46
	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.78	\$9.95	\$0.00	\$0.00	\$32.73
2	55	\$25.06	\$9.95	\$6.66	\$0.00	\$41.67
3	60	\$27.34	\$9.95	\$7.26	\$0.00	\$44.55
4	65	\$29.61	\$9.95	\$7.87	\$0.00	\$47.43
5	70	\$31.89	\$9.95	\$20.32	\$0.00	\$62.16
6	75	\$34.17	\$9.95	\$20.93	\$0.00	\$65.05
7	80	\$36.45	\$9.95	\$21.53	\$0.00	\$67.93
8	90	\$41.00	\$9.95	\$22.74	\$0.00	\$73.69

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
OPERATING ENGINEERS LOCAL 4	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 12/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$30.27	\$15.00	\$0.00	\$0.00	\$45.27
2	60	\$33.02	\$15.00	\$16.40	\$0.00	\$64.42
3	65	\$35.77	\$15.00	\$16.40	\$0.00	\$67.17
4	70	\$38.52	\$15.00	\$16.40	\$0.00	\$69.92
5	75	\$41.27	\$15.00	\$16.40	\$0.00	\$72.67
6	80	\$44.02	\$15.00	\$16.40	\$0.00	\$75.42
7	85	\$46.78	\$15.00	\$16.40	\$0.00	\$78.18
8	90	\$49.53	\$15.00	\$16.40	\$0.00	\$80.93

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$30.98	\$15.00	\$0.00	\$0.00	\$45.98
2	60	\$33.80	\$15.00	\$16.40	\$0.00	\$65.20
3	65	\$36.61	\$15.00	\$16.40	\$0.00	\$68.01
4	70	\$39.43	\$15.00	\$16.40	\$0.00	\$70.83
5	75	\$42.25	\$15.00	\$16.40	\$0.00	\$73.65
6	80	\$45.06	\$15.00	\$16.40	\$0.00	\$76.46
7	85	\$47.88	\$15.00	\$16.40	\$0.00	\$79.28
8	90	\$50.70	\$15.00	\$16.40	\$0.00	\$82.10

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 63	01/01/2024	\$40.22	\$11.96	\$18.74	\$2.13	\$73.05
	07/01/2024	\$41.47	\$11.96	\$18.74	\$2.13	\$74.30
	01/01/2025	\$42.72	\$11.96	\$18.74	\$2.13	\$75.55

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 96	09/03/2023	\$45.99	\$13.00	\$18.84	\$0.00	\$77.83
	09/01/2024	\$47.05	\$13.99	\$19.22	\$0.00	\$80.26
	09/07/2025	\$48.16	\$14.98	\$19.60	\$0.00	\$82.74
	09/06/2026	\$49.38	\$15.96	\$20.00	\$0.00	\$85.34

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 63	01/01/2024	\$40.22	\$11.96	\$18.74	\$2.13	\$73.05
	07/01/2024	\$41.47	\$11.96	\$18.74	\$2.13	\$74.30
	01/01/2025	\$42.72	\$11.96	\$18.74	\$2.13	\$75.55

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING -WATER) PLUMBERS LOCAL 4	03/01/2024	\$53.95	\$9.90	\$17.42	\$0.00	\$81.27
	09/01/2024	\$55.35	\$9.90	\$17.42	\$0.00	\$82.67
	03/01/2025	\$56.75	\$9.90	\$17.42	\$0.00	\$84.07
	09/01/2025	\$58.15	\$9.90	\$17.42	\$0.00	\$85.47
	03/01/2026	\$59.55	\$9.90	\$17.42	\$0.00	\$86.87

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PLUMBERS LOCAL 4</i>	03/01/2024	\$53.95	\$9.90	\$17.42	\$0.00	\$81.27
	09/01/2024	\$55.35	\$9.90	\$17.42	\$0.00	\$82.67
	03/01/2025	\$56.75	\$9.90	\$17.42	\$0.00	\$84.07
	09/01/2025	\$58.15	\$9.90	\$17.42	\$0.00	\$85.47
	03/01/2026	\$59.55	\$9.90	\$17.42	\$0.00	\$86.87
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
	06/01/2024	\$39.94	\$9.65	\$17.14	\$0.00	\$66.73
	12/01/2024	\$41.27	\$9.65	\$17.14	\$0.00	\$68.06
	06/01/2025	\$42.66	\$9.65	\$17.14	\$0.00	\$69.45
	12/01/2025	\$44.04	\$9.65	\$17.14	\$0.00	\$70.83
	06/01/2026	\$45.48	\$9.65	\$17.14	\$0.00	\$72.27
	12/01/2026	\$46.92	\$9.65	\$17.14	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)</i>	09/01/2023	\$48.15	\$14.75	\$19.61	\$0.00	\$82.51
	09/01/2024	\$51.23	\$14.75	\$19.61	\$0.00	\$85.59
	09/01/2025	\$54.31	\$14.75	\$19.61	\$0.00	\$88.67
	09/01/2026	\$57.38	\$14.75	\$19.61	\$0.00	\$91.74

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Worcester

Effective Date - 09/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.08	\$14.75	\$14.32	\$0.00	\$53.15
2	60	\$28.89	\$14.75	\$15.37	\$0.00	\$59.01
3	70	\$33.71	\$14.75	\$16.43	\$0.00	\$64.89
4	80	\$38.52	\$14.75	\$17.49	\$0.00	\$70.76

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.62	\$14.75	\$14.32	\$0.00	\$54.69
2	60	\$30.74	\$14.75	\$15.37	\$0.00	\$60.86
3	70	\$35.86	\$14.75	\$16.43	\$0.00	\$67.04
4	80	\$40.98	\$14.75	\$17.49	\$0.00	\$73.22

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (WORCESTER AREA)</i>	03/16/2024	\$53.67	\$8.35	\$26.70	\$0.00	\$88.72
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Worcester

Effective Date - 03/16/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$32.20	\$8.35	\$26.70	\$0.00	\$67.25
2	70	\$37.57	\$8.35	\$26.70	\$0.00	\$72.62
3	75	\$40.25	\$8.35	\$26.70	\$0.00	\$75.30
4	80	\$42.94	\$8.35	\$26.70	\$0.00	\$77.99
5	85	\$45.62	\$8.35	\$26.70	\$0.00	\$80.67
6	90	\$48.30	\$8.35	\$26.70	\$0.00	\$83.35

Notes:

Apprentice to Journeyworker Ratio:1:4

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 2	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
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Apprentice - LABORER - Zone 2

Effective Date - 12/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.72	\$9.65	\$16.89	\$0.00	\$49.26
2	70	\$26.50	\$9.65	\$16.89	\$0.00	\$53.04
3	80	\$30.29	\$9.65	\$16.89	\$0.00	\$56.83
4	90	\$34.07	\$9.65	\$16.89	\$0.00	\$60.61

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
	06/01/2024	\$39.19	\$9.65	\$17.14	\$0.00	\$65.98
	12/01/2024	\$40.52	\$9.65	\$17.14	\$0.00	\$67.31
	06/01/2025	\$41.91	\$9.65	\$17.14	\$0.00	\$68.70
	12/01/2025	\$43.29	\$9.65	\$17.14	\$0.00	\$70.08
	06/01/2026	\$44.73	\$9.65	\$17.14	\$0.00	\$71.52
	12/01/2026	\$46.17	\$9.65	\$17.14	\$0.00	\$72.96

Apprentice - LABORER (Heavy & Highway) - Zone 2

Effective Date - 12/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.72	\$9.65	\$17.14	\$0.00	\$49.51
2	70	\$26.50	\$9.65	\$17.14	\$0.00	\$53.29
3	80	\$30.29	\$9.65	\$17.14	\$0.00	\$57.08
4	90	\$34.07	\$9.65	\$17.14	\$0.00	\$60.86

Effective Date - 06/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.51	\$9.00	\$16.89	\$0.00	\$49.40
2	70	\$27.43	\$9.00	\$16.89	\$0.00	\$53.32
3	80	\$31.35	\$9.00	\$16.89	\$0.00	\$57.24
4	90	\$35.27	\$9.00	\$16.89	\$0.00	\$61.16

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER <i>LABORERS - ZONE 2</i>	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 2</i>	12/01/2023	\$37.95	\$9.65	\$17.20	\$0.00	\$64.80
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LABORER: LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
MARBLE & TILE FINISHERS BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2024	\$47.89	\$11.49	\$21.37	\$0.00	\$80.75
	08/01/2024	\$49.57	\$11.49	\$21.37	\$0.00	\$82.43
	02/01/2025	\$50.61	\$11.49	\$21.37	\$0.00	\$83.47
	08/01/2025	\$52.33	\$11.49	\$21.37	\$0.00	\$85.19
	02/01/2026	\$53.41	\$11.49	\$21.37	\$0.00	\$86.27
	08/01/2026	\$55.17	\$11.49	\$21.37	\$0.00	\$88.03
	02/01/2027	\$56.29	\$11.49	\$21.37	\$0.00	\$89.15

Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.95	\$11.49	\$21.37	\$0.00	\$56.81
2	60	\$28.73	\$11.49	\$21.37	\$0.00	\$61.59
3	70	\$33.52	\$11.49	\$21.37	\$0.00	\$66.38
4	80	\$38.31	\$11.49	\$21.37	\$0.00	\$71.17
5	90	\$43.10	\$11.49	\$21.37	\$0.00	\$75.96

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.79	\$11.49	\$21.37	\$0.00	\$57.65
2	60	\$29.74	\$11.49	\$21.37	\$0.00	\$62.60
3	70	\$34.70	\$11.49	\$21.37	\$0.00	\$67.56
4	80	\$39.66	\$11.49	\$21.37	\$0.00	\$72.52
5	90	\$44.61	\$11.49	\$21.37	\$0.00	\$77.47

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2024	\$62.42	\$11.49	\$23.56	\$0.00	\$97.47
	08/01/2024	\$64.52	\$11.49	\$23.56	\$0.00	\$99.57
	02/01/2025	\$65.82	\$11.49	\$23.56	\$0.00	\$100.87
	08/01/2025	\$67.97	\$11.49	\$23.56	\$0.00	\$103.02
	02/01/2026	\$69.32	\$11.49	\$23.56	\$0.00	\$104.37
	08/01/2026	\$71.52	\$11.49	\$23.56	\$0.00	\$106.57
	02/01/2027	\$72.92	\$11.49	\$23.56	\$0.00	\$107.97

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.21	\$11.49	\$23.56	\$0.00	\$66.26
2	60	\$37.45	\$11.49	\$23.56	\$0.00	\$72.50
3	70	\$43.69	\$11.49	\$23.56	\$0.00	\$78.74
4	80	\$49.94	\$11.49	\$23.56	\$0.00	\$84.99
5	90	\$56.18	\$11.49	\$23.56	\$0.00	\$91.23

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.26	\$11.49	\$23.56	\$0.00	\$67.31
2	60	\$38.71	\$11.49	\$23.56	\$0.00	\$73.76
3	70	\$45.16	\$11.49	\$23.56	\$0.00	\$80.21
4	80	\$51.62	\$11.49	\$23.56	\$0.00	\$86.67
5	90	\$58.07	\$11.49	\$23.56	\$0.00	\$93.12

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	01/01/2024	\$42.76	\$10.08	\$21.47	\$0.00	\$74.31
	01/06/2025	\$45.09	\$10.08	\$21.47	\$0.00	\$76.64
	01/05/2026	\$47.42	\$10.08	\$21.47	\$0.00	\$78.97

Apprentice - MILLWRIGHT - Local 1121 Zone 2

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.52	\$10.08	\$5.50	\$0.00	\$39.10
2	65	\$27.79	\$10.08	\$6.50	\$0.00	\$44.37
3	75	\$32.07	\$10.08	\$18.97	\$0.00	\$61.12
4	85	\$36.35	\$10.08	\$19.97	\$0.00	\$66.40

Effective Date - 01/06/2025

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$24.80	\$10.08	\$5.50	\$0.00	\$40.38
2	65	\$29.31	\$10.08	\$6.50	\$0.00	\$45.89
3	75	\$33.82	\$10.08	\$18.97	\$0.00	\$62.87
4	85	\$38.33	\$10.08	\$19.97	\$0.00	\$68.38

Notes: Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66)
Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:4

MORTAR MIXER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$24.41	\$15.00	\$16.40	\$0.00	\$55.81
	06/01/2024	\$25.01	\$15.00	\$16.40	\$0.00	\$56.41
	12/01/2024	\$25.67	\$15.00	\$16.40	\$0.00	\$57.07
	06/01/2025	\$26.27	\$15.00	\$16.40	\$0.00	\$57.67
	12/01/2025	\$26.93	\$15.00	\$16.40	\$0.00	\$58.33
	06/01/2026	\$27.52	\$15.00	\$16.40	\$0.00	\$58.92
	12/01/2026	\$28.19	\$15.00	\$16.40	\$0.00	\$59.59

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$29.86	\$15.00	\$16.40	\$0.00	\$61.26
	06/01/2024	\$30.58	\$15.00	\$16.40	\$0.00	\$61.98
	12/01/2024	\$31.38	\$15.00	\$16.40	\$0.00	\$62.78
	06/01/2025	\$32.10	\$15.00	\$16.40	\$0.00	\$63.50
	12/01/2025	\$32.90	\$15.00	\$16.40	\$0.00	\$64.30
	06/01/2026	\$33.62	\$15.00	\$16.40	\$0.00	\$65.02
	12/01/2026	\$34.42	\$15.00	\$16.40	\$0.00	\$65.82

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.63	\$9.95	\$0.00	\$0.00	\$38.58
2	55	\$31.49	\$9.95	\$6.66	\$0.00	\$48.10
3	60	\$34.36	\$9.95	\$7.26	\$0.00	\$51.57
4	65	\$37.22	\$9.95	\$7.87	\$0.00	\$55.04
5	70	\$40.08	\$9.95	\$20.32	\$0.00	\$70.35
6	75	\$42.95	\$9.95	\$20.93	\$0.00	\$73.83
7	80	\$45.81	\$9.95	\$21.53	\$0.00	\$77.29
8	90	\$51.53	\$9.95	\$22.74	\$0.00	\$84.22

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2024	\$46.96	\$9.95	\$23.95	\$0.00	\$80.86
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2024	\$48.16	\$9.95	\$23.95	\$0.00	\$82.06
	01/01/2025	\$49.36	\$9.95	\$23.95	\$0.00	\$83.26

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.48	\$9.95	\$0.00	\$0.00	\$33.43
2	55	\$25.83	\$9.95	\$6.66	\$0.00	\$42.44
3	60	\$28.18	\$9.95	\$7.26	\$0.00	\$45.39
4	65	\$30.52	\$9.95	\$7.87	\$0.00	\$48.34
5	70	\$32.87	\$9.95	\$20.32	\$0.00	\$63.14
6	75	\$35.22	\$9.95	\$20.93	\$0.00	\$66.10
7	80	\$37.57	\$9.95	\$21.53	\$0.00	\$69.05
8	90	\$42.26	\$9.95	\$22.74	\$0.00	\$74.95

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.08	\$9.95	\$0.00	\$0.00	\$34.03
2	55	\$26.49	\$9.95	\$6.66	\$0.00	\$43.10
3	60	\$28.90	\$9.95	\$7.26	\$0.00	\$46.11
4	65	\$31.30	\$9.95	\$7.87	\$0.00	\$49.12
5	70	\$33.71	\$9.95	\$20.32	\$0.00	\$63.98
6	75	\$36.12	\$9.95	\$20.93	\$0.00	\$67.00
7	80	\$38.53	\$9.95	\$21.53	\$0.00	\$70.01
8	90	\$43.34	\$9.95	\$22.74	\$0.00	\$76.03

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2024	\$45.02	\$9.95	\$23.95	\$0.00	\$78.92
PAINTERS LOCAL 35 - ZONE 2	07/01/2024	\$46.22	\$9.95	\$23.95	\$0.00	\$80.12
	01/01/2025	\$47.42	\$9.95	\$23.95	\$0.00	\$81.32

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.51	\$9.95	\$0.00	\$0.00	\$32.46
2	55	\$24.76	\$9.95	\$6.66	\$0.00	\$41.37
3	60	\$27.01	\$9.95	\$7.26	\$0.00	\$44.22
4	65	\$29.26	\$9.95	\$7.87	\$0.00	\$47.08
5	70	\$31.51	\$9.95	\$20.32	\$0.00	\$61.78
6	75	\$33.77	\$9.95	\$20.93	\$0.00	\$64.65
7	80	\$36.02	\$9.95	\$21.53	\$0.00	\$67.50
8	90	\$40.52	\$9.95	\$22.74	\$0.00	\$73.21

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.11	\$9.95	\$0.00	\$0.00	\$33.06
2	55	\$25.42	\$9.95	\$6.66	\$0.00	\$42.03
3	60	\$27.73	\$9.95	\$7.26	\$0.00	\$44.94
4	65	\$30.04	\$9.95	\$7.87	\$0.00	\$47.86
5	70	\$32.35	\$9.95	\$20.32	\$0.00	\$62.62
6	75	\$34.67	\$9.95	\$20.93	\$0.00	\$65.55
7	80	\$36.98	\$9.95	\$21.53	\$0.00	\$68.46
8	90	\$41.60	\$9.95	\$22.74	\$0.00	\$74.29

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	01/01/2024	\$45.56	\$9.95	\$23.95	\$0.00	\$79.46
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.78	\$9.95	\$0.00	\$0.00	\$32.73
2	55	\$25.06	\$9.95	\$6.66	\$0.00	\$41.67
3	60	\$27.34	\$9.95	\$7.26	\$0.00	\$44.55
4	65	\$29.61	\$9.95	\$7.87	\$0.00	\$47.43
5	70	\$31.89	\$9.95	\$20.32	\$0.00	\$62.16
6	75	\$34.17	\$9.95	\$20.93	\$0.00	\$65.05
7	80	\$36.45	\$9.95	\$21.53	\$0.00	\$67.93
8	90	\$41.00	\$9.95	\$22.74	\$0.00	\$73.69

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2024	\$43.62	\$9.95	\$23.95	\$0.00	\$77.52
PAINTERS LOCAL 35 - ZONE 2	07/01/2024	\$44.82	\$9.95	\$23.95	\$0.00	\$78.72
	01/01/2025	\$46.02	\$9.95	\$23.95	\$0.00	\$79.92

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.81	\$9.95	\$0.00	\$0.00	\$31.76
2	55	\$23.99	\$9.95	\$6.66	\$0.00	\$40.60
3	60	\$26.17	\$9.95	\$7.26	\$0.00	\$43.38
4	65	\$28.35	\$9.95	\$7.87	\$0.00	\$46.17
5	70	\$30.53	\$9.95	\$20.32	\$0.00	\$60.80
6	75	\$32.72	\$9.95	\$20.93	\$0.00	\$63.60
7	80	\$34.90	\$9.95	\$21.53	\$0.00	\$66.38
8	90	\$39.26	\$9.95	\$22.74	\$0.00	\$71.95

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.41	\$9.95	\$0.00	\$0.00	\$32.36
2	55	\$24.65	\$9.95	\$6.66	\$0.00	\$41.26
3	60	\$26.89	\$9.95	\$7.26	\$0.00	\$44.10
4	65	\$29.13	\$9.95	\$7.87	\$0.00	\$46.95
5	70	\$31.37	\$9.95	\$20.32	\$0.00	\$61.64
6	75	\$33.62	\$9.95	\$20.93	\$0.00	\$64.50
7	80	\$35.86	\$9.95	\$21.53	\$0.00	\$67.34
8	90	\$40.34	\$9.95	\$22.74	\$0.00	\$73.03

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2024	\$39.19	\$9.65	\$17.14	\$0.00	\$65.98
	12/01/2024	\$40.52	\$9.65	\$17.14	\$0.00	\$67.31
	06/01/2025	\$41.91	\$9.65	\$17.14	\$0.00	\$68.70
	12/01/2025	\$43.29	\$9.65	\$17.14	\$0.00	\$70.08
	06/01/2026	\$44.73	\$9.65	\$17.14	\$0.00	\$71.52
	12/01/2026	\$46.17	\$9.65	\$17.14	\$0.00	\$72.96

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

PANEL & PICKUP TRUCKS DRIVER	01/01/2024	\$38.78	\$15.07	\$18.67	\$0.00	\$72.52
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	06/01/2024	\$39.78	\$15.07	\$18.67	\$0.00	\$73.52
	12/01/2024	\$39.78	\$15.07	\$20.17	\$0.00	\$75.02
	01/01/2025	\$39.78	\$15.57	\$20.17	\$0.00	\$75.52
	06/01/2025	\$40.78	\$15.57	\$20.17	\$0.00	\$76.52
	12/01/2025	\$40.78	\$15.57	\$21.78	\$0.00	\$78.13
	01/01/2026	\$40.78	\$16.17	\$21.78	\$0.00	\$78.73
	06/01/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$79.73
	12/01/2026	\$41.78	\$16.17	\$23.52	\$0.00	\$81.47
	01/01/2027	\$41.78	\$16.77	\$23.52	\$0.00	\$82.07

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i> For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2020	\$46.11	\$9.40	\$23.12	\$0.00	\$78.63
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$46.11	\$9.40	\$23.12	\$0.00	\$78.63

Apprentice - PILE DRIVER - Local 56 Zone 2

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Notes: Apprentice wages shall be no less than the following Steps;
(Same as set in Zone 1)
1\$57.06/2\$61.96/3\$66.87/4\$69.32/5\$71.78/6\$71.78/7\$76.68/8\$76.68

Apprentice to Journeyworker Ratio:1:5

PIPELAYER <i>LABORERS - ZONE 2</i> For apprentice rates see "Apprentice- LABORER"	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PLUMBER & PIPEFITTER <i>PLUMBERS LOCAL 4</i>	03/01/2024	\$53.95	\$9.90	\$17.42	\$0.00	\$81.27
	09/01/2024	\$55.35	\$9.90	\$17.42	\$0.00	\$82.67
	03/01/2025	\$56.75	\$9.90	\$17.42	\$0.00	\$84.07
	09/01/2025	\$58.15	\$9.90	\$17.42	\$0.00	\$85.47
	03/01/2026	\$59.55	\$9.90	\$17.42	\$0.00	\$86.87

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PLUMBER/PIPEFITTER - Local 4

Effective Date - 03/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$21.58	\$9.90	\$0.00	\$0.00	\$31.48
2	50	\$26.98	\$9.90	\$0.00	\$0.00	\$36.88
3	60	\$32.37	\$9.90	\$0.00	\$0.00	\$42.27
4	70	\$37.77	\$9.90	\$7.71	\$0.00	\$55.38
5	80	\$43.16	\$9.90	\$7.71	\$0.00	\$60.77

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$22.14	\$9.90	\$0.00	\$0.00	\$32.04
2	50	\$27.68	\$9.90	\$0.00	\$0.00	\$37.58
3	60	\$33.21	\$9.90	\$0.00	\$0.00	\$43.11
4	70	\$38.75	\$9.90	\$7.71	\$0.00	\$56.36
5	80	\$44.28	\$9.90	\$7.71	\$0.00	\$61.89

Notes:
 Steps - 2000 hrs; Step 4 w/lic 75%, Step 5 w/lic 85%
 Step 4 w/lic \$52.59, Step 5 w/lic \$57.44

Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.) <i>PLUMBERS LOCAL 4</i>	03/01/2024	\$53.95	\$9.90	\$17.42	\$0.00	\$81.27
	09/01/2024	\$55.35	\$9.90	\$17.42	\$0.00	\$82.67
	03/01/2025	\$56.75	\$9.90	\$17.42	\$0.00	\$84.07
	09/01/2025	\$58.15	\$9.90	\$17.42	\$0.00	\$85.47
	03/01/2026	\$59.55	\$9.90	\$17.42	\$0.00	\$86.87

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.86	\$9.65	\$17.14	\$0.00	\$65.65
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For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2023	\$39.36	\$9.40	\$16.89	\$0.00	\$65.65
	06/01/2024	\$40.69	\$9.40	\$16.89	\$0.00	\$66.98
	12/01/2024	\$42.02	\$9.40	\$16.89	\$0.00	\$68.31
	06/01/2025	\$43.41	\$9.40	\$16.89	\$0.00	\$69.70
	12/01/2025	\$44.79	\$9.40	\$16.89	\$0.00	\$71.08
	06/01/2026	\$46.23	\$9.40	\$16.89	\$0.00	\$72.52
	12/01/2026	\$47.67	\$9.40	\$16.89	\$0.00	\$73.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
	06/01/2024	\$36.47	\$15.00	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.42	\$15.00	\$16.40	\$0.00	\$68.82
	06/01/2025	\$38.27	\$15.00	\$16.40	\$0.00	\$69.67
	12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
	06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
	12/01/2026	\$41.03	\$15.00	\$16.40	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 170 - J.G. MacLellan (Lowell)</i>	01/01/2024	\$29.50	\$11.17	\$6.45	\$0.00	\$47.12
	05/01/2024	\$30.00	\$11.17	\$6.55	\$0.00	\$47.72
	01/01/2025	\$30.00	\$11.57	\$6.55	\$0.00	\$48.12
	05/01/2025	\$30.50	\$11.57	\$6.65	\$0.00	\$48.72
	01/01/2026	\$30.50	\$11.97	\$6.65	\$0.00	\$49.12
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE OPERATING ENGINEERS LOCAL 4	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) ROOFERS LOCAL 33	02/01/2024	\$50.03	\$12.78	\$21.45	\$0.00	\$84.26
	08/01/2024	\$51.53	\$12.78	\$21.45	\$0.00	\$85.76
	02/01/2025	\$52.78	\$12.78	\$21.45	\$0.00	\$87.01
	08/01/2025	\$54.28	\$12.78	\$21.45	\$0.00	\$88.51
	02/01/2026	\$55.53	\$12.78	\$21.45	\$0.00	\$89.76

Apprentice - ROOFER - Local 33

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.02	\$12.78	\$6.21	\$0.00	\$44.01
2	60	\$30.02	\$12.78	\$21.45	\$0.00	\$64.25
3	65	\$32.52	\$12.78	\$21.45	\$0.00	\$66.75
4	75	\$37.52	\$12.78	\$21.45	\$0.00	\$71.75
5	85	\$42.53	\$12.78	\$21.45	\$0.00	\$76.76

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.77	\$12.78	\$6.21	\$0.00	\$44.76
2	60	\$30.92	\$12.78	\$21.45	\$0.00	\$65.15
3	65	\$33.49	\$12.78	\$21.45	\$0.00	\$67.72
4	75	\$38.65	\$12.78	\$21.45	\$0.00	\$72.88
5	85	\$43.80	\$12.78	\$21.45	\$0.00	\$78.03

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
 Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
 (Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33	02/01/2024	\$50.28	\$12.78	\$21.45	\$0.00	\$84.51
	08/01/2024	\$51.78	\$12.78	\$21.45	\$0.00	\$86.01
	02/01/2025	\$53.03	\$12.78	\$21.45	\$0.00	\$87.26
	08/01/2025	\$54.53	\$12.78	\$21.45	\$0.00	\$88.76
	02/01/2026	\$55.78	\$12.78	\$21.45	\$0.00	\$90.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 63	01/01/2024	\$40.22	\$11.96	\$18.74	\$2.13	\$73.05
	07/01/2024	\$41.47	\$11.96	\$18.74	\$2.13	\$74.30
	01/01/2025	\$42.72	\$11.96	\$18.74	\$2.13	\$75.55

Apprentice - SHEET METAL WORKER - Local 63

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.10	\$5.38	\$4.86	\$0.85	\$29.19
2	50	\$20.11	\$5.98	\$5.40	\$0.94	\$32.43
3	55	\$22.12	\$6.58	\$9.71	\$1.15	\$39.56
4	60	\$24.13	\$7.18	\$9.71	\$1.23	\$42.25
5	65	\$26.14	\$7.77	\$9.71	\$1.31	\$44.93
6	70	\$28.15	\$8.37	\$9.71	\$1.39	\$47.62
7	75	\$30.17	\$8.97	\$9.71	\$1.47	\$50.32
8	80	\$32.18	\$9.57	\$17.66	\$1.78	\$61.19
9	85	\$34.19	\$10.17	\$17.66	\$1.86	\$63.88
10	90	\$36.20	\$10.76	\$17.66	\$1.94	\$66.56

Effective Date - 07/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.66	\$5.38	\$4.86	\$0.85	\$29.75
2	50	\$20.74	\$5.98	\$5.40	\$0.94	\$33.06
3	55	\$22.81	\$6.58	\$9.71	\$1.15	\$40.25
4	60	\$24.88	\$7.18	\$9.71	\$1.23	\$43.00
5	65	\$26.96	\$7.77	\$9.71	\$1.31	\$45.75
6	70	\$29.03	\$8.37	\$9.71	\$1.39	\$48.50
7	75	\$31.10	\$8.97	\$9.71	\$1.47	\$51.25
8	80	\$33.18	\$9.57	\$17.66	\$1.78	\$62.19
9	85	\$35.25	\$10.17	\$17.66	\$1.86	\$64.94
10	90	\$37.32	\$10.76	\$17.66	\$1.94	\$67.68

Notes:

Apprentice to Journeyworker Ratio:1:3

SPECIALIZED EARTH MOVING EQUIP < 35 TONS	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
	01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.53	\$15.07	\$18.67	\$0.00	\$73.27
	06/01/2024	\$40.53	\$15.07	\$18.67	\$0.00	\$74.27
	12/01/2024	\$40.53	\$15.07	\$20.17	\$0.00	\$75.77
	01/01/2025	\$40.53	\$15.57	\$20.17	\$0.00	\$76.27
	06/01/2025	\$41.53	\$15.57	\$20.17	\$0.00	\$77.27
	12/01/2025	\$41.53	\$15.57	\$21.78	\$0.00	\$78.88
	01/01/2026	\$41.53	\$16.17	\$21.78	\$0.00	\$79.48
	06/01/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$80.48
	12/01/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$82.22
	01/01/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$82.82
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2024	\$69.75	\$10.90	\$23.20	\$0.00	\$103.85
	10/01/2024	\$71.55	\$10.90	\$23.20	\$0.00	\$105.65
	03/01/2025	\$73.35	\$10.90	\$23.20	\$0.00	\$107.45

Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1

Effective Date - 03/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.41	\$10.90	\$12.80	\$0.00	\$48.11
2	40	\$27.90	\$10.90	\$13.60	\$0.00	\$52.40
3	45	\$31.39	\$10.90	\$14.40	\$0.00	\$56.69
4	50	\$34.88	\$10.90	\$15.20	\$0.00	\$60.98
5	55	\$38.36	\$10.90	\$16.00	\$0.00	\$65.26
6	60	\$41.85	\$10.90	\$16.80	\$0.00	\$69.55
7	65	\$45.34	\$10.90	\$17.60	\$0.00	\$73.84
8	70	\$48.83	\$10.90	\$18.40	\$0.00	\$78.13
9	75	\$52.31	\$10.90	\$19.20	\$0.00	\$82.41
10	80	\$55.80	\$10.90	\$20.00	\$0.00	\$86.70

Effective Date - 10/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$25.04	\$10.90	\$12.80	\$0.00	\$48.74
2	40	\$28.62	\$10.90	\$13.60	\$0.00	\$53.12
3	45	\$32.20	\$10.90	\$14.40	\$0.00	\$57.50
4	50	\$35.78	\$10.90	\$15.20	\$0.00	\$61.88
5	55	\$39.35	\$10.90	\$16.00	\$0.00	\$66.25
6	60	\$42.93	\$10.90	\$16.80	\$0.00	\$70.63
7	65	\$46.51	\$10.90	\$17.60	\$0.00	\$75.01
8	70	\$50.09	\$10.90	\$18.40	\$0.00	\$79.39
9	75	\$53.66	\$10.90	\$19.20	\$0.00	\$83.76
10	80	\$57.24	\$10.90	\$20.00	\$0.00	\$88.14

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2024	\$61.34	\$11.49	\$23.59	\$0.00	\$96.42
	08/01/2024	\$63.44	\$11.49	\$23.59	\$0.00	\$98.52
	02/01/2025	\$64.74	\$11.49	\$23.59	\$0.00	\$99.82
	08/01/2025	\$66.89	\$11.49	\$23.59	\$0.00	\$101.97
	02/01/2026	\$68.24	\$11.49	\$23.59	\$0.00	\$103.32
	08/01/2026	\$70.44	\$11.49	\$23.59	\$0.00	\$105.52
	02/01/2027	\$71.84	\$11.49	\$23.59	\$0.00	\$106.92

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.67	\$11.49	\$23.59	\$0.00	\$65.75
2	60	\$36.80	\$11.49	\$23.59	\$0.00	\$71.88
3	70	\$42.94	\$11.49	\$23.59	\$0.00	\$78.02
4	80	\$49.07	\$11.49	\$23.59	\$0.00	\$84.15
5	90	\$55.21	\$11.49	\$23.59	\$0.00	\$90.29

Effective Date - 08/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.72	\$11.49	\$23.59	\$0.00	\$66.80
2	60	\$38.06	\$11.49	\$23.59	\$0.00	\$73.14
3	70	\$44.41	\$11.49	\$23.59	\$0.00	\$79.49
4	80	\$50.75	\$11.49	\$23.59	\$0.00	\$85.83
5	90	\$57.10	\$11.49	\$23.59	\$0.00	\$92.18

Notes:

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$48.33	\$9.65	\$18.22	\$0.00	\$76.20
	06/01/2024	\$49.81	\$9.65	\$18.22	\$0.00	\$77.68
	12/01/2024	\$51.28	\$9.65	\$18.22	\$0.00	\$79.15
	06/01/2025	\$52.78	\$9.65	\$18.22	\$0.00	\$80.65
	12/01/2025	\$54.28	\$9.65	\$18.22	\$0.00	\$82.15
	06/01/2026	\$55.83	\$9.65	\$18.22	\$0.00	\$83.70
	12/01/2026	\$57.33	\$9.65	\$18.22	\$0.00	\$85.20
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.45	\$9.65	\$18.22	\$0.00	\$72.32
	06/01/2024	\$45.93	\$9.65	\$18.22	\$0.00	\$73.80
	12/01/2024	\$47.40	\$9.65	\$18.22	\$0.00	\$75.27
	06/01/2025	\$48.90	\$9.65	\$18.22	\$0.00	\$76.77
	12/01/2025	\$50.40	\$9.65	\$18.22	\$0.00	\$78.27
	06/01/2026	\$51.95	\$9.65	\$18.22	\$0.00	\$79.82
	12/01/2026	\$53.45	\$9.65	\$18.22	\$0.00	\$81.32
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.82	\$15.07	\$18.67	\$0.00	\$73.56
	06/01/2024	\$40.82	\$15.07	\$18.67	\$0.00	\$74.56
	12/01/2024	\$40.82	\$15.07	\$20.17	\$0.00	\$76.06
	01/01/2025	\$40.82	\$15.57	\$20.17	\$0.00	\$76.56
	06/01/2025	\$41.82	\$15.57	\$20.17	\$0.00	\$77.56
	12/01/2025	\$41.82	\$15.57	\$21.78	\$0.00	\$79.17
	01/01/2026	\$41.82	\$16.17	\$21.78	\$0.00	\$79.77
	06/01/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$80.77
	12/01/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$82.51
01/01/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$83.11	

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2023	\$56.56	\$9.65	\$18.67	\$0.00	\$84.88
	06/01/2024	\$58.04	\$9.65	\$18.67	\$0.00	\$86.36
	12/01/2024	\$59.51	\$9.65	\$18.67	\$0.00	\$87.83
	06/01/2025	\$61.01	\$9.65	\$18.67	\$0.00	\$89.33
	12/01/2025	\$62.51	\$9.65	\$18.67	\$0.00	\$90.83
	06/01/2026	\$64.06	\$9.65	\$18.67	\$0.00	\$92.38
	12/01/2026	\$65.56	\$9.65	\$18.67	\$0.00	\$93.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2023	\$58.56	\$9.65	\$18.67	\$0.00	\$86.88
	06/01/2024	\$60.04	\$9.65	\$18.67	\$0.00	\$88.36
	12/01/2024	\$61.51	\$9.65	\$18.67	\$0.00	\$89.83
	06/01/2025	\$63.01	\$9.65	\$18.67	\$0.00	\$91.33
	12/01/2025	\$64.51	\$9.65	\$18.67	\$0.00	\$92.83
	06/01/2026	\$66.06	\$9.65	\$18.67	\$0.00	\$94.38
	12/01/2026	\$67.56	\$9.65	\$18.67	\$0.00	\$95.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2023	\$48.63	\$9.65	\$18.67	\$0.00	\$76.95
	06/01/2024	\$50.11	\$9.65	\$18.67	\$0.00	\$78.43
	12/01/2024	\$51.58	\$9.65	\$18.67	\$0.00	\$79.90
	06/01/2025	\$53.08	\$9.65	\$18.67	\$0.00	\$81.40
	12/01/2025	\$54.58	\$9.65	\$18.67	\$0.00	\$82.90
	06/01/2026	\$56.13	\$9.65	\$18.67	\$0.00	\$84.45
	12/01/2026	\$57.63	\$9.65	\$18.67	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2023	\$50.63	\$9.65	\$18.67	\$0.00	\$78.95
	06/01/2024	\$52.11	\$9.65	\$18.67	\$0.00	\$80.43
	12/01/2024	\$53.58	\$9.65	\$18.67	\$0.00	\$81.90
	06/01/2025	\$55.08	\$9.65	\$18.67	\$0.00	\$83.40
	12/01/2025	\$56.58	\$9.65	\$18.67	\$0.00	\$84.90
	06/01/2026	\$58.13	\$9.65	\$18.67	\$0.00	\$86.45
	12/01/2026	\$59.63	\$9.65	\$18.67	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53	
VOICE-DATA-VIDEO TECHNICIAN <i>ELECTRICIANS LOCAL 96</i>	09/03/2023	\$34.49	\$13.00	\$17.22	\$0.00	\$64.71
	09/01/2024	\$35.29	\$13.99	\$17.57	\$0.00	\$66.85
	09/07/2025	\$36.12	\$14.98	\$17.91	\$0.00	\$69.01
	09/06/2026	\$37.04	\$15.96	\$18.27	\$0.00	\$71.27

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - VOICE-DATA-VIDEO TECHNICIAN - Local 96

Effective Date - 09/03/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.25	\$13.00	\$4.31	\$0.00	\$34.56
2	55	\$18.97	\$13.00	\$4.36	\$0.00	\$36.33
3	60	\$20.69	\$13.00	\$16.81	\$0.00	\$50.50
4	65	\$22.42	\$13.00	\$16.86	\$0.00	\$52.28
5	70	\$24.14	\$13.00	\$16.91	\$0.00	\$54.05
6	75	\$25.87	\$13.00	\$16.97	\$0.00	\$55.84
7	80	\$27.59	\$13.00	\$17.02	\$0.00	\$57.61
8	85	\$29.32	\$13.00	\$17.07	\$0.00	\$59.39

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.65	\$13.99	\$4.41	\$0.00	\$36.05
2	55	\$19.41	\$13.99	\$4.46	\$0.00	\$37.86
3	60	\$21.17	\$13.99	\$17.15	\$0.00	\$52.31
4	65	\$22.94	\$13.99	\$17.20	\$0.00	\$54.13
5	70	\$24.70	\$13.99	\$17.25	\$0.00	\$55.94
6	75	\$26.47	\$13.99	\$17.30	\$0.00	\$57.76
7	80	\$28.23	\$13.99	\$17.36	\$0.00	\$59.58
8	85	\$30.00	\$13.99	\$17.41	\$0.00	\$61.40

Notes:

Apprentice to Journeyworker Ratio:1:1

WAGON DRILL OPERATOR LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

WAGON DRILL OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

WASTE WATER PUMP OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS LOCAL 4</i>	03/01/2024	\$53.95	\$9.90	\$17.42	\$0.00	\$81.27
	09/01/2024	\$55.35	\$9.90	\$17.42	\$0.00	\$82.67
	03/01/2025	\$56.75	\$9.90	\$17.42	\$0.00	\$84.07
	09/01/2025	\$58.15	\$9.90	\$17.42	\$0.00	\$85.47
	03/01/2026	\$59.55	\$9.90	\$17.42	\$0.00	\$86.87
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.



OWNER'S INSTRUCTIONS TO ENGINEER CONCERNING BONDS AND INSURANCE

PROJECT: SAWYER ROAD CULVERT REPLACEMENT PROJECT

FROM: Town of Bolton DPW 2024-01
(Owner) (Owner's Contract No.)

TO: Dillis & Roy 7073
(Engineer) (Engineer's Project No.)

The following are the Owner's instructions with respect to the requirements for bonds and insurance to be included in the bidding documents and construction contract for the Project. Owner-required revisions to the proposed standard General Conditions and Supplementary Conditions regarding bonds and insurance are attached, or transmitted under separate cover.

I. BID SECURITY

- Bid security is required.
 Bid security is not required.

When bid security is required, such security shall be in the amount of _____ percent of the Bidder's maximum bid price, in the following form(s):

The following form of bid bond:

- EJCDC® C-430, Bid Bond (Penal Sum Form) (2013 edition)
 EJCDC® C-435, Bid Bond (Damages Form) (2013 edition)
 Other bid bond form, as follows: _____

Other forms of bid security acceptable to the Owner are:

- Certified check.
- Bank money order
- Other, as follows: _____

II. CONSTRUCTION BONDS

- Construction security is required in the following forms:
- Construction performance bond in an amount equal to the Contract Price is required in the following form:
 - EJCDC® C-610, Performance Bond (2013 edition)
 - Other performance bond: _____.
- Construction payment bond in an amount equal to the Contract Price is required in the following form:
 - EJCDC® C-615, Payment Bond (2013 edition)
 - Other payment bond: _____.
- Maintenance bond (sometimes referred to as a warranty bond) in an amount of [10 percent (**or other percentage**) of the Contract Price at completion and readiness for final payment] [\$_____]. Required form (if any): _____
_____. Maintenance bond shall be in effect from [the end of the one-year correction period specified in General Conditions Paragraph 15.08] [**insert milestone or date**], and shall remain in effect until [**insert time frame or date**]. Wording to include in the Supplementary Conditions for this type of bond is enclosed.
- Other bond for _____ [**subject or category**] in an amount of _____
_____. Required form (if any): _____. This bond shall be in effect from [insert milestone or date], and shall remain in effect until [**insert time frame or date**]. Wording to include in the Supplementary Conditions for this type of bond is enclosed.
- Construction security is not required.

~~III. CONTRACTOR'S LIABILITY INSURANCE~~

~~The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall not be less than the following amounts. **Owner should delete types of insurance that Owner does not require Contractor to purchase and maintain for this project, or mark such types of insurance as "NOT APPLICABLE."** See various Notes to User in EJCDC® C-800, Guide to the Preparation of Supplementary Conditions, Article 6.~~

~~A. Workers' Compensation and related coverages:~~

- ~~1. State: Statutory~~
- ~~2. Applicable Federal (e.g. Longshoreman's): Statutory~~
- ~~3. Jones Act coverage, if applicable~~

~~a. Bodily injury by accident, each accident \$ _____~~

b. Bodily injury by disease, aggregate \$ _____

4. Employer's Liability

- a. Bodily injury, each accident \$ _____
- b. Bodily injury by disease, each employee \$ _____
- c. Bodily injury/disease aggregate \$ _____

5. For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of: \$ _____

[if applicable]

6. Foreign, voluntary worker compensation: Statutory

7. Checked if the exception to A.M. Best requirement for worker's compensation insurance, as detailed in EJCDC® C-800, SC-6.02.B.1, applies to this Project.

B. Contractor's Comprehensive General Liability Insurance:

- 1. General Aggregate \$ _____
- 2. Products—Completed Operations Aggregate \$ _____
- 3. Personal and Advertising Injury \$ _____
- 4. Each Occurrence (Bodily Injury and Property Damage) \$ _____

C. Automobile Liability Insurance:

- 1. Bodily Injury
 - a. Each Person \$ 1,000,000
 - b. Each Accident \$ 1,000,000
- 2. Property Damage
 - a. Each Accident \$ _____

[or]

- 1. a combined single limit of \$ _____

D. Required Excess/Umbrella Liability Insurance:

- 1. Per Occurrence \$ 1,000,000
- 2. General Aggregate \$ _____

E. Contractor's Pollution Liability:

- 1. Each occurrence \$ _____
- 2. General aggregate \$ _____

F. Contractor's Professional Liability:

- 1. Each claim \$ 1,000,000
- 2. Annual aggregate \$ _____

G. Additional insured coverage under the Contractor's Commercial General Liability policy(ies) for Owner and Engineer, and others listed in the Supplementary Conditions, will be provided, subject to customary exclusions for professional liability **[select either nos. 1 or 2, as applicable]:**

- 1. By endorsement as additional insureds on Contractor's Commercial General Liability policy.
- 2. OR by a separate Protective Liability policy covering all of them, issued by Contractor's general liability carrier.

Indicate coverage amount(s): \$ _____

H. List here by name and address any additional individuals or entities (in addition to Owner and Engineer) to be identified in the Supplementary Conditions as additional insureds under the required liability policies:

I. Other Liability Insurance, if any, e.g., Railroad Protective Liability

Provided By:

Type of Coverage:

IV. PROPERTY INSURANCE:

- A. Property insurance in the form of "Builder's Risk" insurance is required.
- Property insurance in the form of an installation floater, to be purchased by Contractor, is required **[See EJCDC® C-001, Commentary on the 2013 EJCDC Construction Documents, regarding installation floater provisions, and EJCDC® C-800, SC 6.05, item 4, Installation Floater].**
- Property insurance is not required for this Project.

B. Builder's risk insurance to the full replacement cost of the Work in accordance with Paragraph 6.05 of the General Conditions will be furnished by **[select one]:**

- Owner
- Contractor

C. Such builder's risk insurance will be subject to a maximum deductible amount of \$ _____

D. Builder's Risk—Supplemental Requirements. Add the following to the builder's risk coverage requirements, as described in EJCDC® C-800, SC-6.05, item 3:

- Owner's soft cost coverage
- Equipment or materials to be furnished by Owner or third parties
- [specify items:]*
- Damage endorsement for Contractor's equipment

E. Other Property Insurance (e.g. terrorism, Owner-furnished equipment, equipment breakdown):

Provided By:	Type of Coverage:
_____	_____
_____	_____
_____	_____

F. List here by name and address all individuals or entities (in addition to Owner, Contractor, and Subcontractors) to be identified in the Supplementary Conditions as insureds under builder's risk and other property insurance policies:

We acknowledge the Engineer's recommendation that the Owner obtain advice from a knowledgeable construction insurance consultant, and with legal counsel, prior to providing these instructions to the Engineer. We affirm that we have not relied on the Engineer for advice or recommendations regarding the coverages and limits included in these instructions. We expressly agree to defend and hold harmless the Engineer and any of its officers, shareholders, partners, members, or employees from and against any claim, loss, damage or action related to Owner's insurance and bond requirements, including the Engineer's involvement with preparing or specifying such insurance and bond requirements, or to any determination or decision regarding insurance coverages and limits for the Work or the Project.

By: OWNER

(Name)

(Title)

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

BID

Bid Due Date:

Description (*Project Name— Include Location*):

BOND

Bond Number:

Date:

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

**AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between _____ (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: The replacement of an existing culvert under Sawyer Road with associated headwalls, grading, and all excavation, backfill, restoration, and other associated work.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Dillis & Roy Civil Design Group, Inc.

3.02 The Owner has retained Dillis & Roy Civil Design Group, Inc. (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

A. The Work will be substantially completed on or before **June 2, 2021**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **June 30, 2021**.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner \$1000.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$1,000 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:
- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment within 21 days of contractor's application for payment submittal during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and

in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, for the purposes of insuring that punch list items are completed in a satisfactory manner, which are to be completed prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – CONTRACTOR’S REPRESENTATIONS

7.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
- B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, and (2) Town of Bolton Order of Conditions.
- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor’s safety precautions and programs.

- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 8 – CONTRACT DOCUMENTS

8.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 6 , inclusive).
 - 2. Performance bond (pages 1 to 3 , inclusive).
 - 3. Payment bond (pages 1 to 3 , inclusive).
 - 4. Other bonds.
 - a. (pages to , inclusive).
 - 5. General Conditions (pages i to 65 , inclusive).
 - 6. Supplementary Conditions (pages 1 to 2 , inclusive).
 - 7. Specifications as listed in the table of contents of the Project Manual.
 - 8. Drawings (not attached but incorporated by reference) consisting of the Drawings listed on the attached List of Drawings (000115).
 - 9. Addenda (numbers to , inclusive).
 - 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages to , inclusive).
 - 11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 9 – MISCELLANEOUS

9.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

9.02 Assignment of Contract

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 Successors and Assigns

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

9.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

By: _____

By: _____

Title: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License No.: _____

(where applicable)

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.



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EJCDC Copyright Administrator
c/o National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314
Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this License Agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the License Agreement and supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this License Agreement.

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(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

NOTICE TO PROCEED

Owner: _____ Owner's Contract No.: _____
Contractor: _____ Contractor's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Project: _____ Contract Name: _____
Effective Date of Contract: _____

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is _____, and the date of readiness for final payment is _____] *or* [the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before starting any Work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

Owner:

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

 Contractor's Name and Corporate Seal *(seal)*

 Surety's Name and Corporate Seal *(seal)*

By: _____
 Signature

By: _____
 Signature *(attach power of attorney)*

 Print Name

 Print Name

 Title

 Title

Attest: _____
 Signature

Attest: _____
 Signature

 Title

 Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence,

to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims

for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:



License Agreement

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1. **Read this License Agreement in its entirety.** As purchaser, you agree to comply with and are bound by the License Agreement's terms, conditions, and instructions when you use the attached EJCDC document. **Commencement of use of the attached document indicates your acceptance of these terms, conditions, and instructions.** If you do not agree to them, you should promptly return the materials to the vendor.
 2. **This License Agreement applies to the attached document only. Other licensing terms and instructions may apply to other EJCDC documents.**
 3. The Engineers Joint Contract Documents Committee ("EJCDC") provides **EJCDC Design and Construction Related Documents (including but not limited to the EJCDC document that is attached, and all other documents in the EJCDC Construction Series, Engineering Series, Design-Build Series, Remediation Series, Procurement Series, and Narrative Series)** and licenses their use worldwide. You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use, and results obtained from **EJCDC Design and Construction Related Documents.**
 4. You acknowledge that you understand that the text of the **EJCDC Design and Construction Related Documents** has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You further acknowledge that EJCDC documents are protected by the copyright laws of the United States.
 5. Make sure that you have the correct word processing software for the attached EJCDC document, which is distributed in Microsoft Word (.doc) format.
 6. EJCDC allows the end user wide discretion in using and editing the attached document, subject to the provisions of the License Agreement. You are advised, however, that EJCDC documents contain numeric and other cross-references, and that changes to one part of the document may affect other parts. It is solely your responsibility to assure the adequacy and consistency of the final document for your purposes.
1. Although EJCDC has made reasonable efforts to achieve uniformity of formatting, some document controls (e.g., bold, underline, font size, indentation, numbering, pagination, table of contents) may be affected by software versioning and translators, user settings, changes during editing, and other factors, and may require user intervention to restore intended format and appearance.
 2. The term "Standard EJCDC Text" for the attached document generally refers to all text prepared by EJCDC in the main body of the document, and does not include covers, logos, footers, instructions, license agreement, copyright notices, Notes to Users, or text options. The content of document exhibits (if any) is not Standard EJCDC Text for this purpose.
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8. The attached EJCDC document may contain exhibits that are to be used to set out project-specific provisions, such as scope of services, compensation, and insurance requirements. These exhibits are meant to be revised, supplemented, and altered by the user, or discarded if not applicable to the specific project. The text of the various exhibits is not considered Standard EJCDC Text and is not subject to the License Agreement requirement that additions or deletions to the Standard EJCDC Text be shown clearly, and therefore does not need to be shown with “Track Changes,” redline/strikeout, highlighting, or other means of indicating changes, at any point in the drafting process.
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2. if EJCDC's selling agent is unable to deliver a replacement CD which is free of defects in materials and workmanship, you may terminate this Agreement by returning EJCDC Document and your money will be refunded.

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EJCDC Copyright Administrator
c/o National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314
Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this License Agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the License Agreement and supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this License Agreement.

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(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, D.C. 20005
(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*:

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: None See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

_____ *(seal)*

Contractor's Name and Corporate Seal

_____ *(seal)*

Surety's Name and Corporate Seal

By: _____

Signature

By: _____

Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____

Signature

Attest: _____

Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. **Definitions**
 - 16.1 **Claim:** A written statement by the Claimant including at a minimum:
 1. The name of the Claimant;
 2. The name of the person for whom the labor was done, or materials or equipment furnished;
 3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 4. A brief description of the labor, materials, or equipment furnished;
 5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 7. The total amount of previous payments received by the Claimant; and
 - 16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
 - 16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
18. Modifications to this Bond are as follows:



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5. Make sure that you have the correct word processing software for the attached EJCDC document, which is distributed in Microsoft Word (.doc) format (or, in the case of EJCDC® C-620, Contractor's Application for Payment, in Microsoft Excel).
6. EJCDC allows the end user wide discretion in using and editing the attached document, subject to the provisions of the License Agreement. You are advised, however, that EJCDC documents contain numeric and other cross-references, and that changes to one part of the document may affect other parts. It is solely your responsibility to assure the adequacy and consistency of the final document for your purposes.

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3. The attached EJCDC document may contain "Notes to User," bracketed comments, or prompts that provide instructions for filling in project-specific information, selecting the appropriate clause from a list of options, or making additions or deletions, or that give background information regarding a particular provision. The user may (and in most cases should) delete these notes, comments, and prompts during the drafting process.
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Alexandria, VA 22314
Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

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1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

This [preliminary] [final] Certificate of Substantial Completion applies to:

All Work The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: None
 As follows

Amendments to Contractor's responsibilities: None
 As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:		RECEIVED:		RECEIVED:	
By: _____	By: _____	By: _____	By: _____	By: _____	By: _____
(Authorized signature)	Owner (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)	Contractor (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____	Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Contract description.
 2. Work by Owner or other Work at the Site.
 3. Owner-furnished products.
 4. Contractor's use of Site and premises.
 5. Work sequence.
 6. Owner occupancy.
 7. Permits.
 8. Specification conventions.

1.2 CONTRACT DESCRIPTION

- A. Work of the Project includes construction of a replacement culvert conveying a water across Sawyer Road, constructing new block headwalls, repaving as indicated on the plans, and installation of a beaver control device. Work includes furnishing all materials, labor, traffic control, plans, etc. indicated in the Contractor Documents.
- B. Perform Work of Contract under fixed cost Contract with Owner according to Conditions of Contract.

1.3 OWNER-FURNISHED PRODUCTS

- A. Owner's Responsibilities:
1. Arrange for and deliver Owner-reviewed Shop Drawings, Product Data, and Samples to Contractor.
 2. Upon delivery, inspect products jointly with Contractor.
 3. Submit claims for transportation damage and replace damaged, defective, or deficient items.
- B. Contractor's Responsibilities:
1. Review Owner-reviewed Shop Drawings, Product Data, and Samples.
 2. Receive and unload products at Site; inspect for completeness or damage jointly with Owner.
 3. Handle, store, install, and finish products.
 4. Repair or replace items damaged after receipt.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Limit use of Site and premises to allow:
1. Owner occupancy.
 2. Work by Owner.

- B. Emergency vehicle response and circulation during Construction: Coordinate all work with the Bolton Police and Fire Departments.
- C. Construction Operations: Limited to areas indicated on Drawings.
 - 1. Noisy and Disruptive Operations (such as Use of Jack Hammers and Other Noisy Equipment): Not allowed in close proximity to existing building during regular hours of operation. Coordinate and schedule such operations with Owner to minimize disruptions.
- D. Time Restrictions for Performing Work: 7 am – 5 pm Monday - Friday.
- E. Work Zone Restrictions: none.
- F. Utility Outages and Shutdown:
 - 1. Coordinate and schedule electrical and other utility outages with Owner.
 - 2. Outages: Allowed only at previously agreed upon times. In general, schedule outages at times when facility is not being used.
- G. Construction Plan: Before start of construction, submit three copies construction plan regarding access to Work, use of Site, temporary road closures, and utility outages for acceptance by Owner, Police and Fire Departments. After acceptance of plan by the Owner, Police and Fire Departments, construction operations shall comply with accepted plan unless deviations are accepted by Owner in writing.

1.5 WORK SEQUENCE

- A. Construct Work in stages during construction period. Coordinate construction schedule and operations with Engineer, Owner & Conservation Commission. Submit Construction sequencing plan for Engineer, Owner and Conservation Commission for review and approval.
- B. Sequencing of Construction Plan: Before start of construction, submit three copies of construction plan regarding phasing of demolition and new Work for acceptance by Owner, Engineer and Conservation Commission. After acceptance of plan by the Engineer, Owner and Conservation Commission, construction sequencing shall comply with accepted plan unless deviations are accepted by Owner in writing.

1.6 START DATE

- A. Owner intends for the work to start on or about June 20, 2024.

1.7 COMPLETION DATE

- A. Owner requires the work to be substantially complete by August 1, 2024
- B. Owner requires the work to be fully complete and invoiced by August 30, 2024.

1.8 PERMITS

- A. Furnish all necessary permits for construction of Work including the following:
 - 1. Trench Permit

2. Other Permits as required for construction.

1.9 SPECIFICATION CONVENTIONS

- A. These Specifications are written in imperative mood and streamlined form. This imperative language is directed to Contractor unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

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SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Contingency allowances.
- B. Testing and inspection allowances.
- C. Schedule of Values.
- D. Application for Payment.
- E. Change procedures.
- F. Defect assessment.
- G. Unit prices.
- H. Alternates.

1.2 CONTINGENCY ALLOWANCES

- A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead, and profit will be included in Change Orders authorizing expenditure of funds from this contingency allowance.
- B. Funds will be drawn from contingency allowance only by Change Order.
- C. At closeout of Contract, funds remaining in contingency allowance will be credited to Owner by Change Order.

1.3 TESTING AND INSPECTION ALLOWANCES

- A. Testing and inspections to be paid by owner.

1.4 POLICE DETAIL ALLOWANCE

- A. Police details are to be paid by the Contractor and reimbursed by the Owner from an allowance. Contractor shall collect daily slips from all police details on site and submit these slips along with proof of payment to the Owner for reimbursement. This documentation shall be included along with all Applications for Payment.

1.5 SCHEDULE OF VALUES

- A. Submit printed schedule on Progress Estimate schedule on EJCDC C-620.

- B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- C. Format: Use Table of Contents of this Project Manual. Identify each line item with number and title of major Specification Section.
- D. Include in each line item amount of allowances as specified in this Section. For unit cost allowances, identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.
- E. Include within each line item, direct proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders with each Application for Payment.

1.6 APPLICATION FOR PAYMENT

- A. Submit three (3) copies of each Application for Payment on EJCDC C-620 - Contractor's Application for Payment on no more than a bi-weekly (every 2 week) basis.
- B. Content and Format: Use Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment.
- D. Payment Period: Submit at intervals stipulated in the Agreement.
- E. Submit submittals with transmittal letter as specified in Section 01 33 00 - Submittal Procedures.
- F. Submit three (3) copies of waivers requested by Owner.
- G. Substantiating Data: When Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
 - 1. Current construction photographs specified in Section 01 33 00 - Submittal Procedures.
 - 2. Partial release of liens from major Subcontractors and vendors.
 - 3. Record Documents as specified in Section 01 70 00 - Execution and Closeout Requirements, for review by Owner, which will be returned to Contractor.
 - 4. Affidavits attesting to off-Site stored products.
 - 5. Construction Progress Schedule, revised and current as specified in Section 01 33 00 - Submittal Procedures.

1.7 CHANGE PROCEDURES

- A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.

- C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.
 - 1. Use CSI Form 13.2A - Request for Interpretation, or a form prepared by the Contractor for requesting interpretations.
 - 2. Engineer may respond with a direct answer on the Request for Interpretation form, CSI Form 13.3A Clarification Notice, EJCDC C-942 - Field Order or CSI Form 13/6A - Change Order Request (Proposal).
- D. Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on EJCDC C-942.
- E. Engineer may issue CSI Form 13/6A including a detailed description of proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with stipulation of overtime work required and with the period of time during which the requested price will be considered valid]. Contractor will prepare and submit estimate within 15 days.
- F. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Sum/Price and Contract Time with full documentation and a statement describing effect on the Work by separate or other Contractors.
- G. Stipulated Sum/Price Change Order: Based on CSI Form 13/6A Notice of Change and Contractor's fixed maximum price quotation or Contractor's request for Change Order as approved by Engineer.
- H. Unit Price Change Order: For Contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of that which are not predetermined, execute Work under Construction Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- I. Construction Change Directive: Engineer may issue directive, on EJCDC C-940 - Work Change Directive signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.
- J. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Architect/Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.
- K. Maintain detailed records of Work done on time and material basis. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work.
- L. Document each quotation for change in Project Cost or Time with sufficient data to allow evaluation of quotation.
- M. Change Order Forms: EJCDC C-941 - Change Order.

- N. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- O. Correlation of Contractor Submittals:
 - 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 - 2. Promptly revise Progress Schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of Work affected by the change, and resubmit.
 - 3. Promptly enter changes in Record Documents.

1.8 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct appropriate remedy or adjust payment.
- C. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.
- D. Authority of Owner to assess defects and identify payment adjustments is final.
- E. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.9 UNIT PRICES

- A. Authority: Measurement methods are delineated in individual Specification Sections and only for large boulders.
- B. Measurement methods delineated in individual Specification Sections complement criteria of this Section. In event of conflict, requirements of individual Specification Section govern.
- C. Take measurements and compute quantities. Engineer will verify measurements and quantities.
- D. Unit Quantities: Quantities and measurements indicated on Bid Form are for Contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment.
 - 1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at contracted unit sum/prices.
 - 2. When actual Work requires 10 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim a Contract Price adjustment.

- E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.
- F. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- G. Measurement of Quantities:
 - 1. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
 - 2. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.
- H. Unit Price Schedule:
 - 1. See Appendix B of Section 004300 – Procurement Form Supplements.

1.10 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement. The Owner-Contractor Agreement may identify certain Alternates to remain an Owner option for a stipulated period of time.
- B. Coordinate related Work and modify surrounding Work. Description for each Alternate is recognized to be abbreviated but requires that each change shall be complete for scope of Work affected.
 - 1. Coordinate related requirements among Specification Sections as required.
 - 2. Include as part of each Alternate: Miscellaneous devices, appurtenances, and similar items incidental to or necessary for complete installation.
 - 3. Coordinate Alternate with adjacent Work and modify or adjust as necessary to ensure integration.
- C. Schedule of Alternates:

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

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SECTION 013216 - CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. Network analysis schedules.
- D. Bar chart schedules.
- E. Review and evaluation.
- F. Updating schedules.
- G. Distribution.

1.2 SUBMITTALS

- A. Within 10 days after date of Owner-Contractor Agreement submit proposed preliminary network diagram defining planned operations for the Proposed Work.
- B. Participate in review of preliminary and complete network diagrams jointly with Engineer.
- C. Within 10 days after joint review, submit complete network analysis consisting of network diagrams and mathematical analyses.
- D. Submit updated network schedules with each Application for Payment.
- E. Submit network schedules under transmittal letter form specified in Section 01 33 00 - Submittal Procedures.
- F. Schedule Updates:
 - 1. Overall percent complete, projected and actual.
 - 2. Completion progress by listed activity and sub-activity, to within five working days prior to submittal.
 - 3. Changes in Work scope and activities modified since submittal.
 - 4. Delays in submittals or resubmittals, deliveries, or Work.
 - 5. Adjusted or modified sequences of Work.
 - 6. Other identifiable changes.
 - 7. Revised projections of progress and completion.
- G. Narrative Progress Report:
 - 1. Submit with each weekly submission of Progress Schedule.
 - 2. Summary of Work completed during the past period between reports.

3. Work planned during the next period.
4. Explanation of differences between summary of Work completed and Work planned in previously submitted report.
5. Current and anticipated delaying factors and estimated impact on other activities and completion milestones.
6. Corrective action taken or proposed.
7. Submit Narrative Progress reports to Engineer, Owner and Conservation Commission.

1.3 QUALITY ASSURANCE

- A. Scheduler: Contractor's personnel specializing in scheduling with two years' minimum experience in scheduling construction work of complexity comparable to the Project.
- B. Contractor's Administrative Personnel: 2 years' minimum experience in using and monitoring schedules on comparable Projects.

1.4 UPDATING SCHEDULES

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity. Update schedules to depict current status of Work.
- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Upon approval of a Change Order, include the change in the next schedule submittal.
- E. Indicate changes required to maintain Date of Total Completion.
- F. Submit sorts as required to support recommended changes.
- G. Prepare narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken or proposed and its effect including effects of changes on schedules of separate Contractors.

1.5 DISTRIBUTION

- A. Following joint review, distribute copies of updated schedules to Contractor's Project site file, to Subcontractors, suppliers, Engineer, Owner, and Conservation Commission.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Definitions.
- B. Submittal procedures.
- C. Construction progress schedules.
- D. Proposed product list.
- E. Product data.
- F. Use of electronic CAD files of Project Drawings.
- G. Shop Drawings.
- H. Other submittals.
- I. Design data.
- J. Test reports.
- K. Certificates.
- L. Manufacturer's instructions.
- M. Manufacturer's field reports.
- N. Erection Drawings.
- O. Construction photographs.
- P. Contractor review.
- Q. Engineer review.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action.
- B. Informational Submittals: Written and graphic information and physical Samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal individually with form acceptable to the Engineer and Owner
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify: Project, Contractor, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Engineer at business address or submit electronic submittals via email (to be given at the time of preconstruction meeting) as PDF electronic files. Coordinate submission of related items.
- F. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.
- G. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.
- H. Allow space (4" x 4") on submittals (preferably on a concise cover sheet unique to each submittal) for Contractor and Engineer review stamps.
- I. When revised for resubmission, identify changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- K. Submittals not requested will not be recognized nor processed.
- L. Incomplete Submittals: Engineer will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of Engineer or the Owner.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Comply with Section 01 32 16 - Construction Progress Schedule.

1.5 PROPOSED PRODUCT LIST

- A. Within 15 days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

1.6 PRODUCT DATA

- A. Product Data: Action Submittal: Submit to Engineer for review for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Submit electronic submittals via email as PDF electronic files.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.7 ELECTRONIC CAD FILES OF PROJECT DRAWINGS

- A. Electronic CAD Files of Project Drawings: May only be used to expedite production of Shop Drawings for the Project. Use for other Projects or purposes is not allowed.
- B. Electronic CAD Files of Project Drawings: Distributed only under the following conditions:
 - 1. Use of files is solely at receiver's risk. Engineer does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities for measurements, dimensions, and quantities set forth in Contract Documents. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify Engineer of discrepancy and use information in hard-copy Drawings and Specifications.
 - 2. CAD files do not necessarily represent the latest Contract Documents, existing conditions, and as-built conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.
 - 3. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.
 - 4. Receiver shall not hold Engineer responsible for data or file clean-up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.
 - 5. Receiver shall understand that even though Engineer has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.
 - 6. Receiver shall not hold Engineer responsible for such viruses or their consequences, and shall hold Architect/Engineer harmless against costs, losses, or damage caused by presence of computer virus in files or media.

1.8 SHOP DRAWINGS

- A. Shop Drawings: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.

- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional Engineer responsible for designing components shown on Shop Drawings.
 - 1. Include signed and sealed calculations to support design.
 - 2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit electronic submittals via email as PDF electronic files.
- E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.9 OTHER SUBMITTALS

- A. Closeout Submittals: Comply with Section 01 70 00 - Execution and Closeout Requirements.
- B. Permits: Within 15 days after date of Owner-Contractor Agreement submit a list of permits and licenses to be obtained, identifying the granting agency and the required date of permit submittal, or stipulate that none are required.

1.10 DESIGN DATA

- A. Informational Submittal: Submit data for Engineer's knowledge as Contract administrator or for Owner.
- B. Submit information for assessing conformance with information given and design concept expressed in Contract Documents.

1.11 TEST REPORTS

- A. Informational Submittal: Submit reports for Engineer's knowledge as Contract administrator or for Owner.
- B. Submit test reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.12 CERTIFICATES

- A. Informational Submittal: Submit certification by manufacturer, installation/application Subcontractor, or Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

- C. Certificates may be recent or previous test results on material or product but must be acceptable to Engineer.

1.13 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: Submit manufacturer's installation instructions for Engineer's knowledge as Contract administrator or for Owner.
- B. Submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Engineer in quantities specified for Product Data.
- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.14 MANUFACTURER'S FIELD REPORTS

- A. Informational Submittal: Submit reports for Engineer's knowledge as Contract administrator or for Owner.
- B. Submit report within 48 hours of observation to Engineer for information.
- C. Submit reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.15 ERECTION DRAWINGS

- A. Informational Submittal: Submit Drawings for Engineer's knowledge as Contract administrator or for Owner.
- B. Submit Drawings for information assessing conformance with information given and design concept expressed in Contract Documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Owner.

1.16 CONSTRUCTION PHOTOGRAPHS

- A. Provide photographs of Site and construction throughout progress of Work produced by an experienced photographer acceptable to Engineer.
- B. Submit photographs taken daily throughout construction with Application for Payment.
- C. Take photographs as evidence of existing Project conditions as follows:
 1. Upstream channel
 2. Downstream channel
 3. Looking both directions along the Centerline of Spectacle Hill Road every 50 feet and at every driveway.
 4. Looking both directions along the Centerline of South Bolton Road.
 5. Looking both directions along off road pipe alignments and at discharge locations.

6. Both Embankments (up and downstream)

- D. Identify each print on front. Identify name of Project, orientation of view, date and time of view, name and address of photographer, and photographer's numbered identification of exposure.
- E. Digital Images: Deliver complete set of digital image electronic files on CD-ROM or thumb drive to Owner with Project record documents. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as sensor, uncropped.
 - 1. Digital Images: Uncompressed TIFF format, produced by digital camera with minimum sensor size of 4.0 megapixels, and image resolution of not less than 1024 by 768pixels
 - 2. Date and Time: Include date and time in filename for each image.

1.17 CONTRACTOR REVIEW

- A. Review for compliance with Contract Documents and approve submittals before transmitting to Engineer.
- B. Contractor: Responsible for:
 - 1. Determination and verification of materials including manufacturer's catalog numbers.
 - 2. Determination and verification of field measurements and field construction criteria.
 - 3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
 - 4. Determination of accuracy and completeness of dimensions and quantities.
 - 5. Confirmation and coordination of dimensions and field conditions at Site.
 - 6. Construction means, techniques, sequences, and procedures.
 - 7. Safety precautions.
 - 8. Coordination and performance of Work of all trades.
- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work for which submittals are required until approved submittals have been received from Architect/Engineer.

1.18 ENGINEER REVIEW

- A. Do not make "mass submittals" to Engineer. "Mass submittals" are defined as six or more submittals or items in one day or 20 or more submittals or items in one week. If "mass submittals" are received, Engineer's review time stated above will be extended as necessary to perform proper review. Engineer will review "mass submittals" based on priority determined by Engineer after consultation with Owner and Contractor.
- B. Each submitted item must have its own identifying number. Multiple submittals submitted under the same number will be returned to the Contractor for resubmittal without starting the 15-day review period outlined in 1.3.F above.
- C. Informational submittals and other similar data are for Engineer's information, do not require Engineer's responsive action, and will not be reviewed or returned with comment.

- D. Submittals made by Contractor that are not required by Contract Documents may be returned without action.
- E. Submittal approval does not authorize changes to Contract requirements unless accompanied by Change Order, Field Order, or Construction Change Directive.
- F. Owner may withhold monies due to Contractor to cover additional costs beyond the second submittal review.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Testing and inspection services.
- E. Manufacturers' field services.

1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform Work using persons qualified to produce required and specified quality.
- D. Products, materials, and equipment may be subject to inspection by Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.
- E. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current as of date of Contract Documents except where specific date is established by code.
- C. Obtain copies of standards and maintain on Site when required by product Specification Sections.
- D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference in reference documents.

1.5 TESTING AND INSPECTION SERVICES

- A. Owner will pay for an independent testing agency to perform specified testing.
- B. Independent firm will perform tests, inspections, and other services specified in individual Specification Sections and as required by Engineer, Owner and Conservation Commission.
 - 1. Laboratory: Authorized to operate in Bolton, Massachusetts.
 - 2. Laboratory Staff: Maintain full-time Geotechnical Engineer on staff to review services.
 - 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections, and source quality control may occur on or off Project Site. Perform off-Site testing as required by Engineer or Owner.
- D. Reports shall be submitted by independent firm to Engineer, Contractor, and authorities having jurisdiction indicating observations and results of tests and compliance or noncompliance with Contract Documents.
 - 1. Submit final report indicating correction of Work previously reported as noncompliant.
- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Engineer and independent firm 48 hours before expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional Samples and tests required for Contractor's use.
- F. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from Engineer. Payment for retesting or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.

- G. Agency Responsibilities:
1. Test Samples of mixes submitted by Contractor.
 2. Provide qualified personnel at Site. Cooperate with Engineer and Contractor in performance of services.
 3. Perform indicated sampling and testing of products according to specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Engineer and Contractor of observed irregularities or nonconformance of Work or products.
 6. Perform additional tests required by Engineer.
 7. Attend preconstruction meetings and progress meetings.
- H. Agency Reports: After each test, promptly submit two (2) copies of report to Engineer, Contractor, and authorities having jurisdiction. When requested by Engineer, provide interpretation of test results. Include the following:
1. Date issued.
 2. Project title and number.
 3. Name of inspector.
 4. Date and time of sampling or inspection.
 5. Identification of product and Specification Section.
 6. Location in Project.
 7. Type of inspection or test.
 8. Date of test.
 9. Results of tests.
 10. Conformance with Contract Documents.
- I. Limits on Testing Authority:
1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Agency or laboratory may not approve or accept any portion of the Work.
 3. Agency or laboratory may not assume duties of Contractor.
 4. Agency or laboratory has no authority to stop the Work.

1.6 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship and as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer is subject to approval of Engineer and/or Owner.
- C. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- D. Refer to Section 01 33 00 - Submittal Procedures, "Manufacturer's Field Reports" Article.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Temporary facilities under Construction Management Agreement.
- B. Construction Facilities:
 - 1. Vehicular access.
 - 2. Parking.
 - 3. Progress cleaning and waste removal.
 - 4. Project identification.
 - 5. Traffic regulation.
 - 6. Fire-prevention facilities.
- C. Temporary Controls:
 - 1. Barriers.
 - 2. Enclosures and fencing.
 - 3. Security.
 - 4. Water control.
 - 5. Dust control.
 - 6. Erosion and sediment control.
 - 7. Noise control.
 - 8. Pollution control.
- D. Removal of utilities, facilities, and controls.

1.2 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. 015000.01 – Police Details
 - 1. DAILY Slips, allowance

1.3 TEMPORARY FACILITIES

- A. Temporary Provisions Provided by Contractor:
 - 1. Temporary barriers, barricades, covered walkways, fencing, exterior closures, and interior closures.
 - 2. Cleaning during construction.
 - 3. Access roads and approaches.
 - 4. Temporary sanitary facilities.
- B. Each Contractor: Coordinate provisions with Owner and provide the following items as necessary for execution of the Work including associated costs:
 - 1. Construction aids.
 - 2. Temporary fire protection, dust control, erosion and sediment control, water control, noise control, and other necessary temporary controls.

3. Temporary barriers, barricades, and similar devices as necessary for safety and protection of construction personnel and public.
4. Temporary tree and plant protection.

1.4 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of Project mobilization.
- B. At end of construction, return existing facilities used for construction operations to same or better condition as original condition.

1.5 FIELD OFFICES AND SHEDS

- A. Field Office: Contractor to be responsible for on-site presence and shall approve all field office locations with Owner and Engineer prior to placement, if required.

1.6 VEHICULAR ACCESS

- A. Extend and relocate vehicular access as Work progress requires and provide detours as necessary for unimpeded traffic flow.
- B. Provide unimpeded access for emergency vehicles.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Use designated existing on-Site roads for construction traffic.

1.7 PARKING

- A. Arrange for temporary parking areas to accommodate construction personnel.
- B. Locate as approved by Owner.
- C. If Site space is not adequate, arrange for additional off-Site parking.
- D. Use of designated areas of existing on-Site streets and driveways used for construction traffic is not permitted unless approved by the Owner. Tracked vehicles are not allowed on paved areas unless approved by the owner.
- E. Use of designated areas of existing parking facilities used by construction personnel is permitted.
- F. Do not allow heavy vehicles or construction equipment in parking areas.
- G. Do not allow vehicle parking on existing pavement.
- H. Maintenance:
 1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, ice, and the like.

2. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original condition.

I. Removal, Repair:

1. Remove temporary materials and construction at Substantial Completion.
2. Repair existing permanent facilities damaged by use, to original condition.

- J. Mud from Site vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.8 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from Site weekly and dispose of off-Site. Comply with Section 01 74 19 - Construction Waste Management and Disposal.

1.9 PROJECT IDENTIFICATION

A. Project Identification Sign:

1. Provide DEP File number pursuant to the requirements of the Order of Conditions from the Bolton Conservation Commission.

B. Project Informational Signs:

1. Painted informational signs of same colors and lettering as Project identification sign or standard products; size lettering for legibility at 100 foot distance.
2. Provide sign at each field office and storage shed, and provide directional signs to direct traffic into and within Site. Relocate as Work progress requires.
3. Provide MDOT traffic agency directional traffic signs to and within Site.
4. No other signs are allowed without Owner's permission except those required by law.

- C. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.

D. Sign Materials:

1. Structure and Framing: wood or metal, structurally adequate.
2. Sign Surfaces: Exterior grade plywood with medium-density overlay, minimum of 3/4 inches thick, standard large sizes to minimize joints.
3. Rough Hardware: Metal
4. Lettering: Exterior quality paint, contrasting colors

E. Installation:

1. Install Project identification sign within 15 days after date established by Owner-Contractor Agreement.
2. Erect at location of high public visibility adjacent to main entrance to Site.
3. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.

4. Install sign surface plumb and level, with butt joints. Anchor securely.
 5. Paint exposed surfaces of sign, supports, and framing.
- F. Maintenance: Maintain clean signs and supports; repair deterioration and damage.
- G. Removal: Remove signs, framing, supports, and foundations at completion of Project and restore area.

1.10 TRAFFIC REGULATION

- A. Signs, Signals, and Devices:
1. Post-Mounted and Wall-Mounted Traffic Control and Informational Signs: As approved by authorities having jurisdiction.
 2. Traffic Control Signals: As approved by local jurisdictions.
 3. Traffic Cones, Drums, Flares, and Lights: As approved by authorities having jurisdiction.
 4. Flag Person Equipment: As required by authorities having jurisdiction.
- B. Police Detail – Contractor to pay for police detail as required.
- C. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- D. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- E. Haul Routes:
1. Consult with authorities having jurisdiction and establish public thoroughfares to be used for haul routes and Site access.
 2. Confine construction traffic to designated haul routes.
 3. Provide traffic control at critical areas of haul routes to regulate traffic and to minimize interference with public traffic.
- F. Traffic Signs and Signals:
1. Provide signs at approaches to Site and on Site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
 2. Provide, operate, and maintain traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.
 3. Relocate signs and signals as Work progresses, to maintain effective traffic control.
- G. Removal:
1. Remove equipment and devices when no longer required.
 2. Repair damage caused by installation.
 3. Remove post settings completely.

1.11 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations.

- B. Protect non-owned vehicular traffic, stored materials, Site, and structures from damage.

1.12 ENCLOSURES AND FENCING

- A. Construction: Commercial-grade chain-link fence.
- B. Provide 6 foot high fence around construction Site; equip with vehicular and pedestrian gates with locks.

1.13 WATER CONTROL

- A. Grade Site to drain. Maintain excavations free of water. Provide, operate, and maintain necessary pumping equipment.
- B. Protect Site from puddles or running water.

1.14 DUST CONTROL

- A. Execute Work by methods that minimize raising dust from construction operations.
- B. Provide positive means to prevent airborne dust from dispersing into atmosphere.

1.15 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize surface area of bare soil exposed at one time.
- C. Provide temporary measures including berms, dikes, drains, and other devices to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts and clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation. Promptly apply corrective measures.
- F. Comply with sediment and erosion control plan indicated on Drawings.
- G. Comply with requirements found in the Order of Conditions issued by the Bolton Conservation Commission for the project.

1.16 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.17 POLLUTION CONTROL

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.

- B. Comply with pollution and environmental control requirements of authorities having jurisdiction.

1.18 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials before Substantial Completion inspection.
- B. Remove underground installations completely.
- C. Clean and repair damage caused by installation or use of temporary Work.
- D. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.
- E. Equipment electrical characteristics and components.

1.2 PRODUCTS

- A. At minimum, comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- D. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- E. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Comply with delivery requirements in Section 01 74 19 - Construction Waste Management and Disposal.
- B. Transport and handle products according to manufacturer's instructions.
- C. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- D. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.

- B. Store products with seals and labels intact and legible.
- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Provide off-Site storage and protection when Site does not permit on-Site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and complying with Specifications; no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named to the engineer for approval.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION - Not Used

END OF SECTION

SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Field engineering.
- B. Closeout procedures.
- C. Project record documents.
- D. Product warranties and product bonds.
- E. Examination.
- F. Preparation.
- G. Execution.
- H. Cutting and patching.
- I. Protecting installed construction.
- J. Final cleaning.

1.2 FIELD ENGINEERING

- A. Employ land surveyor registered in State of Massachusetts and acceptable to Engineer.
- B. Locate and protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.
- C. Control datum for survey is indicated on Drawings.
- D. Verify setbacks and easements; confirm Drawing dimensions and elevations.
- E. Provide field engineering services. Establish elevations, lines, and levels using recognized engineering survey practices.
- F. Maintain complete and accurate log of control and survey Work as Work progresses.
- G. On completion of foundation walls and major Site improvements, prepare certified survey illustrating dimensions, locations, angles, and elevations of construction and Site Work.
- H. Protect survey control points prior to starting Site Work; preserve permanent reference points during construction.

- I. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- J. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

1.3 CLOSEOUT PROCEDURES

- A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:
 - 1. Submit Project record documents, digital images of construction photographs, and other similar final record data in compliance with this Section.
 - 2. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
 - 3. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
 - 4. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
 - 5. Perform final cleaning according to this Section.
 - 6. Receive final sign-off from the Bolton Conservation commission to remove Erosion Control Barriers.
- B. Substantial Completion Inspection:
 - 1. When Contractor considers Work to be substantially complete, submit to Engineer and Owner:
 - a. Written certificate that Work, or designated portion, is substantially complete.
 - b. List of items to be completed or corrected (initial punch list).
 - 2. Within seven days after receipt of request for Substantial Completion, Engineer and Owner will make inspection to determine whether Work or designated portion is substantially complete.
 - 3. Should Engineer and/or Owner determine that Work is not substantially complete:
 - a. Engineer and/or Owner will promptly notify Contractor in writing, stating reasons for its opinion.
 - b. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Engineer and/or Owner.
 - c. Engineer and/or Owner will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer and/or Owner's inspection.
 - 4. When Engineer and/or Owner finds that Work is substantially complete, Engineer will:
 - a. Prepare Certificate of Substantial Completion on EJCDC C-625 - Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected as verified and amended by Engineer and Owner (final punch list).
 - b. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.
 - 5. After Work is substantially complete, Contractor shall:

- a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
 - b. Complete Work listed for completion or correction within time period stipulated.
 6. Owner will occupy all portions of the site as specified in Section 01 10 00 - Summary.
- C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.
1. When Contractor considers Work to be complete, submit written certification that:
 - a. Contract Documents have been reviewed.
 - b. Work has been examined for compliance with Contract Documents.
 - c. Work has been completed according to Contract Documents.
 - d. Work is completed and ready for final inspection.
 2. Submittals: Submit following:
 - a. Final punch list indicating all items have been completed or corrected.
 - b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
 - d. Accounting statement for final changes to Contract Sum.
 3. Perform final cleaning of site for Contractor-soiled areas according to this Section.
- D. Final Completion Inspection:
1. Within seven days after receipt of request for final inspection, Engineer and/or Owner will make inspection to determine whether Work or designated portion is complete.
 2. Should Engineer and/or Owner consider Work to be incomplete or defective:
 - a. Engineer and/or Owner will promptly notify Contractor in writing, listing incomplete or defective Work.
 - b. Contractor shall remedy stated deficiencies and send second written request to Engineer and/or Owner that Work is complete.
 - c. Engineer and/or Owner will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer and/or Owner inspection.

1.4 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set of the following record documents; record actual revisions to the Work:
1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications to the Contract.
 5. Reviewed Shop Drawings, product data, and Samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.

- E. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates used.
 - 3. Changes made by Addenda and modifications.

- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
 - 1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
 - 2. Include locations of concealed elements of the Work.
 - 3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
 - 4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
 - 5. Identify and locate existing buried or concealed items encountered during Project.
 - 6. Measured depths of footings.
 - 7. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 8. Field changes of dimension and detail.
 - 9. Details not on original Drawings.

- G. Submit marked-up paper copy documents to Engineer before Substantial Completion..

1.5 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible Subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of Work.

- B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.

- C. Verify documents are in proper form, contain full information, and are notarized.

- D. Co-execute submittals when required.

- E. Submit prior to final Application for Payment.

- F. Time of Submittals:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
 - 2. Make other submittals within ten days after date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual Specification Sections.
- D. Verify that utility services are available with correct characteristics and in correct locations.

3.2 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
 - 1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
 - 2. Physically separate products in place, provide electrical insulation, or provide protective coatings to prevent galvanic action or corrosion between dissimilar metals.
 - 3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual-effect choices to Architect/Engineer for final decision.
- E. Allow for expansion of materials and movement.
- F. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.
 - 1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.
 - 2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.

3.3 CUTTING AND PATCHING

- A. Employ skilled and experienced installers to perform cutting and patching.

- B. Submit written request in advance of cutting or altering elements affecting:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual qualities of sight-exposed elements.
 - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching including excavation and fill to complete Work and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct ill-timed Work.
 - 3. Remove and replace defective and nonconforming Work.
 - 4. Remove samples of installed Work for testing.
 - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute Work by methods to avoid damage to other Work and to provide proper surfaces to receive patching and finishing.
- E. Cut masonry and concrete materials using masonry saw or core drill.
- F. Restore Work with new products according to requirements of Contract Documents.
- G. Identify hazardous substances or conditions exposed during the Work to Engineer for decision or remedy.

3.4 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- C. Prohibit traffic from landscaped areas.

3.5 FINAL CLEANING

- A. Execute final cleaning prior to final Project assessment.
 - 1. Employ experienced personnel or professional cleaning firm.
- B. Clean Site; sweep paved areas, rake clean landscaped surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from Site.
- D. Removal Erosion Control Appurtenances after receiving authorization form the Bolton conservation Commission to do so.

END OF SECTION

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Construction waste management plan.
 - 2. Construction waste recycling.
 - 3. Construction waste adaptive reuse.

1.2 PLAN REQUIREMENTS

- A. Develop and implement construction waste management plan as approved by Engineer.
- B. Intent:
 - 1. Divert construction, demolition, and land-clearing debris from landfill disposal.
 - 2. Generate cost savings or increase minimal additional cost to Project for waste disposal.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures contains requirements for submittals.
- B. Construction Waste Management Plan: Submit construction waste management plan describing methods and procedures for implementation and monitoring compliance including the following:
 - 1. Transportation company hauling construction waste to waste processing facilities.
 - 2. On-Site sorting and Site storage methods.

1.4 CONSTRUCTION WASTE MANAGEMENT PLAN

- A. Implement construction waste management plan at start of construction.
- B. Review construction waste management plan at preconstruction meeting and progress meetings specified in Section 01 30 00 - Administrative Requirements.
- C. Distribute approved construction waste management plan to Subcontractors and others affected by plan requirements.
- D. Oversee plan implementation, instruct construction personnel for plan compliance, and document plan results.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 CONSTRUCTION WASTE COLLECTION

- A. Collect construction waste materials in marked bins or containers and arrange for transportation to recycling centers or adaptive salvage and reuse processing facilities.
- B. Store construction waste materials to prevent environmental pollution, fire hazards, hazards to persons and property, and contamination of stored materials.
- C. Cover construction waste materials subject to disintegration, evaporation, settling, or runoff to prevent polluting air, water, and soil.

3.2 CONSTRUCTION WASTE DISPOSAL

- A. Deliver construction waste to waste processing facilities. Obtain receipt for deliveries.
- B. Dispose of construction waste not capable of being recycled or adaptively reused by delivery to landfill, incinerator, or other legal disposal facility. Obtain receipt for deliveries.

END OF SECTION

SECTION 034000 – PRECAST CONCRETE

PART 1 – GENERAL

1.1 REFERENCES

- A. Where applicable, the latest editions of the following standards shall form a part of this specification to the extent referenced. The publications are referenced to in the text of this guide specification by the basic designation only.
- B. American Association of State Highway and Transportation Officials (A.A.S.H.T.O.)
 - 1. Standard Specifications for Highway Bridges
 - 2. Standard Specification for Transportation Materials and Methods of Sampling and Testing
- C. ACI INTERNATIONAL (ACI)
 - 1. ACI 211.1 Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
 - 2. ACI 211.2 Standard Practice for Selecting Proportions for Structural Lightweight Concrete
 - 3. ACI 211.3 Guide for Selecting Proportions for No-Slump Concrete
 - 4. ACI 304R Guide for Measuring, Mixing, Transporting, and Placing Concrete
 - 5. ACI 305R Hot Weather Concreting
 - 6. ACI 306R Cold Weather Concreting
 - 7. ACI 309R Consolidation of Concrete
 - 8. ACI 318 Building Code Requirements for Structural Concrete
 - 9. ACI 350 Code Requirements for Environmental Engineering Concrete Structures and Commentary
 - 10. ACI 517.2R Accelerated Curing of Concrete at Atmospheric Pressure
- D. AMERICAN CONCRETE PIPE ASSOCIATION (ACPA)
 - 1. ACPA Concrete Pipe Handbook ACPA Design Manual
- E. ASTM INTERNATIONAL (ASTM)
 - 1. ASTM A 36 Specification for Carbon Structural Steel.
 - 2. ASTM A 82 Specification for Steel Wire, Plain, for Concrete Reinforcement.
 - 3. ASTM A 184 Specification for Fabricated Deformed Steel Mats for Concrete Reinforcement.
 - 4. ASTM A 185 Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
 - 5. ASTM A 496 Specification for Steel Wire, Deformed, for Concrete Reinforcement.
 - 6. ASTM A 497 Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
 - 7. ASTM A 615 Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 8. ASTM A 706 Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
 - 9. ASTM A 767 Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
 - 10. ASTM A 775 Specification for Epoxy-Coated Reinforcing Steel Bars.
 - 11. ASTM A 884 Specification for Epoxy-Coated Steel and Welded Wire Fabric for Reinforcement.

12. ASTM C 14 Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
13. ASTM C 31 Standard Practice for Making and Curing Concrete Test Specimens in the Field.
14. ASTM C 33 Specification for Concrete Aggregates.
15. ASTM C 39 Test Method for Compressive Strength of Cylindrical Concrete Specimens.
16. ASTM C 40 Test Method for Organic Impurities in Fine Aggregates for Concrete.
17. ASTM C 42 Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
18. ASTM C 70 Standard Test Method for Surface Moisture in Fine Aggregate.
19. ASTM C 76 Specifications for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.
20. ASTM C 78 Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading).
21. ASTM C 94 Specifications for Ready-Mixed Concrete.
22. ASTM C 117 Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing.
23. ASTM C 123 Standard Test Method for Lightweight Particles in Aggregate.
24. ASTM C 125 Standard Terminology Relating to Concrete and Concrete Aggregates.
25. ASTM C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates.
26. ASTM C 138 Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
27. ASTM C 142 Standard Test Method for Clay Lumps and Friable Particles in Aggregates.
28. ASTM C 143 Test Method for Slump of Hydraulic Cement Concrete.
29. ASTM C 150 Specification for Portland Cement.
30. ASTM C 172 Standard Practice for Sampling Freshly Mixed Concrete.
31. ASTM C 173 Test Method for Air Content of Freshly Mixed Concrete by Volumetric Method.
32. ASTM C 192 Practice for Making and Curing Concrete Test Specimens in the Laboratory.
33. ASTM C 231 Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
34. ASTM C 260 Specification for Air-Entraining Admixtures for Concrete.
35. ASTM C 330 Specification for Lightweight Aggregates for Structural Concrete.
36. ASTM C 361 Specification for Reinforced Concrete Low-Head Pressure Pipe.
37. ASTM C 403 Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance.
38. ASTM C 443 Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
39. ASTM C 478 Specification for Precast Reinforced Concrete Manhole Sections.
40. ASTM C 494 Standard Specification for Chemical Admixtures for Concrete.
41. ASTM C 497 Test Methods for Concrete Pipe, Manhole Sections, or Tile.
42. ASTM C 506 Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe.
43. ASTM C 507 Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.
44. ASTM C 566 Test Method for Total Evaporable Moisture Content of Aggregate by Drying.
45. ASTM C 595 Specification for Blended Hydraulic Cements.
46. ASTM C 617 Standard Practice for Capping Cylindrical Concrete Specimens.
47. ASTM C 618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.

48. ASTM C 655 Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe.
49. ASTM C 666 Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
50. ASTM C 685 Specification for Concrete Made by Volumetric Batching and Continuous Mixing.
51. ASTM C 805 Test Method for Rebound Number of Hardened Concrete.
52. ASTM C 822 Standard Terminology Relating to Concrete Pipe and Related Products.
53. ASTM C 825 Specification for Precast Concrete Barriers.
54. ASTM C 857 Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures.
55. ASTM C 858 Specification for Underground Precast Concrete Utility Structures.
56. ASTM C 877 Specification for External Sealing Bands for Concrete Pipe, Manholes and Precast Box Sections.
57. ASTM C 890 Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
58. ASTM C 891 Practice for Installation of Underground Precast Concrete Utility Structures.
59. ASTM C 913 Specification for Precast Concrete Water and Wastewater Structures.
60. ASTM C 915 Specification for Precast Reinforced Concrete Crib Wall Members.
61. ASTM C 920 Specification for Elastomeric Joint Sealants.
62. ASTM C 923 Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
63. ASTM C 924 Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method.
64. ASTM C 979 Specification for Pigments for Integrally Colored Concrete.
65. ASTM C 985 Standard Specification for Nonreinforced Concrete Specified Strength Culvert, Storm Drain, and Sewer Pipe.
66. ASTM C 990 Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
67. ASTM C 1018 Test Method for Flexural Toughness and First-Crack Strength of Fiber-Reinforced Concrete (Using Beam with Third-Point Loading).
68. ASTM C 1037 Practice for Inspection of Underground Precast Concrete Utility Structures.
69. ASTM C 1064 Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete.
70. ASTM C 1107 Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
71. ASTM C 1116 Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
72. ASTM C 1582 Standard Specification for Admixtures to Inhibit Chloride-Induced Corrosion of Reinforcing Steel in Concrete.
73. ASTM C 1214 Standard Test Method for Concrete Pipe Sewer lines by Negative Air Pressure (Vacuum) Test Method.
74. ASTM C 1227 Standard Specification for Precast Concrete Septic Tanks.
75. ASTM C 1231 Standard Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders.
76. ASTM C 1240 Standard Specification for Use of Silica Fume for Use as a Mineral Admixture in Hydraulic-Cement Concrete, Mortar, and Grout.
77. ASTM C 1244 Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill.

78. ASTM C 1260 Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method).
79. ASTM C 1293 Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction.
80. ASTM C 1399 Test Method for Obtaining Average Residual-Strength of Fiber-Reinforced Concrete.
81. ASTM C 1433 Standard Specification for Precast Reinforced Concrete Box Sections for Culverts, Storm Drains and Sewers.
82. ASTM C 1478 Standard Specification for Storm Drain Resilient Connectors Between Reinforced Concrete Storm Sewer Structures, Pipes and Laterals.
83. ASTM C 1504 Standard Specification for Manufacture of Precast Reinforced Concrete Three-Sided Structures for Culverts, Storm Drains.
84. ASTM C 1550 Standard Test Method for Flexural Toughness of Fiber Reinforced Concrete (Using Centrally Loaded Round Panel).
85. ASTM C 1602 Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
86. ASTM C 1603 Standard Test Method for Measurement of Solids in Water.
87. ASTM C 1611 Standard Test Method for Slump Flow of Self-Consolidating Concrete.
88. ASTM C1613 Standard Specification for Precast Concrete Grease Interceptors.
89. ASTM D 2240 Standard Test Method for Rubber Property—Durometer Hardness.
90. ASTM G 109 Standard Test Method for Determining the Effects of Chemical Admixtures on the Corrosion of Embedded Steel Reinforcement in Concrete Exposed to Chloride Environments.

F. AMERICAN WELDING SOCIETY (AWS)

1. AWS D 1.1 Structural Welding Code - Steel
2. AWS D 1.4 Structural Welding Code - Reinforcing Steel

G. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)

1. Manual of Standard Practice
2. Placing Reinforcing Bars

H. NATIONAL PRECAST CONCRETE ASSOCIATION (NPCA)

1. NPCA QC Manual Quality Control Manual for Precast Concrete Plants
2. NPCA Selected ASTM Standards ASTM Standards for Precast Concrete

I. PRECAST/PRESTRESSED CONCRETE INSTITUTE

1. (PCI) MNL-120 PCI Design Handbook
2. MNL-122 Architectural Precast Concrete

PART 2 – GENERAL REQUIREMENTS

2.1 Precast concrete units shall be designed and fabricated by an experienced and acceptable precast concrete manufacturer. The manufacturer shall have been regularly and continuously engaged in the manufacture of precast concrete units similar to that indicated in the project specifications or drawings for at least 5 years.

2.2 SUBMITTALS

- A. Preconstruction Submittals - Submit quality control procedures established by the precast manufacturer in accordance with the NPCA Quality Control Manual for Precast Concrete Plants.
- B. Shop Drawings
 - 1. Drawings for Standard Precast Concrete Units
 - a. The drawings for standard precast concrete units shall be shop drawings furnished by the precast concrete producer for approval by the Engineer. These drawings shall demonstrate that the applicable industry design standards have been met. Installation and construction information shall be included on shop drawings upon request. Details of steel reinforcement size and placement as well as supporting design calculations, if appropriate, shall be included. The precast concrete units shall be produced in accordance with the approved drawings. Drawings shall indicate assumptions used in the design of standard units. It is the responsibility of the project's engineer-of-record to verify that the design assumptions are suitable for the proposed application.
 - 2. Drawings for Custom-Made Precast Concrete Units
 - a. The drawings for custom-made precast concrete units shall be shop drawings furnished by the precast concrete producer for approval by the customer. These drawings shall show complete design, installation, and construction information in such detail as to enable the customer to determine the adequacy of the proposed units for the intended purpose. Details of steel reinforcement size and placement as well as supporting design calculations, if appropriate, shall be included. The precast concrete units shall be produced in accordance with the approved drawings.
- C. Design Data
 - 1. Upon request, the precast concrete producer shall supply precast concrete unit design calculations and concrete mix design proportions and appropriate mix design test data. Structural design calculations shall be signed by a licensed professional engineer.

2.3 DESIGN

- A. Standard Precast Concrete Unit Design
 - 1. Design standard precast concrete units to withstand indicated design load conditions in accordance with applicable industry design standards [ACI 318, ACI 350, ASTM, ACPA Design Manual, PCI MNL-120, and AASHTO]. Design must also consider stresses induced during handling, shipping and installation in order to avoid product cracking or other handling damage. Design loads for precast concrete units shall be indicated on the shop drawings.
- B. Non-Standard Precast Concrete Unit Design

1. Design calculations and drawings of non-standard precast units shall be prepared and signed by a licensed professional engineer, and submitted for customer approval prior to fabrication. Calculations shall include the analysis of units for lifting stresses and the sizing of lifting devices.
- C. Joints and Sealants
1. Joints and sealants between adjacent units shall be of the type and configuration indicated on shop drawings meeting specified design and performance requirements.
- D. Concrete Mix Design
1. Concrete Proportions
 - a. Selection of proportions for concrete shall be based on the methodology presented in ACI 211.1 for normal weight concrete, ACI 211.2 for lightweight concrete and ACI 211.3 for no-slump concrete. The concrete proportions shall be developed using the same type and brand of cement, the same type and brand of pozzolan, the same type and gradation of aggregates, and the same type and brand of admixture that will be used in the manufacture of precast concrete units for the project. Accelerators containing calcium chloride shall not be used in precast concrete containing reinforcing steel or other embedded metal items.
 - b. Upon request, the precast concrete producer shall submit a mix design for each strength and type of concrete that will be used. Submitted mix designs shall include the quantity, type, brand and applicable data sheets for all mix design constituents as well as documentation indicating conformance with applicable reference specifications.
 - c. The use of self-consolidating concrete is permitted provided that mix design proportions and constituents meet the requirements of this specification.
- E. Durability and performance requirements
1. Concrete Compressive Strength - Precast concrete units shall have a 28-day compressive strength 5,000 psi.
 2. Water-Cement Ratio - Concrete that will be exposed to freezing and thawing shall contain entrained air (see 4.6.3) and shall have water-cement ratios of 0.45 or less. Concrete which will not be exposed to freezing, but which is required to be watertight, shall have a water-cement ratio of 0.48 or less if the concrete is exposed to fresh water, or 0.45 or less if exposed to brackish water or sea water. For corrosion protection, reinforced concrete exposed to deicer salts, brackish water or seawater shall have a water-cement ratio of 0.40 or less.
 3. Air Content - The air content of concrete that will be exposed to freezing conditions shall be within the limits given below.

Nominal Maximum Aggregate Size (in)	Air Content %	
	Severe Exposure	Moderate Exposure
3/8	6.0 to 9.0	4.5 to 7.5

½	5.5 to 8.5	4.0 to 7.0
¾	4.5 to 7.5	3.5 to 6.5
1	4.5 to 7.5	3.0 to 6.0
1-1/2	4.5 to 7.0	3.0 to 6.0
* For specified compressive strengths greater than 5000 psi, air content may be reduced 1%		

2.4 QUALITY ASSURANCE

A. Qualifications, Quality Control and Inspection

1. Qualifications - The precast concrete producer shall have been in the business of producing precast concrete units similar to those specified for a minimum of 5 years. The precast concrete producer shall maintain a permanent quality control department or retain an independent testing agency on a continuing basis. The agency shall issue a report, signed by a licensed professional engineer, detailing the ability of the precast concrete producer to produce quality units consistent with industry standards.
2. Quality Control - The precast concrete producer shall show that the following quality control tests are performed as required and in accordance with the ASTM International standards indicated.
 - a. Slump: A slump test shall be performed for each 150 cu yd. of concrete produced per mix design, or once a day, whichever comes first. Slump tests shall be performed in accordance with ASTM C 143. Slump flow tests on self-consolidating concrete mixes shall be performed in accordance with ASTM C 1611.
 - b. Temperature: The temperature of fresh concrete shall be measured when slump or air content tests are made and when compressive test specimens are made in accordance with ASTM C 1064
 - c. Compressive Strength: At least four compressive strength specimens shall be made for each 150 cubic yards of concrete of each mix design in accordance with the following applicable ASTM standards; C 31, C 39, C 192, C 497 [no-slump concrete].
 - d. Air Content: Tests for air content shall be made on air-entrained, wet-cast concrete for each 150 cu yd. of concrete, per mix design, but not less often than once each day when air-entrained concrete is used. The air content shall be determined in accordance with either ASTM C 231 or ASTM C 173 for normal weight aggregates and ASTM C 173 for lightweight aggregates.
 - e. Density (Unit Weight): Tests for density shall be performed a minimum of once per week to verify the yield of batch mixes. Density tests shall be performed for each 100 cu yd. of lightweight concrete in accordance with ASTM C 138. Density tests shall be

performed for each 100 cu yd. of concrete per mix design, but not less often than once per day when volumetric batch equipment is used.

3. Inspection - The customer or customer's agent (specifier) may place an inspector in the plant when the units covered by this specification are being manufactured. The precast concrete producer shall give notice of 5 days prior to the time the precast concrete units will be available for plant inspection.

2.5 HANDLING, STORAGE AND DELIVERY

- A. Handling - Precast concrete units shall be handled and transported in a manner to minimize damage. Lifting devices or holes shall be consistent with industry standards. Lifting shall be accomplished with methods or devices intended for this purpose as indicated on shop drawings. Upon request, the precast concrete producer shall provide documentation on acceptable handling methods for the product.
- B. Storage - Precast concrete units shall be stored in a manner that will minimize potential damage.
- C. Delivery - Precast concrete units shall be delivered to the site in accordance with the delivery schedule to avoid excessive build-up of units in storage at the site. Upon delivery to the jobsite all precast concrete units shall be inspected by the customer or customer's agent for quality and final acceptance.
- D. Final Acceptance - Upon final acceptance, the customer or customer's agent acknowledges and understands the appropriate methods for handling the accepted precast concrete unit(s). Upon acceptance by the customer or customer's agent, the precast concrete manufacturer is not responsible for replacing damaged product resulting from improper handling practices on the job site.

PART 3 – PRODUCTS

3.1 MANUFACTURERS

- A. The precast concrete manufacturer must meet the requirements established in the Quality Assurance Section above.
- B. Local Manufacturer: Shea Precast, CSI.
- C. Substitutions are allowed subject to approval and review of shop drawings.

3.2 MATERIALS

- A. Except as otherwise specified, material shall conform to the following section.
 1. Cement
 - a. ASTM C 150 (Type I, II, III or V)
 - b. ASTM C 595 (for Blended Cements)

2. Water
 - a. ASTM C1602 The use of reclaimed/recycled process water shall be permitted.
3. Aggregates
 - a. Aggregate Selection - Aggregates shall conform to ASTM C 33. Aggregates shall not contain any substance which may be deleteriously reactive with the alkalis in the cement. Upon request, the precast concrete producer shall provide documentation indicating the aggregates are not susceptible to alkali-aggregate reaction.
 - b. Aggregates for Lightweight Concrete - ASTM C 330
4. Reinforcement
 - a. Reinforcing Bars
 - b. Deformed Billet-Steel - ASTM A 615
 - c. Deformed Low-Alloy Steel - ASTM A 706
5. Reinforcing Wire
 - a. Plain Wire - ASTM A 82
 - b. Deformed Wire - ASTM A 496
6. Welded Wire Reinforcement
 - a. Plain Wire - ASTM A 185
 - b. Deformed Wire - ASTM A 497
7. Inserts and Embedded Metal - All items embedded in concrete shall be of the type required for the intended use and meet the following standards.
 - a. Structural Steel Plates, Angles, etc. - ASTM A 36
 - b. Hot-Dipped Galvanized - ASTM A 152
8. Proprietary Items - In accordance with manufacturers published literature
9. Joint Sealants and Joint Gaskets
 - a. Rubber Gaskets for Circular Concrete Sewer Pipe and Culvert Pipe - ASTM C 443
 - b. External Sealing Bands for Noncircular Sewer, Storm Drain and Culvert Pipe - ASTM C 877
 - c. Preformed Flexible Joint Sealants for Concrete Pipe, Manholes, and Manufactured Box Sections - ASTM C 990
 - d. Elastomeric Joint Sealants - ASTM C 920
10. Pipe Entry Connectors
 - a. ASTM C 923
 - b. ASTM C 1478
11. Grout
 - a. Nonshrink Grout - ASTM C 1107
12. Cementitious Grout - Shall be of suitable mix design for the intended use, consisting of Portland cement, sand, and water. [Provide air entrainment for grout exposed to corrosive conditions or severe weather.]

PART 4 - EXECUTION

4.1 MANUFACTURE

- A. Manufacture shall conform to the NPCA Quality Control Manual for Precast Concrete Plants unless specified otherwise.
- B. Forms

1. Forms for manufacturing precast concrete units shall be of the type and design consistent with industry standards and practices. They should be capable of consistently providing uniform products and dimensions. Forms shall be constructed so that the forces and vibrations to which the forms will be subjected cause no damage to the precast concrete unit.
 2. Forms shall be cleaned of concrete build-up after each use.
 3. Form release agents shall be applied according to the manufacturer's recommendations and shall not be allowed to build up on the form casting surfaces.
- C. Reinforcement
1. Applicable ASTM International and/or ACI 318 standards for placement and splicing
 2. Cages of reinforcement shall be fabricated either by tying the bars, wires or welded wire reinforcement into rigid assemblies or by welding, where permissible, in accordance with AWS D1.4. Reinforcing shall be positioned as specified by the design and so that the concrete cover conforms to requirements. The tolerance on concrete cover shall be one-third of that specified but not more than 1/2 in. Concrete cover shall not be less than 1/2 in., unless otherwise specified. Positive means shall be taken to assure that the reinforcement does not move significantly during the casting operations.
- D. Embedded Items - Embedded items shall be positioned at locations specified in the design documents. Welding shall be performed in accordance with AWS D1.1 when necessary. Inserts, plates, weldments, lifting devices and other items to be embedded in precast concrete units shall be held rigidly in place so that they do not move significantly during casting operations.
- E. Concrete
1. Concrete Mixing - Mixing operations shall produce batch-to-batch uniformity of strength, consistency, and appearance.
 2. Concrete Placing - Conventional concrete shall be deposited into forms as near to its final location as practical. Self-consolidating concrete shall be placed in a manner in which it flows and consolidates without segregation or air entrapment. The free fall of the concrete shall be kept to a minimum. Concrete shall be consolidated in such a manner that segregation of the concrete is minimized and honeycombed areas are kept to a minimum. Consolidation efforts are often not required when using self-consolidating concrete. Vibrators used to consolidate concrete shall have frequencies and amplitudes sufficient to produce well-consolidated concrete.
 3. Cold Weather Concreting - Recommendations for cold weather concreting are given in detail ACI 306 R. Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather. All concrete materials and all reinforcement, forms, fillers, and ground with which concrete is to come in contact shall be free from frost. Frozen materials or materials containing ice shall not be used. In cold weather the temperature of concrete at the time of placing shall not be below 45° F. Concrete that freezes before its compressive strength reaches 500 psi shall be discarded.
 4. Hot Weather Concreting
 - a. Recommendations for hot weather concreting are given in ACI 305 R.
 - b. During hot weather, proper attention shall be given to constituents, production methods, handling, placing, protection, and curing to prevent excessive concrete temperatures or water evaporation that could impair required strength or serviceability of the member or structure. The temperature of concrete at the time of placing shall not exceed 90° F.

- F. Concrete Curing - Commence curing operations immediately following the initial set of the concrete and completion of surface finishing.
1. Curing by Moisture Retention - Moisture shall be prevented from evaporating from exposed surfaces until adequate strength for stripping the precast concrete unit from the forms is reached by one of the following methods:
 - a. Cover with polyethylene sheets a minimum of 6 mils thick (ASTM C 171)
 - b. Cover with burlap or other absorptive material and keep continually moist
 - c. Use of a membrane-curing compound applied at a rate not to exceed 200 sq. ft. per gallon, or per manufacturers' recommendations (ASTM C 309)
 - d. [Surfaces that will be exposed to weather during service shall be cured as above a minimum of [] days. Forms shall be considered effective in preventing evaporation from the contact surfaces. If air temperature is below 50°F the curing period shall be extended.]
 2. Curing with Heat and Moisture - Concrete shall not be subjected to steam or hot air until after the concrete has attained its initial set. Steam, if used, shall be applied within a suitable enclosure, which permits free circulation of the steam in accordance with ACI 517.2R. If hot air is used for curing, precautions shall be taken to prevent moisture loss from the concrete. The temperature of the concrete shall not be permitted to exceed 150° F. These requirements do not apply to products cured with steam under pressure in an autoclave.
- G. Surface Finish - Unformed surfaces of wet-cast precast concrete products shall be finished as specified. If no finishing procedure is specified, such surfaces shall be finished using a strike-off to level the concrete with the top of the form.
1. Formed Non-Architectural Surfaces - Surfaces shall be cast against approved forms in accordance with standard industry practices in cleaning forms, designing concrete mixes, placing and curing concrete. Normal color variations, form joint marks, small surface holes caused by air bubbles, and minor chips and spalls will be accepted. Major imperfections, excessive honeycombing or other major defects shall not be permitted.
 2. Unformed Surfaces - Surfaces shall be finished with a vibrating screed, or by hand with a float. Normal color variations, minor indentations, minor chips and spalls will be accepted. Major imperfections, excessive honeycombing or other major defects shall not be permitted.
 3. Special Finishes
 - a. Troweled, broom or other finishes shall be according to the requirements of project documents and performed per industry standards or supplier specifications.
 - b. Precast concrete producers shall submit sample finishes for approval when required by the project documents. The sample finishes shall be approved prior to the start of production.
 4. Architectural Finishes
 - a. Architectural finishes shall be according to the requirements of project documents and performed per industry standards or supplier specifications.
 - b. Precast concrete producers shall submit sample finishes for approval when required by the project documents. Full-size mockups are recommended for the approval of architectural finishes, because color variations and surface imperfections are not always apparent on small scale samples. The sample finishes shall be approved prior to the start of production.
- H. Stripping Precast Concrete Units From Forms - Precast concrete units shall not be removed from the forms until the concrete reaches the compressive strength for stripping required by the design.

If no such requirement exists, products may be removed from the forms after the final set of concrete provided that stripping damage is minimal. Stripping strengths shall be routinely measured to ensure product has attained sufficient strength for safe handling.

- I. Patching and Repair - No repair is required to formed surfaces that are relatively free of air voids and honeycombed areas, unless the surfaces are required by the design to be finished.
 - 1. Repairing Minor Defects - Defects that will not impair the functional use or expected life of a precast concrete unit may be repaired by any method that does not impair the product.
 - 2. Repairing Honeycombed Areas - When honeycombed areas are to be repaired, all loose material shall be removed and the areas cut back into essentially horizontal or vertical planes to a depth at which coarse aggregate particles break under chipping rather than being dislodged. Proprietary repair materials shall be used in accordance with the manufacturer's instructions. If a proprietary repair material is not used, the area shall be saturated with water. Immediately prior to repair, the area should be damp, but free of excess water. A cement-sand grout or an approved bonding agent shall be applied to the chipped surfaces, followed immediately by consolidating an appropriate repair material into the cavity.
 - 3. Repairing Major Defects - Defects in precast concrete products which impair the functional use or the expected life of products shall be evaluated by qualified personnel to determine if repairs are feasible and, if so, to establish the repair procedure.
- J. Shipping Precast Concrete Units - Precast concrete units shall not be shipped until they are at least 7 days old, unless it can be shown that the concrete strength has reached at least 75% of the specified 28-day strength, or that damage will not result, impairing the performance of the product.
- K. Modular Top Units – Box culvert sections shall be manufactured with a separate, modular top section to be placed by the contractor on site after bottom units have been filled with stream substrate material.

4.2 INSTALLATION

- A. Site Access
 - 1. The general contractor shall be responsible for providing adequate access to the site to facilitate hauling, storage and proper handling of the precast concrete units.
- B. Installation
 - 1. Precast concrete units shall be installed to the lines and grades shown in the contract documents or otherwise specified.
 - 2. Precast concrete units shall be lifted by suitable lifting devices at points provided by the precast concrete producer.
 - 3. Precast concrete units shall be installed in accordance with applicable industry standards. Upon request, the precast concrete producer shall provide installation instructions.
 - 4. Field modifications to the product shall relieve the precast producer of liability regardless if such modifications result in the failure of the precast concrete unit.
- C. Water-tightness
 - 1. Where water-tightness is a necessary performance characteristic of the precast concrete unit's end use, watertight joints, pipe-entry connectors and inserts should be used to ensure the integrity of the entire system.

4.3 FIELD QUALITY CONTROL

A. Job Site tests

1. When water-tightness testing is required for a precast concrete structure, one of the following methods may be followed:
 - a. Vacuum Testing - Prior to backfill, vacuum test system according to [ASTM C1244 (for manholes)] [ASTM C 1227 (for septic tanks)]
 - b. Hydrostatic Testing - According to contract documents and precast concrete producer's recommendations [or ASTM C 1227 (for septic tanks)].

END OF SECTION

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SECTION 310513 - SOILS FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Subsoil materials.
 - 2. Topsoil materials.

- B. Related Sections:
 - 1. Section 01 33 00 – Submittal Procedures
 - 2. Section 01 40 00 – Quality Requirements
 - 3. Section 31 05 16 – Aggregates for Earthwork
 - 4. Section 31 22 13 – Rough Grading
 - 5. Section 31 23 17 – Trenching
 - 6. Section 31 23 23 – Fill

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- B. ASTM International:
 - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).
 - 2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
 - 3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

1.3 SUBMITTALS

- A. Section 01 33 00 — Submittal Procedures.

- B. Materials Source: Submit name of imported materials source.

- C. Manufacturers/Suppliers Certificates: Certify Products meet or exceed specified requirements. Provide current test results verifying materials meet requirements. This should include sieve samples.

1.4 Quality Assurance

- A. Furnish each subsoil material from a single source throughout the Work.

- B. Perform Work in accordance with 2003 MDOT Standard Specifications for Construction.

PART 2 - PRODUCTS

2.1 SUBSOIL MATERIALS

A. Subsoil Type S2:

1. Excavated and re-used material.
2. Clean granular and graded.
3. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.

2.2 TOPSOIL MATERIALS

A. Topsoil: Shall conform to SSHB M1.05.0

B. Refer to Drawings for additional Topsoil requirements.

C. Acidity range (pH) of 5.5 to 7.5.

D. Containing minimum of 4 percent and maximum of 25 percent inorganic matter.

2.3 WETLAND SOILS

A. Soil Type: Wetlands

1. Excavated and re-used material from wetlands area
2. If additional material required it shall be brought in from off site and closely match granularity and makeup of in-situ wetlands soils.

2.4 SOURCE QUALITY CONTROL

A. Testing and Analysis of Subsoil Material: Perform in accordance with ASTM D698. ASTM D1557. AASHTO T180.

B. Testing and Analysis of Topsoil Material: Perform in accordance with ASTM D698. ASTM D1557. AASHTO T180.

C. When tests indicate materials do not meet specified requirements, change material and retest.

D. Furnish materials of each type from same source throughout the Work. Contractor shall provide test results verifying products meet specified requirements. Contractor shall submit test results for proposed fill materials, pit location and pit number at preconstruction meeting.

PART 3 – EXECUTION

3.1 EXCAVATION

A. Excavate subsoil and topsoil (shoulders) from areas designated. Strip topsoil (shoulders) to full depth of topsoil in areas that will be excavated or filled for proposed construction. Strip subsoil from under all proposed pavement areas.

B. Stockpile excavated material meeting requirements for subsoil materials and topsoil

materials.

- C. Remove excess excavated materials not intended for reuse, from site.
- D. Remove excavated materials not meeting requirements for subsoil materials and topsoil materials from site.

3.2 STOCKPILING

- A. Stockpile materials on site where materials will not interfere with construction or owners' operations.
- B. An offsite stockpile area is available at the Bolton Transfer Station. Contractor is responsible for hauling to and from stockpile site.
- C. Stockpile in sufficient quantities to meet Project schedule and requirements.
- D. Separate differing materials with dividers or stockpile apart to prevent mixing.
- E. Stockpiles should be protected from erosion if left longer than a two week period or in the event of a significant rainfall event. Contractor shall use plastic sheeting, temporary seeding, temporary siltation barrier along the base of the stockpile, and other appropriate methods to control erosion.
- F. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- G. Stockpile any encountered unsuitable materials on impervious material and cover to prevent erosion and leaching, until disposed of.

3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.
- B. When borrow area is indicated, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.
- C. Excess material shall be left at the offsite stockpile site.

END OF SECTION

SECTION 310516 - AGGREGATES FOR EARTHWORK

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Coarse aggregate materials.
 - 2. Fine aggregate materials.

- B. Related Sections:
 - 1. Section 31 05 13 - Soils for Earthwork: Fill and grading materials.
 - 2. Section 31 23 17 - Trenching.
 - 3. Section 31 23 23 - Fill.
 - 4. Section 31 37 00 - Riprap.

1.2 REFERENCES

- A. Massachusetts Highway Department Standard Specifications for Highways and Bridges (SSHB)

- B. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses.
 - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- C. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 5. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.3 SUBMITTALS

- A. Materials Source: Submit name of imported materials suppliers.

- B. Manufacturer's Certificate: sieve tests and gradation curves.

1.4 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.

- B. Perform Work in accordance with SSHB M1 and M2

PART 2 – PRODUCTS

2.1 COARSE AGGREGATE MATERIALS

- A. Coarse Aggregate: Conforming to SSHB M2.01.0 Crushed Stone
- B. Dense Graded Crushed Stone: conforming to SSHB M2.01.7 Dense graded crushed stone for sub-base.
- C. Processed Gravel: Conforming to SSHB M1.03.1
- D. Pea Stone: Conforming to SSHB M2.01.6.

2.2 FINE AGGREGATE MATERIALS

- A. Gravel Borrow: Conforming to SSHB M1.03.0 type b
- B. Sand Borrow: Conforming to SSHB M1.04.0
- C. Loam Borrow: Conforming to SSHB M1.05.0

2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing and inspection services.
- B. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698
- C. Fine Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698
- D. When tests indicate materials do not meet specified requirements, change material and retest.

PART 3 – EXECUTION

3.1 EXCAVATION

- A. Stockpile excavated material meeting requirements for coarse aggregate materials and fine aggregate materials.
- B. Remove excess excavated coarse aggregate materials and fine aggregate materials not intended for reuse, from site.
- C. Stockpile material meeting gravel borrow specifications.

3.2 STOCKPILING

- A. Stockpile materials on site, or at a location determined in advance with the Bolton Department of Public Works director.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.

- C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Removing surface debris.
 - 2. Removing designated trees, shrubs, and other plant life.
 - 3. Excavating topsoil.
- B. Related Sections:
 - 1. Section 31 22 13 - Rough Grading.
 - 2. Section 31 23 12 - Rock Removal.

1.2 QUALITY ASSURANCE

- A. Conform to applicable Federal, State, and local code for environmental requirements, and disposal of debris. No burning of debris permitted on site.
- B. Comply with the Order of Conditions issued by the Bolton Conservation Commission.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify existing plant life designated to remain is tagged or identified.
- B. Identify waste area for placing removed materials.

3.2 PREPARATION

- A. Call Local Utility Line Information service not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.

3.3 PROTECTION

- A. Locate, identify, and protect utilities indicated to remain, from damage.
- B. Protect trees, plant growth, and features designated to remain, as final landscaping as specified in plans.
- C. Protect bench marks, survey control points, and existing structures from damage or displacement.

3.4 CLEARING

- A. Clear areas required for access to site and execution of Work to minimum depth of 12 inches.
- B. Remove trees and shrubs within marked areas. Remove stumps, main root ball.
- C. Clear undergrowth and deadwood, without disturbing subsoil.

3.5 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.
- B. Remove abandoned utilities. Indicate removal termination point for underground utilities on Record Documents.
- C. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.
- D. Do not burn or bury materials on site. Leave site in clean condition.

3.6 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not excavate wet topsoil.
- C. Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion. Stockpile material on impervious material and cover over, until disposal.
- D. Remove excess topsoil not intended for reuse, from site.

END OF SECTION

SECTION 312213 - ROUGH GRADING

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavating topsoil.
 - 2. Excavating subsoil.
 - 3. Cutting, grading site for site structures, and other site features. .

- B. Related Sections:
 - 1. Section 31 05 13 - Soils for Earthwork
 - 2. Section 31 05 16 - Aggregates for Earthwork
 - 3. Section 31 10 00 - Site Clearing:
 - 4. Section 31 23 16 - Excavation.
 - 5. Section 31 23 17 – Trenching
 - 6. Section 31 23 18 - Rock Removal.
 - 7. Section 31 23 23 - Fill

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- B. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 5. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 - 6. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
 - 7. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head).
 - 8. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 9. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with Massachusetts Highway Department Standard Specifications for Highways and Bridges (SSHB)

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Topsoil: as specified in Section 31 05 13
- B. Subsoil Fill: as specified in Section 31 05 13
- C. Structural Fill: as specified in Section 31 05 13 and as shown on the structural Drawings.
- D. Granular Fill: as specified in Section 31 05 16

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify site conditions before starting work.
- B. Verify survey bench mark and intended elevations for the Work are as indicated on Drawings.

3.2 PREPARATION

- A. Call Local Utility Line Information service not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
 - 2. Call Dig Safe as required by Law.
- B. Identify required lines, levels, contours, and datum.
- C. Notify utility company remove and relocate utilities as required for construction.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- F. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.3 TOPSOIL EXCAVATION

- A. Excavate topsoil from entire site, without mixing with foreign materials for use in finish grading.
- B. Do not excavate wet topsoil.
- C. Stockpile in area on site to depth not exceeding 8 feet and protect from erosion.
- D. Remove excess topsoil not intended for reuse, from site.

3.4 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas under pavement.
- B. Do not excavate wet subsoil.
- C. Remove excess subsoil not intended for reuse, from site.
- D. Stockpile excavated material in area designated on site in accordance with Section 310513
- E. Benching Slopes: Horizontally bench existing slopes greater than 1:1 and or as required by OHSa to key placed fill material to slope to provide firm bearing.
- F. Stability: Replace damaged or displaced subsoil as specified for fill.

3.5 FILLING

- A. Fill areas to contours and elevations with unfrozen materials.
- B. Place fill material in continuous layers and compact to 95% proctor.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Repair or replace items indicated to remain damaged by excavation or filling.

3.6 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

END OF SECTION

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SECTION 312316 – EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Soil densification.
 - 2. Excavating for paving and parking areas.
 - 3. Excavating for site structures.
 - 4. Excavating for landscaping.

- B. RELATED SECTIONS:
 - 1. Section 31 05 13- Soils for Earthwork.
 - 2. Section 31 05 16- Aggregates for Earthwork.
 - 3. Section 31 22 13- Rough Grading.
 - 4. Section 31 23 17- Trenching.
 - 5. Section 31 23 18- Rock Removal.
 - 6. Section 31 23 23- Fill.

1.2 REFERENCES

- A. Local utility standards when working within 24 inches of utility lines.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with Section 120 of the 2021 MDOT Standard Specifications for Construction.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.1 PREPARATION

- A. Call Local Utility Line Information service at not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.

- B. Identify required lines, levels, contours, and datum.

- C. Notify utility company to remove or relocate utilities as required.

- D. Protect utilities indicated to remain from damage.

- E. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- F. Protect bench marks, survey control points, existing structures, and paving from excavating equipment and vehicular traffic.

3.2 SOIL DENSIFICATION - VIBRO-COMPACTION

- A. Vibro-compact substrates below footing bearing surfaces for footings as indicated on Drawings before excavating site.
- B. Densify existing subsoils with relative density rating of compact to dense to attain relative density rating of very dense.
 - 1. Densify subsoils to depth of 2 feet.

3.3 EXCAVATION

- A. Excavate subsoil to accommodate paving and site structures, and construction operations.
- B. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with Section 31 23 23.
- C. Slope banks with machine to angle of repose or less until shored in accordance with OSHA requirements.
- D. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- E. Trim excavation. Remove loose matter.
- F. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume. Remove larger material as specified in Section 31 23 23.
- G. Notify Engineer of unexpected subsurface conditions.
- H. Correct areas over excavated with structural fill Type A1 or A5 specified in Section 31 23 23.
- I. Remove excess and unsuitable material from site.
- J. Stockpile subsoil in area designated on site to depth not exceeding 8 feet and protect from erosion.
- K. Repair or replace items indicated to remain damaged by excavation.

3.4 FIELD QUALITY CONTROL

- A. Owner's tester shall perform inspection of excavation and controlled fill operations in accordance with 2003 MDOT Standard Specifications for Construction.
- B. Contactor to notify engineer 48 hours prior to filling operations.

3.5 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION

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SECTION 312317 – TRENCHING

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating trenches for utilities from 10 feet outside building to utility service.
2. Compacted fill from top of utility bedding to subgrade elevations.
3. Backfilling and compaction.

B. Related Sections:

1. Section 31 05 13 - Soils for Earthwork.
2. Section 31 05 16 - Aggregates for Earthwork.
3. Section 31 22 13 - Rough Grading.
4. Section 31 23 16 - Excavation.
5. Section 31 23 18 - Rock Removal.
6. Section 31 23 23 - Fill.
7. Section 31 37 00 - Riprap.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, cable, or utility pole.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with Drawings and specifications.

1.6 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.7 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 – PRODUCTS

2.1 FILL MATERIALS

- A. Subsoil Fill: as specified in Section 31 05 13.
- B. Structural Fill: as specified in Section 31 05 13 and as indicated on the structural Drawings.
- C. Granular Fill: as specified in Section 31 05 16.

PART 3 – EXECUTION

3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
 - 1. Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.2 PREPARATION

- A. Call Local Utility Line Information service not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.

- C. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- D. Protect bench marks, existing structures, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.

3.3 TRENCHING

- A. Excavate subsoil required for utilities to utility service.
- B. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard measured by volume. Remove larger material as specified in Section 31 23 18
- C. Perform excavation within 24 inches of existing utility service in accordance with utility's requirements.
- D. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- E. Excavate bottom of trenches maximum 2 feet wider than outside diameter of pipe.
- F. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding.
- G. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- H. When subsurface materials at bottom of trench are loose or soft, notify Engineer, and request instructions.
- I. Cut out soft areas of subgrade not capable of compaction in place. Backfill with required Fill Type and compact to density equal to or greater than requirements for subsequent backfill material.
- J. Trim excavation. Remove loose matter.
- K. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
- L. Remove excess subsoil not intended for reuse, from site.

3.4 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Design sheeting and shoring to be removed at completion of excavation work.

- C. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- D. Repair damage to Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.5 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen fill materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Place fill material in continuous layers and compact to 95% density in accordance with the Drawing requirements.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Do not leave more than 50 feet of trench open at end of working day and comply with trench permit.
- F. Protect open trench to prevent danger to the public.

3.6 FIELD QUALITY CONTROL

- A. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556.
 - 2. Moisture Tests: ASTM D3017.
- B. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- C. Frequency of Tests: 2 per lift.

3.7 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

SECTION 312318 - ROCK REMOVAL

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Removing identified and discovered rock during excavation.
 - 2. Expansive tools to assist rock removal.
- B. Related Sections:
 - 1. Section 31 22 13 - Rough Grading
 - 2. Section 31 23 16 - Excavation
 - 3. Section 31 23 17 - Trenching
 - 4. Section 31 23 23 - Fill
 - 5. Section 31 37 00 - Riprap

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Site Rock Removal:
 - 1. Basis of Measurement: By cubic yard measured before removal.
 - 2. Basis of Payment: Includes preparation of rock for removal, mechanical disintegration of rock, removal from position, loading and removing from site. For over excavation, payment will not be made for over excavated work nor for replacement materials.
- B. Trench Rock Removal:
 - 1. Basis of Measurement: By cubic yard measured before removal
 - 2. Basis of Payment: Includes preparation of rock for removal, mechanical disintegration of rock, removal from position, loading and removing from site. For over excavation, payment will not be made for over excavated work nor for replacement materials.

1.3 REFERENCES

- A. National Fire Protection Association:
 - 1. NFPA 495 - Explosive Materials Code.

1.4 DEFINITIONS

- A. Site Rock: Solid mineral material with volume in excess of 5 cu yd.
- B. Trench Rock: Solid mineral material with volume in excess of 5 cu yd.

1.5 SUBMITTALS

- A. Survey Report: Submit survey report on conditions of buildings near locations of rock removal.

1.6 PROJECT CONDITIONS

- A. Conduct survey and document conditions of buildings near locations of rock removal, prior to blasting, and photograph existing conditions identifying existing irregularities.

1.7 SCHEDULING

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Schedule Work to avoid disruption to occupied buildings nearby.
- C. Conduct blasting operations between hours of 9 am and 4 pm only.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify site conditions and note subsurface irregularities affecting Work of this section.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.

3.3 ROCK REMOVAL BY MECHANICAL METHOD

- A. Excavate and remove rock by mechanical method.
 - 1. Drill holes and use mechanical disintegration to fracture rock.
- B. Cut away rock at bottom of excavation to form level bearing.
- C. Remove shaled layers to provide sound and unshattered base.
- D. Remove excavated materials from site.
- E. Correct unauthorized rock removal in accordance with backfilling and compacting requirements of Section 31 23 23.

END OF SECTION

SECTION 312319 - DEWATERING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Dewatering system.
 - 2. Surface water control system.
 - 3. System operation and maintenance.
 - 4. Water disposal.

- B. Related Sections:
 - 1. Section 31 05 16 - Aggregates for Earthwork
 - 2. Section 31 23 16 - Excavation
 - 3. Section 31 23 17 - Trenching
 - 4. Section 31 25 00 - Erosion and Sedimentation Controls

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM C33 - Standard Specification for Concrete Aggregates.

1.3 DEFINITIONS

- A. Dewatering includes the following:
 - 1. Lowering of ground water table and intercepting horizontal water seepage to prevent ground water from entering excavations.
 - 2. Reducing piezometric pressure within strata to prevent failure or heaving of excavations
 - 3. Disposing of removed water.

- B. Surface Water Control includes the following:
 - 1. Removal of surface water within open excavations.
 - 2. Diversion of base stream flow to the down stream side of the culvert.

1.4 SYSTEM DESCRIPTION

- A. Provide dewatering and surface water control systems to permit Work to be completed on dry and stable subgrade.
 - 1. Install well points, and other appurtenances as required.
 - 2. Refer to drawings for details relative to dewatering.
 - 3. Refer to the Order of Conditions issued by the Bolton Conservation Commission for additional requirements relative to Dewatering.

- B. Furnish standby equipment stored at Project site and ready for immediate use upon failure of dewatering equipment. Provide the following standby equipment, but not less than one of each type:

1. Dewatering Pumps.
2. Portable Electric Generators.

1.5 PERFORMANCE REQUIREMENTS

- A. Design dewatering systems to:
1. Lower water table within areas of excavation to elevations that will support the required work in accordance with the plans, specifications and safety requirements.
 2. Relieve hydrostatic pressures in confined water bearing strata below excavation to eliminate risk of uplift or other instability of excavation.
 3. Prevent damage to adjacent properties, buildings, structures, utilities, and facilities from construction operations.
 4. Prevent loss of fines, quick condition, or softening of foundation subgrade.
 5. Maintain stability of sides and bottoms of excavations.
- B. Design surface water control systems to:
1. Collect and remove surface water and seepage entering excavation.

1.6 SUBMITTALS

- A. Shop Drawings:
1. Indicate dewatering system layout, well depths, well screen lengths, dewatering pump locations, pipe sizes and capacities, grades, filter sand gradations, surface water control devices, valves, and water disposal method and location.
 2. Indicate primary and standby power system location and capacity.
 3. Indicate layout and depth of monitoring wells, piezometers and flow measuring devices for system performance measurement.
 4. Include detailed description of dewatering and monitoring system installation procedures and maintenance of equipment.
 5. Include description of emergency procedures to follow when problems arise.
- B. Field Reports: Test and monitoring reports as specified in Field Quality Control article.

1.7 QUALITY ASSURANCE

- A. Comply with authorities having jurisdiction for the following:
1. Drilling and abandoning of wells used for dewatering systems.
 2. Water discharge and disposal from pumping operations.
- B. Obtain permit from EPA under National Pollutant Discharge Elimination System (NPDES), for storm water discharge from construction sites (if required).

1.8 QUALIFICATIONS

- A. Installer: Company specializing in performing work of this section with minimum of 3 years experience and responsible for design, operation, and maintenance of dewatering system.
1. Assume sole responsibility for dewatering and surface water control systems and for loss or damage resulting from partial or complete failure of protective measures and settlement or resultant damage caused by ground water control operations.

1.9 PRE-INSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section if it is deemed necessary.
- C. Coordinate with the Bolton Conservation Commission, Engineer and Owner to establish time and date for pre-installation meeting.

1.10 SEQUENCING

- A. Section 01 10 00 - Summary: Requirements for sequencing.
- B. Sequence work to install dewatering and surface water control systems before starting excavation.
- C. Obtain approval from the Bolton Conservation Commission for Dewatering means and methods prior to construction and installation.

1.11 COORDINATION

- A. Coordinate work to permit the following construction operations to be completed on dry stable substrate.
 - 1. Excavation for structures specified in Section 31 23 16.

PART 2 – PRODUCTS

2.1 DEWATERING EQUIPMENT

- A. Select dewatering equipment to meet specified performance requirements.
- B. Dewatering Pumps: Portable with the appropriate flow capacity and heads.

2.2 ACCESSORIES

- A. Valves and Fittings: Furnish valves and fittings to isolate each well from header pipe and to prevent loss of pump prime.
- B. Filter Sand: Fine aggregate Type [A5] [A6] as specified in Section 31 05 16.
- C. Filter Sand: ASTM C33; natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; graded to suit well screen.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Conduct additional borings and investigations to supplement subsurface investigations identified in Section 00 31 00 as required to complete dewatering system design.

3.2 PREPARATION

- A. Protect existing adjacent buildings, structures, and improvements from damage caused by dewatering operations.

3.3 DEWATERING SYSTEM

- A. Install dewatering system in accordance with shop drawings.
- B. Locate system components to allow continuous dewatering operations without interfering with installation of permanent Work and existing public rights-of-way, sidewalks, and adjacent buildings, structures, and improvements.
- C. Install pumps in accordance with manufacturer's instructions.

3.4 SURFACE WATER CONTROL SYSTEM

- A. Provide ditches, berms, and other devices to divert and drain surface water from excavation area as required for construction.
- B. Divert surface water and seepage water within excavation areas into sumps and pump water into settling basins in accordance with requirements of agencies having jurisdiction.
- C. Control and remove unanticipated water seepage into excavation.

3.5 SYSTEM OPERATION AND MAINTENANCE

- A. Operate dewatering system continuously until backfill is minimum 2 feet above normal ground water table elevation.
- B. Provide 24-hour supervision of dewatering system by personnel skilled in operation, maintenance, and replacement of system components.
- C. Conduct daily observation of dewatering system and monitoring system. Make required repairs and perform scheduled maintenance.
- D. Fill fuel tanks before tanks reach 25 percent capacity.
- E. Start emergency generators at least twice each week to check operating condition.
- F. When dewatering system cannot control water within excavation, notify Architect/Engineer and stop excavation work.
 - 1. Supplement or modify dewatering system and provide other remedial measures to control water within excavation.
 - 2. Demonstrate dewatering system operation complies with performance requirements before resuming excavation operations.

- G. Modify dewatering and surface water control systems when operation causes or threatens to cause damage to new construction, existing site improvements, adjacent property, or adjacent water wells.
- H. Correct unanticipated pressure conditions affecting dewatering system performance.
- I. Do not discontinue dewatering operations without Architect/Engineer's approval.

3.6 WATER DISPOSAL

- A. Discharge water into settling basins.
- B. Discharge points shall be as indicated on the drawings.

3.7 SYSTEM REMOVAL

- A. Remove dewatering and surface water control systems after dewatering operations are discontinued.
- B. Fill abandoned wells with sand grout.
- C. Repair damage caused by dewatering and surface water control systems or resulting from failure of systems to protect property.
- D. Comply with Order of Conditions from Bolton Conservation Commission.

3.8 FIELD QUALITY CONTROL

- A. Monitor ground water discharge for sand content.
- B. Monitor ground water discharge for contamination while performing pumping in vicinity of potentially contaminated sites.

END OF SECTION

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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SECTION 312323 – FILL

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Backfilling site structures to subgrade elevations.
 - 2. Fill under paving.
 - 3. Fill for over-excavation.

- B. Related Sections:
 - 1. Section 31 05 13 - Soils for Earthwork.
 - 2. Section 31 05 16 - Aggregates for Earthwork.
 - 3. Section 31 22 13 - Rough Grading.
 - 4. Section 31 23 16 - Excavation.
 - 5. Section 31 23 17 - Trenching.
 - 6. Section 31 37 00 - Riprap.

1.2 REFERENCES

- A. Massachusetts Highway Department Standard Specifications for Highways and bridges (SSHB)

- B. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- C. ASTM International:
 - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 - 5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

- A. Materials Source: Submit name of imported fill materials suppliers.

- B. Submit sieve test results for imported material: 1 test every 500 C.yd.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with SSHB and as specified on the Drawings.

PART 2 – PRODUCTS

2.1 FILL MATERIALS

- A. Subsoil Fill: as specified in Section 310513.
- B. Structural Fill: Refer to Structural Drawings for requirements.
- C. Granular Fill: As Specified in SSHB M1.03.0 gravel Borrow.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify structural ability of unsupported walls to support loads imposed by fill.

3.2 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural or granular fill, as indicated on the Drawings, and compact to density equal to or greater than requirements for subsequent fill material.
- C. Scarify subgrade surface to depth of 1-2 inches.
- D. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.3 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place fill material in continuous layers and compact to 95% density in accordance with the drawings.
- D. Employ placement method that does not disturb or damage other work.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density.

- F. Backfill against supported retaining walls. Do not backfill against unsupported foundation walls.
- G. Backfill simultaneously on each side of unsupported retaining walls until supports are in place.
- H. Slope grade away from building minimum 2 percent slope for minimum distance of 10 ft., unless noted otherwise.
- I. Make gradual grade changes. Blend slope into level areas.
- J. Remove surplus backfill materials from site in accordance with Federal, State and Local Regulations.
- K. Leave fill material stockpile areas free of excess fill materials.

3.4 TOLERANCES

- A. Top Surface of Backfilling within Building Areas: Plus or minus 1 inch from required elevations.
- B. Top Surface of Backfilling under Paved Areas: Plus or minus 1 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 2 inch from required elevations.

3.5 FIELD QUALITY CONTROL

- A. Coordinate with Owner and Engineer for in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556.
 - 2. Moisture Tests: ASTM D3017.
- B. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- C. Proof roll compacted fill surfaces under slabs-on-grade, and paved areas.

3.6 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

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SECTION 312500 - EROSION AND SEDIMENTATION CONTROLS

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Erosion Control Barrier – Straw Wattle
 - 2. Geotextile
 - 3. Mulch
 - 4. Seeding

- B. Related Sections:
 - 1. Section 31 05 13 - Soils for Earthwork.
 - 2. Section 31 05 16 - Aggregates for Earthwork.
 - 3. Section 31 10 00 - Site Clearing.
 - 4. Section 31 23 16 - Excavation.
 - 5. Section 31 23 23 - Fill.
 - 6. Section 31 37 00 - Riprap.

1.2 REFERENCES

- A. Order of Conditions issued by the Bolton Conservation Commission. (Order of Conditions)

- B. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T88 - Standard Specification for Particle Size Analysis of Soils.
 - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- C. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.

- D. ASTM International:
 - 1. ASTM C127 - Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

- E. Precast/Prestressed Concrete Institute:
 - 1. PCI MNL-116S - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.

1.3 SUBMITTALS

- A. Product Data: Product Data: siltation barriers, silt sacks, and other erosion control devices.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with requirements of the Drawings, the Order of Conditions.

PART 2 – PRODUCTS

2.1 EROSION CONTROL BARRIER – STRAW WATTLE

- A. Straw wattle shall be HDPE photodegradable netting filled with an organic fill media consisting of agricultural straw.
- B. Each wattle shall be 25-feet in length and secured with hog ring staples or tied at each end. Wattle netting will consist of HDPE netting with a diamond shaped aperture measuring 0.5 inches by 0.5 inches, weighing 0.5 ounces per foot when fully expanded. Fill material shall be 100% chopped agricultural straw weighing approximately 2 lbs per foot.
- C. Wattles shall be 9-inches in diameter.

2.2 GEOTEXTILE

- A. Geotextile shall be needle punched nonwoven geotextile composed of polypropylene fibers, and inert to biological degradation and resist naturally encountered chemicals, alkalis, and acids.
- B. Geotextile shall be in conformance with ASTM M 288 and meet or exceed the following requirements:

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Grab Tensile Strength	ASTM D4632	Lbs (N)	80 (356)
Grab Tensile Elongation	ASTM D4632	%	50
Trapezoid Tear Strength	ASTM D4533	Lbs (N)	175
			Maximum Opening Size
Apparent Opening Size (AOS)	ASTM D4571	US Sieve (mm)	50 (0.30)
			Minimum Roll Value
Permittivity	ASTM D4491	Sec ⁻¹	2.1
Flow Rate	ASTM D4491	Gal/min/ft ² (l/min/m ²)	155 (6315)
			Minimum Test Value
UV Resistance at 500 hours	ASTM D4355	% strength retained	70

C. Geotextile shall be Mirafi 135N or approved equal.

2.3 SEEDING

- A. Species ecotype shall be as native to New England region as possible. Apply this mix at **20 lbs PLS/acre**. FOR USE WITH SLOPES: Add 30 lbs/acre of a cover crop if erosions is a concern. For a cover crop use either grain oats (1 Jan to 31 July) or grain rye (1 Aug to 31 Dec).
- B. Wetland restoration seeding shall be “New England Wet Mix” (wetland seed mix) as shown on the contract documents.

PART 3 – EXECUTION

3.1 EROSION CONTROL BARRIER – STRAW WATTLE

- A. Wattles shall be installed as shown on the Contract Documents and in accordance with manufacturer specifications.

3.2 GEOTEXTILE

- A. Geotextile shall be installed as shown on the Contract Documents and in accordance with manufacturer specifications.

3.3 SEDIMENT TRAPS

- A. Clear site, as specified in Section 31 10 00.
- B. Construct trap by excavating and forming embankments as specified in Section 312316, and Section 312323.
- C. Place coarse aggregate or rock at outlet as indicated on Drawings.
- D. Place geotextile fabric, as specified for rock energy dissipater.
- E. When required, obtain borrow excavation for formation of embankment, as specified in Section 31 23 16.
- F. Mulch seeded areas with hay as specified in Section 32 92 19.

3.4 SITE STABILIZATION

- A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.
- B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.
- C. Stockpile and waste pile heights shall not exceed 15 feet. Slope stockpile sides at 2:1 or flatter.
- D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.
 - 1. During non-germinating periods, apply mulch at recommended rates.
 - 2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year in accordance with Section 32 92 19.
 - 3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 32 92 19 permanent seeding specifications.

3.5 FIELD QUALITY CONTROL

- A. Perform inspections as required by the Order of Conditions. Document compliance of inspections.
- B. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

3.6 CLEANING

- A. When sediment accumulation in sedimentation structures has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.
- B. Do not damage structure or device during cleaning operations.
- C. Do not permit sediment to erode into construction or site areas or natural waterways.
- D. Clean channels when depth of sediment reaches approximately one half channel depth.
- E. Clean basin across the street upon completion of substantial work on site, and after site has been stabilized from erosion.

3.7 PROTECTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Immediately after placement, protect paving from premature drying, excessive hot or cold temperatures, and mechanical injury.
- C. Protect paving from elements, flowing water, or other disturbance until curing is completed.

END OF SECTION

SECTION 313700 - RIPRAP

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Riprap placed loose.
- B. Related Sections:
 - 1. Section 31 05 16 - Aggregates for Earthwork.
 - 2. Section 31 22 13 - Rough Grading.
 - 3. Section 31 23 16 - Excavation: Excavating for riprap.
 - 4. Section 31 23 17 - Trenching.
 - 5. Section 31 23 23 - Fill.

1.2 SUBMITTALS

- A. Product Data: Submit data binder and geotextile fabric.

1.3 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
- B. Perform Work in accordance with the Massachusetts Highway Department Standard Specifications for Highways and Bridges (SSHB)

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Furnish materials in accordance with SSHB M2.02.3 Stone for Pipe Ends and as indicated on the drawings.
- B. Placed Riprap – furnish materials as specified on the drawings.
- C. Geotextile Fabric: Non-biodegradable as indicated on the Drawings, manufactured by Mirafi, or approved equal.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Do not place riprap bags over frozen or spongy subgrade surfaces.

3.2 PLACEMENT

- A. Place geotextile fabric over substrate, lap edges and ends.
- B. Place riprap at pipe ends, on embankment slopes, within swales, and as indicated on Drawings.
- C. Installed Thickness: As indicated on Drawings.
- D. Place rock evenly and carefully to minimize voids; do not tear bag fabric, place rock in one consistent operation to preclude disturbance or displacement of substrate.

END OF SECTION

SECTION 321123 - AGGREGATE BASE COURSES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Aggregate subbase.
 - 2. Aggregate base course.

- B. Related Sections:
 - 1. Section 31 22 13 - Rough Grading.
 - 2. Section 31 23 17 - Trenching
 - 3. Section 31 23 23 - Fill
 - 4. Section 31 37 00 - Riprap.
 - 5. Section 32 12 16 - Asphalt Paving.

1.2 REFERENCES

- A. Massachusetts Highway Department Standard Specifications for Highways and Bridges. (SSHB)

- B. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.

- C. ASTM International:
 - 1. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 2. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 - 3. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 4. ASTM D2940 - Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports.
 - 5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.

- B. Materials Source: Submit name of aggregate materials suppliers.

- C. Manufacturer's Certificate: Sieve and gradation tests.

1.4 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
- B. Perform Work in accordance with SSHB.

1.5 MEASUREMENT FOR PAYMENT

- A. 321123.001 – Subbase Aggregate
 - 1. Basis of Measurement – Measurement for payment for Subbase Aggregate shall be made on the basis of cubic yards placed during full depth or trench repair construction as indicated on the Contract Documents or as directed by the Owner or Engineer.
 - 2. Basis of Payment – Payment for Subbase Aggregate shall be based on the cubic yards installed complete for this item in the proposal. Under the per cubic yard price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for Subbase Aggregate. The work includes, but is not limited to: furnish and install Subbase Aggregate where there is insufficient existing roadway base material and where required by the Owner or Engineer; and shaping and grading of placed subbase aggregate to required elevations and sections as shown on the Contract Documents.
- B. 321123.002 – Base Aggregate
 - 1. Basis of Measurement – Measurement for payment for Base Aggregate shall be made on the basis of cubic yards placed during full depth or trench repair construction as indicated on the Contract Documents or as directed by the Owner or Engineer.
 - 2. Basis of Payment – Payment for Base Aggregate shall be based on the cubic yards installed complete for this item in the proposal. Under the per cubic yard price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for Base Aggregate. The work includes, but is not limited to, furnish and install Base Aggregate where there is insufficient existing roadway base material and where required by the Owner or Engineer; and shaping and grading of placed base aggregate to required elevations and sections as shown on the Contract Documents.

PART 2 – PRODUCTS

2.1 AGGREGATE MATERIALS

- A. Subbase Aggregate: SSHB M1.03.0 Type B.

Sieve Size	Percent Passing
12.5 mm	50 - 85
4.75 mm	40 - 75
.300 mm	8 - 28
0.075 mm	0 - 10

- B. Base Aggregate: SSHB M2.01.7, or approved equal.

Sieve Size	Percent Passing
2 inches (50 mm)	100
1-1/2 inches (37.5 mm)	70 to 100
3/4 inches (19 mm)	50 to 85
No. 4 (4.75 mm)	30 to 55
No. 30 (0.300 mm)	8 to 24
No. 200 (0.075 mm)	0 to 10

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify compacted substrate is dry and ready to support paving and imposed loads.
 - 1. Proof roll substrate with minimum two perpendicular passes to identify soft spots.
 - 2. Remove soft substrate and replace with compacted fill as specified in Section 31 23 23.
- C. Verify substrate has been inspected, gradients and elevations are correct.

3.2 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

- A. Spread aggregate over prepared substrate to total compacted thickness as indicated on Drawings.
- B. Compact aggregate to 95 percent maximum density.
- C. Level and contour surfaces to elevations, profiles, and gradients indicated.
- D. Add small quantities of fine aggregate to coarse aggregate when required to assist compaction.
- E. Maintain optimum moisture content of fill materials to attain specified compaction density.
- F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

- A. Maximum Variation from Flat Surface: ½ inch measured with 10 foot straight edge.

B. Maximum Variation From Thickness: 1/2 inch.

C. Maximum Variation From Elevation: 1 inch.

3.5 FIELD QUALITY CONTROL

A. Compaction testing will be performed in accordance with SSHB requirements.

B. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

C. Frequency of Tests: One test for every 1000 square yards of each layer compacted aggregate.

3.6 COMPACTION

A. Compact materials to 95 percent of maximum density as determined from test strip, in accordance with ASTM D2940.

END OF SECTION

SECTION 321216 - ASPHALT PAVING

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Asphalt materials.
 - 2. Aggregate materials.
 - 3. Aggregate subbase.
 - 4. Asphalt paving base course, binder course, and wearing course.
 - 5. Asphalt paving overlay for existing paving.
 - 6. Surface slurry.

- B. Related Requirement:
 - 1. Section 31 22 13 - Rough Grading
 - 2. Section 31 23 23 - Fill
 - 3. Section 32 11 23 - Aggregate Base Courses

1.2 REFERENCE STANDARDS

- A. Massachusetts Department of Transportation Standard Specifications for Highways and Bridges (SSHB)

- B. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M17 - Standard Specification for Mineral Filler for Bituminous Paving Mixtures.
 - 2. AASHTO M29 - Standard Specification for Fine Aggregate for Bituminous Paving Mixtures.
 - 3. AASHTO M140 - Standard Specification for Emulsified Asphalt.
 - 4. AASHTO M208 - Standard Specification for Cationic Emulsified Asphalt.
 - 5. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
 - 6. AASHTO M320 - Standard Specification for Performance-Graded Asphalt Binder.
 - 7. AASHTO M324 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
 - 8. AASHTO MP1a - Standard Specification for Performance-Graded Asphalt Binder.

- C. Asphalt Institute:
 - 1. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.
 - 2. AI MS-19 - Basic Asphalt Emulsion Manual.
 - 3. AI SP-2 - Superpave Mix Design.

- D. ASTM International:
 - 1. ASTM C1371[-2004a] - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
 - 2. ASTM C1549[-2004] - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
 - 3. ASTM D242 - Standard Specification for Mineral Filler for Bituminous Paving Mixtures.

4. ASTM D692 - Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures.
5. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction.
6. ASTM D977 - Standard Specification for Emulsified Asphalt.
7. ASTM D1073 - Standard Specification for Fine Aggregate for Bituminous Paving Mixtures.
8. ASTM D1188 - Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
9. ASTM D2027 - Standard Specification for Cutback Asphalt (Medium-Curing Type).
10. ASTM D2397 - Standard Specification for Cationic Emulsified Asphalt.
11. ASTM D2726 - Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures.
12. ASTM D2950 - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods.
13. ASTM D3381 - Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction.
14. ASTM D3515 - Standard Specification for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
15. ASTM D3549 - Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.
16. ASTM D3910 - Standard Practices for Design, Testing, and Construction of Slurry Seal.
17. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
18. ASTM E408[-1971(1996)e1] - Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques.
19. ASTM E903[-1996] - Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres.
20. ASTM E1918[-1997] - Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field.
21. ASTM E1980[-2001] - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
 1. Submit product information for asphalt and aggregate materials.
 2. Submit mix design with laboratory test results supporting design.

1.4 QUALITY ASSURANCE

- A. Mixing Plant: Certified by The State of Massachusetts.
- B. Obtain materials from same source throughout.
- C. Perform Work in accordance with SSHB.

1.5 QUALIFICATIONS

- A. Installer: Company specializing in performing work of this section with minimum 3 years.

1.6 AMBIENT CONDITIONS

- A. Section 01 50 00 - Temporary Facilities and Controls: Ambient conditions control facilities for product storage and installation.
- B. Do not place asphalt mixture between November 1 and March 1.
- C. Do not place asphalt mixture when ambient air or base surface temperature is less than 40 degrees F or surface is wet or frozen.
- D. Place asphalt mixture when temperature is not more than 15 degrees F less than initial mixing temperature.

1.7 MEASUREMENT FOR PAYMENT

- A. 321216.001 – Binder Course
 - 1. Basis of Measurement: Measurement for payment for Binder Course shall be based on the tons of base course placed complete, as defined on the Contract Documents or as required by the Engineer or Owner and as measured by the Engineer. Tonnage of pavement will be calculated based on the actual thickness measured, width of placement measured, and length of placement measured, or the pavement thicknesses, widths, and lengths defined in the Contract Documents, if appropriate, whichever is less. The formula for calculating the tonnage of pavement shall be $W' \text{ (width)} \times L' \text{ (length)} \times D' \text{ (depth)} \times 0.075 \text{ ton/cf} = \text{tons}$. Calculated tonnage will be compared to actual tonnage paced as submitted on pavement tonnage slips. If tonnage calculated is greater than 10% lower than the tonnage on the pavement slips, the lesser tonnage shall be paid to the Contractor. Placement of pavement to excess thicknesses and outside the limits defined in the Contract Documents or as required shall be at no additional cost to the Owner.
 - 2. Basis of Payment: Payment for Binder Course shall be based on the unit price bid for this item in the proposal. Under the unit price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required to install hand placed hot mix asphalt to depths, widths, and lengths required by the Owner or Engineer. The work includes, but is not limited to, the following: raising and resetting existing structures, castings, and boxes; installation and compaction of hot mix asphalt binder course to the depth and width and in the area specified in the Contract Documents; hand placement and compaction of hot mix asphalt binder to the depth, width, and length, and in the area required by the Owner or Engineer around structures, aprons, driveways, and as required; compaction testing; power sweeping; keyways and other jointing between new and existing asphalt; furnish and place tack coat on all edges; and all incidental work not included for payment elsewhere.
- B. 321216.002 – Wearing Course
 - 1. Basis of Measurement: Measurement for payment for Wearing Course shall be based on the tons of wearing course placed complete, as defined on the Contract Documents or as required by the Engineer or Owner and as measured by the Engineer. Tonnage of pavement will be calculated based on the actual thickness measured, width of placement measured, and

length of placement measured, or the pavement thicknesses, widths, and lengths defined in the Contract Documents, if appropriate, whichever is less. The formula for calculating the tonnage of pavement shall be $W' \text{ (width)} \times L' \text{ (length)} \times D' \text{ (depth)} \times 0.075 \text{ ton/cf} = \text{tons}$. Calculated tonnage will be compared to actual tonnage paced as submitted on pavement tonnage slips. If tonnage calculated is greater than 10% lower than the tonnage on the pavement slips, the lesser tonnage shall be paid to the Contractor. Placement of pavement to excess thicknesses and outside the limits defined in the Contract Documents or as required shall be at no additional cost to the Owner.

2. Basis of Payment: Payment for Wearing Course shall be based on the unit price bid for this item in the proposal. Under the unit price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required to install hand placed hot mix asphalt to depths, widths, and lengths required by the Owner or Engineer. The work includes, but is not limited to, the following: raising and resetting existing structures, castings, and boxes; installation and compaction of hot mix asphalt wearing course to the depth and width and in the area specified in the Contract Documents; hand placement and compaction of hot mix asphalt binder to the depth, width, and length, and in the area required by the Owner or Engineer around structures, aprons, driveways, and as required; compaction testing; power sweeping; keyways and other jointing between new and existing asphalt; furnish and place tack coat on all edges; and all incidental work not included for payment elsewhere.

C. 321216.003 – Overlay Course

1. Basis of Measurement: Measurement for payment for Overlay Course shall be based on the tons of overlay course placed complete, as defined on the Contract Documents or as required by the Engineer or Owner and as measured by the Engineer. Tonnage of pavement will be calculated based on the actual thickness measured, width of placement measured, and length of placement measured, or the pavement thicknesses, widths, and lengths defined in the Contract Documents, if appropriate, whichever is less. The formula for calculating the tonnage of pavement shall be $W' \text{ (width)} \times L' \text{ (length)} \times D' \text{ (depth)} \times 0.075 \text{ ton/cf} = \text{tons}$. Calculated tonnage will be compared to actual tonnage paced as submitted on pavement tonnage slips. If tonnage calculated is greater than 10% lower than the tonnage on the pavement slips, the lesser tonnage shall be paid to the Contractor. Placement of pavement to excess thicknesses and outside the limits defined in the Contract Documents or as required shall be at no additional cost to the Owner.
2. Basis of Payment: Payment for Overlay Course shall be based on the unit price bid for this item in the proposal. Under the unit price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required to install hand placed hot mix asphalt to depths, widths, and lengths required by the Owner or Engineer. The work includes, but is not limited to, the following: raising and resetting existing structures, castings, and boxes; installation and compaction of hot mix asphalt wearing course to the depth and width and in the area specified in the Contract Documents; hand placement and compaction of hot mix asphalt binder to the depth, width, and length, and in the area required by the Owner or Engineer around structures, aprons, driveways, and as required; compaction testing; power sweeping; keyways and other jointing between new and existing asphalt; furnish and place tack coat on all edges; and all incidental work not included for payment elsewhere

D. 321216.004 – Excavation by Cold Planer

1. Basis of Measurement: Measurement of Excavation by Cold Planer shall be based on the square yards of hot mix asphalt pavement cold planed to a depth indicated on the Contract

Documents, as measured by the Engineer or Owner to the limits described in the Contract Documents or as directed by the Owner or Engineer.

2. Basis of Payment: Payment for Excavation by Cold Planer shall be based on the unit price bid for this item in the proposal. Under the Unit Price for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required to cold plane to the indicated depths within the pay limits indicated on the Contract Documents or as required by the Engineer or Owner. The work includes removing, hauling, stockpiling, and disposing or reusing of cold planed asphalt material; sweeping after the cold planning operation; removal of asphalt from around existing structures and casting; providing transitions at the limits of the cold planning; providing and maintaining temporary asphalt aprons at transitions and castings until final paving; maintaining cold planed surface until final paving; providing temporary pavement markings, as required, until final paving; and all incidental work not included for payment elsewhere.

PART 2 – PRODUCTS

2.1 ASPHALT PAVING

- A. Performance / Design Criteria:
 1. Paving: Design for roadways
- B. Asphalt Materials:
 1. Asphalt Binder: in accordance with SSHB M3.11.03 Table
 2. Primer: In accordance with SSHB M3.02.1.
 3. Tack Coat: In accordance SSHB M3.
 4. Reclaimed Asphalt Pavement (RAP): Processed material obtained by milling or full depth removal of existing asphalt paving.
 5. Oil: in accordance with SSHB M3.
- C. Aggregate Materials:
 1. Coarse Aggregate: in Accordance with SSHB M3.11.04.
 2. Fine Aggregate: In accordance with SSHB M3.11.04.
 3. Mineral Filler: in accordance with SSHB M3.11.05.
- D. Aggregate Subbase: Specified in Section 32 11 23.

2.2 MIXES

- A. Use dry material to avoid foaming. Mix uniformly.
- B. Asphalt Paving Mixtures shall be as specified by SSHB M3.
 1. Binder Course: SUPERPAVE Modified Top Course – 12.5 (SSC – 12.5)
 2. Wearing Course: SUPERPAVE Surface Course – 9.5 (SSC – 9.5)
 3. Overlay Course: SUPERPAVE Surface Course – 9.5 (SSC – 9.5)

2.3 ACCESSORIES

- A. Sealant: In accordance with SSHB M3 requirements.

2.4 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing, inspection and analysis requirements.
- B. Submit proposed mix design of each class of mix for review prior to beginning of Work.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify utilities indicated under paving are installed with excavations and trenches backfilled and compacted.
- C. Verify compacted subbase is dry and ready to support paving and imposed loads.
 - 1. Proof roll subbase minimum two perpendicular passes to identify soft spots.
 - 2. Remove soft subbase and replace with compacted fill as specified in Section 31 23 23.
- D. Verify gradients and elevations of base are correct.
- E. Verify gutter drainage grilles and frames and manhole frames are installed in correct position and elevation.

3.2 PREPARATION

- A. Prepare subbase in accordance with the Drawings and the SSHB specifications.

3.3 DEMOLITION

- A. Saw cut and notch existing paving as indicted on Drawings.
- B. Clean existing paving to remove foreign material, excess joint sealant and crack filler from paving surface.
- C. Repair surface defects in existing paving to provide uniform surface to receive new paving.
- D. Excavation by Cold Planing
 - 1. The Contractor shall cold plane to depths indicated on the Contract Documents as transitions onto the adjoining existing pavement, and to the limits as established on the Contract Documents. Cold planning shall be done after all excavation affecting the area is complete and prior to final paving.
 - 2. The Cold Planer shall be equipped with an elevating surface device capable of loading planed material directly into dump trucks while operative. The Cold Planer shall further have all necessary safety devices such as reflectors, headlights, tail lights, flashing lights, and back-up signals so as to operate safely intraffic, both in the day or at night. The Cold Planer shall be self propelled and have the means for planning without tearing or gouging the

underlying surface. The Cold Planer shall be adjustable as to crown and depth and shall meet the standards of the Air Quality Act for noise and air pollution.

3. Variable lacing patterns shall be provided to permit a rough grooved surface as directed. A 2-inch cut is required in one (1) pass. The minimum width of pavement planed in each pass shall be 6-feet, except in areas to be trimmed and edged.
4. The milled or planed surface shall conform generally to the existing grade and cross slope. The surface shall not be torn, gouged, shoved, broken, or excessively grooved. It shall be free of imperfections in workmanship that prevent resurfacing after this operation. Excess material shall be swept and removed so that the surface is acceptable to traffic.

3.4 INSTALLATION

A. Subbase:

1. Prepare subbase in accordance with the SSHB M3 requirements.

B. Primer:

1. Apply primer in accordance with the SSHB M3 requirements.

C. Tack Coat:

1. Apply tack coat in accordance with the SSHB M3 requirements.
2. Coat surfaces of manholes and catch basin frames with oil to prevent bond with asphalt paving. Do not tack coat these surfaces.

D. Double Course Asphalt Paving:

1. Place asphalt binder course within 24 hours of applying primer or tack coat.
2. Place binder course to 2 inch compacted thickness.
3. Place wearing course to 1 ½ inch compacted thickness.
4. Compact each course by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.
5. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.5 TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

C. Scheduled Compacted Thickness: Within ¼ inch.

D. Variation from Indicated Elevation: Within 1 inch

3.6 FIELD QUALITY CONTROL

A. Take samples and perform tests as required by SSHB M3.11.08.

B. Asphalt Paving Mix Temperature: Measure temperature at time of placement.

- C. Asphalt Paving Thickness: ASTM D3549; test one core sample from every 1000 square yards compacted paving.

3.7 PROTECTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Immediately after placement, protect paving from mechanical injury for 8 hours or until surface temperature is less than 140 degrees F.

END OF SECTION

SECTION 334213 - PIPE CULVERTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. High Density Polyethylene pipe culvert.
 - 2. Joints and accessories.
 - 3. Bedding.
 - 4. Slope protection at pipe end.

- B. Related Sections:
 - 1. Section 03 30 00 - Cast-In-Place Concrete
 - 2. Section 31 05 16 - Aggregates for Earthwork.
 - 3. Section 31 23 16 - Excavation
 - 4. Section 31 23 23 - Fill
 - 5. Section 31 37 00 - Riprap.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M294 - Specification for Corrugated Polyethylene Pipe, 305- to 915-mm (12- to 36-In.) Diameter.
 - 2. AASHTO T99 - Standard Specification for the Moisture-Density Relations of Soils Using a 2.5 kg (5.5 lb) Rammer and a 305 mm (12 in.) Drop.
 - 3. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- B. ASTM International:
 - 1. ASTM A929/A929M - Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe.
 - 2. ASTM C14 - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
 - 3. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 - 4. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
 - 5. ASTM C506 - Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe.
 - 6. ASTM C507 - Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.
 - 7. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 8. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 9. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

10. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. 334100.001 – 24-INCH CPP PIPE

1. Basis of Measurement: By linear foot installed complete
2. Basis of Payment: Under the unit price bid for this item, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals required for the complete procurement, installation, cleaning, and leakage testing/inspection of corrugated polyethylene pipe complete as indicated on the Drawings and Specifications, or as directed by the Owner or Engineer. This work shall include furnishing, installing, and/or performing the following: pavement sawcutting; excavation of bituminous concrete roadway; excavation; transportation material to/from soil stockpile area; temporary excavation support consisting of trench boxes; removal of groundwater from the trench; handling groundwater recharged back to the soil; filter fabric as required; bedding, including compaction; corrugated polyethylene pipe, fittings, couplings, and appurtenances; connections to existing and proposed drainage structures; furnishing, placing, and compacting suitable backfill soil; grade and compact gravel pavement subbase; compaction testing; and all appurtenances and incidental work.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data on pipe, fittings and accessories.
- C. Manufacturer's Installation Instructions: Submit special procedures required to install Products specified.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents:
 1. Accurately record actual locations of pipe runs, connections, and invert elevations.
 2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- C. Operation and Maintenance Data: Procedures for submittals.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with MassDOT SSHB Edition 2021.
- B. Perform Work in accordance with Town of Bolton Construction Standards

PART 2 PRODUCTS

2.1 CORRUGATED POLYETHYLENE PIPE

- A. Corrugated Polyethylene Pipe: High Density Polyethylene Pipe with a smooth interior, corrugated piping. Refer to Drawings for required insider diameters. ADS N-12 (or equal) and shall conform to ASTM F2306.
 - 1. Joints: ASTM D3212

2.2 BEDDING AND COVER MATERIALS

- A. Bedding: Fill Type, as specified in Section [31 05 16].
- B. Cover: Fill Type, as specified in Section [31 05 16].

2.3 ACCESSORIES

- A. Manufacturers: Geotextile Fabric: Non-biodegradable,[non-woven].
 - 1. Mirafi 140NL
 - 2. Or Equal
- B. Fill at Pipe Ends: [Riprap as specified in Section 31 37 00].

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify excavation base is ready to receive work and excavations, dimensions, and elevations are as indicated on layout drawings.

3.2 PREPARATION

- A. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

3.3 EXCAVATION AND BEDDING

- A. Excavate culvert trench to as shown on Contract Documents below pipe invert, in accordance with Section [02 41 19] for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level fill materials in one continuous layer as shown on Contract Documents, compact to [95] percent.
- C. Maintain optimum moisture content of bedding material to attain required compaction density.

- D. Place filter fabric over compacted bedding.

3.4 INSTALLATION - PIPE

- A. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.
- B. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.
- C. Repair surface damage to pipe protective coating with two coats of compatible bituminous paint coating.
- D. Install cover at sides and over top of pipe. Install top cover to minimum compacted thickness of 6 inches.
- E. Maintain optimum moisture content of bedding material to attain required compaction density.
- F. Place filter fabric over compacted cover.
- G. Refer to Section [31 23 23] for backfilling and compacting requirements. Do not displace or damage pipe when compacting.

3.5 ERECTION TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Lay pipe to alignment and slope gradients noted on Contract Documents; with maximum variation from indicated slope of [1/8] inch in [10] feet.
- C. Maximum Variation From Intended Elevation of Culvert Invert: [1/2] inch.
- D. Maximum Offset of Pipe From Indicated Alignment: [1] inch.
- E. Maximum Variation in Profile of Structure From Intended Position: 1 percent.

3.6 FIELD QUALITY CONTROL

- A. Section [01 40 00 - Quality Requirements]: Field inspecting, testing, adjusting, and balancing.
- B. Request inspection prior to [and immediately after] placing aggregate cover over pipe.
- C. Compaction Testing: In accordance with [ASTM D1557] [ASTM D698] [AASHTO T99] [AASHTO T180] [ASTM D2922] [ASTM D3017].
- D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting installed construction.

- B. Protect pipe and bedding from damage or displacement until backfilling operation is in progress.

END OF SECTION

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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APPENDIX A – ORDER OF CONDITIONS

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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Official Receipt for Recording in:

Worcester South Registry of Deeds
90 Front St.

Worcester, Massachusetts 01608

Issued To:

DILLIS & ROY CIVIL DESIGN GROUP
1 MAIN ST SUITE 1

LUNENBURG MA 01462

Recording Fees

Document Description	Number	Book/Page	Recording Amount
ORD	00064305	69485 9	\$105.00
			\$105.00

Collected Amounts

Payment Type	Amount
Check	\$105.00
	\$105.00

Total Received : \$105.00
Less Total Recordings: \$105.00

Change Due : \$.00

Thank You
KATHRYN A. TOOMEY - Register of Deeds

By: E Tzikas

Receipt# Date Time
1528345 08/07/2023 09:38a



2023 00064305

Bk: 69485 Pg: 9

Page: 1 of 19 08/07/2023 09:38 AM WD

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:

MassDEP File #:112-0727

eDEP Transaction #:1593298

City/Town:BOLTON

A. General Information

1. Conservation Commission BOLTON
2. Issuance a. OOC b. Amended OOC

3. Applicant Details
a. First Name b. Last Name
c. Organization BOLTON DEPARTMENT OF PUBLIC WORKS
d. Mailing Address 12 FORBUSH ROAD
e. City/Town BOLTON f. State MA g. Zip Code 01740

4. Property Owner
a. First Name b. Last Name
c. Organization
d. Mailing Address
e. City/Town f. State g. Zip Code

5. Project Location
a. Street Address SAWYER ROAD
b. City/Town BOLTON c. Zip Code 01740
d. Assessors 3.A e. Parcel/Lot# 64.1, 63
f. Latitude 42.41823N g. Longitude 71.64126W

6. Property recorded at the Registry of Deed for:
a. County WORCESTER b. Certificate c. Book 21249 d. Page 280

7. Dates
a. Date NOI Filed : 3/27/2023 b. Date Public Hearing Closed: 7/11/2023 c. Date Of Issuance: 7/11/2023

8. Final Approved Plans and Other Documents
a. Plan Title: PERMIT SET
SAWYER ROAD
CULVERT REPLACEMENT PROJECT BOLTON
DPW #2023-XX
b. Plan Prepared by: DILLIS & ROY CIVIL DESIGN GROUP
c. Plan Signed/Stamped by: FRANK MCPARTLAN PE NO 49572
d. Revised Final Date: 6/26/2023
e. Scale: 1" = 20'

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act
Following the review of the 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.

Check all that apply:

a. Public Water Supply b. Land Containing Shellfish c. Prevention of Pollution

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d. <input checked="" type="checkbox"/> Private Water Supply	e. <input type="checkbox"/> Fisheries	f. <input checked="" type="checkbox"/> Protection of Wildlife Habitat
g. <input checked="" type="checkbox"/> Ground Water Supply	h. <input checked="" type="checkbox"/> Storm Damage Prevention	i. <input checked="" type="checkbox"/> Flood Control

2. Commission hereby finds the project, as proposed, is:

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.

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 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 interests of the Act, 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 310CMR10.02(1)(a).
a. linear feet

Inland Resource Area Impacts:(For Approvals Only):

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input checked="" type="checkbox"/> Bank	<u>45</u> a. linear feet	<u> </u> b. linear feet	<u>0</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> b. square feet	<u> </u> c. square feet	<u> </u> d. square feet
	<u> </u> e. c/y dredged	<u> </u> f. c/y dredged		
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>	<u> </u>		

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	a. square feet	b. square feet		
Cubic Feet Flood Storage	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. <input checked="" type="checkbox"/> Riverfront Area	<u>2600</u>	<u>2600</u>		
	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	<u>2600</u>	<u>2600</u>		
	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	g. square feet	h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts:

Resource Area	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	<u> </u>	<u> </u>		
	a. square feet	b. square feet		
	<u> </u>	<u> </u>		
	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	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
14. <input type="checkbox"/> Coastal Dunes	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
15. <input type="checkbox"/> Coastal Banks	<u> </u>	<u> </u>		
	a. linear feet	b. linear feet		
16. <input type="checkbox"/> Rocky Intertidal Shores	<u> </u>	<u> </u>		
	a. square feet	b. square feet		
17. <input type="checkbox"/> Salt Marshes	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	a. square feet	b. square feet	c. square feet	d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds	<u> </u>	<u> </u>		
	a. square feet	b. square feet		
	<u> </u>	<u> </u>		
	c. c/y dredged	d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	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			
	<u> </u>	<u> </u>		
	c. c/y dredged	d. c/y dredged		

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21. Land Subject to Coastal Storm Flowage

_____ a. square feet _____ b. square feet

22.

Restoration/Enhancement (For Approvals Only)

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 & d or B.17.c & d above, please entered the additional amount here.

_____ a. square feet of BVW

_____ b. square feet of Salt Marsh

23.

Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

_____ 1 _____

_____ 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.
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.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
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.
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

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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 : "112-0727"

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 Mass DEP.
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.
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.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. The work associated with this Order(the "Project") is (1) is not (2) subject to the Massachusetts Stormwater Standards. If the work is subject to 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 Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 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

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- 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; *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 19(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 Pollutant 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 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(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.
- 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

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- 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:

SC#1. THIS ORDER SHALL APPLY TO ANY SUCCESSORS AND ASSIGNS IN INTEREST OR CONTROL AND ANY OTHER PERSON ENGAGING IN ACTIVITY ON THE PROPERTY IDENTIFIED IN THE NOTICE OF INTENT.

SC#2. PRIOR TO THE START OF ANY ACTIVITY ON THE SITE, THE APPLICANT SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE CONSERVATION COMMISSION AND/OR ITS REPRESENTATIVE, THE PROJECT SUPERVISOR, THE CONTRACTOR RESPONSIBLE FOR THE WORK AND THE ENVIRONMENTAL MONITOR TO REVIEW THE CONDITIONS OF THIS ORDER AND ENSURE THAT THEY ARE UNDERSTOOD. ARRANGEMENTS FOR THIS MEETING WILL BE MADE AT LEAST TWO (2) WEEK PRIOR TO ANY ACTIVITY.

SC#3. THE APPLICANT SHALL DESIGNATE AN EROSION CONTROL MONITOR TO OVERSEE ALL WORK WITHIN THE 100-FOOT BUFFER ZONE ON THE PROJECT SITE, INCLUDING BUT NOT LIMITED TO SUPERVISION OF THE MAINTENANCE AND REPLACEMENT OF ALL EROSION CONTROLS AND TEMPORARY STORM WATER STRUCTURES. THE ENVIRONMENTAL MONITOR SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH THIS ORDER DURING CONSTRUCTION. THE APPLICANT SHALL PROVIDE THE COMMISSION WITH THE NAMES(S), ADDRESS(ES) AND TELEPHONE NUMBER(S) OF THE EM AND HIS OR HER ALTERNATE PRIOR TO THE START OF WORK TO ENSURE THAT THE EM CAN BE CONTACTED DURING AN EMERGENCY. PRIOR TO ANY CHANGE IN EM ASSIGNMENT, UPDATED INFORMATION SHALL BE PROVIDED TO THE COMMISSION.

SC#4. THE ENVIRONMENTAL MONITOR SHALL INSPECT EROSION CONTROLS ON A WEEKLY BASIS AND AFTER ANY STORM EVENTS AND SHALL HAVE THE AUTHORITY TO MODIFY EXISTING CONTROLS OR REQUIRE ADDITIONAL CONTROLS IF S/HE DEEMS IT NECESSARY. THE EM SHALL HAVE THE AUTHORITY TO REQUIRE THAT ANY EROSION PROBLEMS ARE ADDRESSED IMMEDIATELY AND SHALL IMMEDIATELY NOTIFY THE COMMISSION IF ANY DISCHARGES TO A WETLAND RESOURCE AREA OCCUR.

SC#5. ANY PROPOSED CHANGE IN THE PLANS APPROVED UNDER THIS ORDER OF CONDITIONS SHALL REQUIRE THE APPLICANT TO FILE A NEW NOTICE OF INTENT OR TO INQUIRE OF THE COMMISSION IN WRITING WHETHER THE CHANGE IS SUBSTANTIAL ENOUGH TO REQUIRE A NEW FILING. ANY ERRORS IN THE PLANS OR INFORMATION SUBMITTED BY THE APPLICANT SHALL BE CONSIDERED CHANGES AND THE ABOVE PROCEDURES SHALL BE FOLLOWED. IF CHANGES ARE

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MADE IN THE REFERENCED PLANS, A COPY SHALL BE SENT AT THE SAME TIME TO THE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S REGIONAL OFFICE.

SC#6. NO CLEARING OF TREES, OR DISTURBANCE OF SOILS SHALL OCCUR PRIOR TO THE PRE-CONSTRUCTION MEETING, EXCEPT THAT MINIMAL DISTURBANCE OF SHRUBS AND HERBACEOUS PLANTS ABSOLUTELY NECESSARY IN ORDER TO PLACE EROSION OR SEDIMENTATION CONTROL DEVICES WHERE REQUIRED.

SC#7. PRIOR TO THE PRE-CONSTRUCTION MEETING, ALL EROSION CONTROLS SHALL BE INSTALLED, BY SURVEY, ALONG THE LINE AS SHOWN ON PLANS APPROVED BY THE COMMISSION. THE COMMISSION OR ITS AGENT SHALL INSPECT THE LOCATION AND INSTALLATION OF EROSION CONTROLS.

SC#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 MASSDEP HAVE BEEN COMPLETED.

SC#9. 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, POLES OR FLAGGING. ONCE IN PLACE, THE WETLAND BOUNDARY MARKERS SHALL BE MAINTAINED UNTIL THE CONSERVATION COMMISSION HAS ISSUED A CERTIFICATE OF COMPLIANCE.

SC#10. MEMBERS AND AGENTS OF THE CONSERVATION COMMISSION SHALL HAVE THE RIGHT TO ENTER AND INSPECT THE PREMISES TO EVALUATE AND ENSURE COMPLIANCE WITH THE CONDITIONS AND PERFORMANCE STANDARDS STATED IN THIS ORDER, THE ACT AND 310 CMR 10.00 AS WELL AS MASSDEP'S POLICIES. THE COMMISSION MAY ACQUIRE ANY INFORMATION, MEASUREMENTS, PHOTOGRAPHS, OBSERVATIONS AND/OR MATERIALS OR MAY REQUIRE THE SUBMITTAL OF ANY DATA OR INFORMATION DEEMED NECESSARY FOR THAT EVALUATION.

SC#11. THIS ORDER SHALL APPLY TO ANY PERSONS OR ENTITIES IN PARTIAL OR FULL CONTROL, WHETHER BY OWNERSHIP OR OTHERWISE, AND TO ANY SUCCESSOR IN CONTROL OF SUCCESSOR IN INTEREST, OF THE PROPERTY DESCRIBED IN THE NOTICE OF INTENT AND ACCOMPANYING PLANS AND ANY REVISIONS THEREOF. THIS ORDER OF CONDITIONS SHALL BE INCORPORATED IN ALL CONSTRUCTION CONTRACTS FOR THIS PROJECT. ALL CONTRACTORS WORKING AT THE SITE SHALL BE MADE AWARE OF THE PROVISIONS CONTAINED WITHIN THIS ORDER OF CONDITIONS AND SHALL ADHERE TO THE SPECIAL PROVISIONS CONTAINED HEREIN.

SC#12. PRIOR TO COMMENCEMENT OF ANY WORK ON THE PROJECT SITE, EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE REFERENCED PLANS. THE EROSION CONTROL SPECIFICATIONS PROVIDED IN THE NOTICE OF INTENT AND IN THE ORDER OF CONDITIONS SHALL BE THE MINIMUM STANDARDS FOR THIS PROJECT. THE CONSERVATION COMMISSION MAY REQUIRE ADDITIONAL OR MODIFIED EROSION CONTROL MEASURES AT ANY TIME BEFORE, DURING AND AFTER CONSTRUCTION.

SC#13. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE MAINTAINED IN GOOD REPAIR UNTIL ALL DISTURBED AREAS HAVE BEEN FULLY STABILIZED WITH VEGETATION OR OTHER

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MEANS. AT NO TIME SHALL SEDIMENTS BE DEPOSITED IN A WETLAND AREA. THE CONSERVATION COMMISSION RESERVES THE RIGHT TO DETERMINE WHETHER EROSION AND SEDIMENT CONTROL MEASURES ARE NO LONGER NEEDED, AT WHICH TIME THEY SHALL BE REMOVED.

SC#14. WITHIN THIRTY (30) CALENDAR DAYS OF FINAL GRADING, OR WITHIN 30 CALENDAR DAYS AFTER THE COMMENCEMENT OF THE FOLLOWING GROWING SEASON IF THE PROJECT IS COMPLETED AFTER OCTOBER 31ST, ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED WITH RAPIDLY GROWING COVER AND SUFFICIENT TOPSOIL AND/OR LANDSCAPING MATERIAL TO ASSURE LONG TERM STABILIZATION OF DISTURBED AREAS. MAINTENANCE OF THESE AREAS IN A MANNER THAT ASSURES PERMANENT STABILIZATION AND PRECLUDES ANY SOIL EROSION SHALL BE THE RESPONSIBILITY OF THE OWNER OF RECORD OF THE PROPERTY SUBJECT TO THIS ORDER.

SC#15. STOCKPILES OF SOILS, AGGREGATE, OR ANY OTHER UNCONSOLIDATED CONSTRUCTION MATERIALS PERMITTED BY THIS ORDER WITHIN 100-FOOT BUFFER ZONES SHALL BE COVERED WITH TARPAULINS WHEN NOT BEING WORKED WITH. STOCKPILES IN PLACE FOR GREATER THAN TWENTY-FOUR (24) HOURS SHALL BE RINGED WITH AN ENTRENCHED HAY BALE BARRIER AND COVERED BY PROPERLY SECURED TARPAULINS AT THE CLOSE OF EACH WORKDAY. THE AREAS OF CONSTRUCTION SHALL REMAIN IN A STABLE CONDITION AT THE CLOSE OF EACH CONSTRUCTION DAY. EROSION CONTROLS SHALL BE INSPECTED DAILY, AND MAINTAINED OR REINFORCED IF NECESSARY. AFTER ANY STORM EVENT, ANY ACCUMULATED SILT ADJACENT TO THE BARRIERS SHALL BE REMOVED.

SC#16. AN ADEQUATE RESERVE OF EROSION CONTROL MATERIALS SHALL BE ON SITE AT ALL TIMES FOR EMERGENCY OR ROUTINE REPLACEMENT.

SC#17. TEMPORARY STABILIZATION SHALL INCLUDE, BUT NOT BE LIMITED TO: HYDRO SEEDING, STRAW MATS, JUTE NETTING, SOD, OR OTHER MEANS APPROVED BY THE COMMISSION PRIOR TO ITS USE. WHERE A SLOPE IS STEEPER THAN 3:1, TEMPORARY STABILIZATION SHALL BE STAKED OR OTHERWISE AFFIXED TO THE SLOPE. THE REQUIRED INSPECTION REPORTS SHALL SPECIFY THE TIME OF INSTALLATION AND TYPE OF EROSION CONTROL MEASURE USED.

SC#18. UPON COMPLETION OF ALL WORK REGULATED BY THIS ORDER, THE APPLICANT SHALL SUBMIT WITH ITS REQUEST FOR A CERTIFICATE OF COMPLIANCE, DETAILED AS-BUILT PLANS DEPICTING POST CONSTRUCTION CONDITIONS ON THE WORK SITE, AND A STATEMENT IN WRITING. BOTH MUST BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER OR LAND SURVEYOR CERTIFYING THAT THE SITE HAS BEEN DEVELOPED IN ACCORDANCE WITH THE CONDITIONS OF THIS ORDER AND THE SITE PLANS REFERENCED WITHIN.

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? Yes No

2. The Conservation Commission hereby (check one that applies):

a. DENIES the proposed work which 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 or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b. APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw BOLTON WETLAND BYLAW

2. Citation CHAPTER 233

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:
SEE ATTACHED SPECIAL CONDITIONS

Bolton Conservation Commission
Special Conditions
DEP File Number 112-0727

Description

The proposed project from the Town of Bolton Department of Public Works proposes to replace their existing, failing, 24- inch diameter corrugated metal pipe culvert running under Sawyer Road. The culvert has corroded to the point that the bottom third of the pipe has completely degraded. Due to the condition of the existing culvert, it will be removed and replaced with a new 24-inch hdpe culvert. The existing stone headwalls will be replaced with block headwalls. Additionally, the Applicant will install a beaver fence and flow control device to prevent the culvert from being blocked by beaver activity.

Final Plan(s):

"Permit Set Sawyer Road Culvert Replacement Project Bolton DPW #2023-XX" prepared by Dillis and Roy Civil Design Group, signed and stamped by Francis M. McPartlan, PE 49572 Dated 03/10/2023 revised 6/26/2023 with a scale of 1" = 20'.

Attachment(s) including WPA Form 3 – Notice of Intent, Wetland Fee Transmittal Form, Project Narrative, Abutter Notification, Plans: Locus Map, Deed, Natural Heritage, Endangered species, FIRM, Wetland Resource Review documents. Revised NOI Form 3.
Revised Plans and Stream Crossing Standards

1. General Conditions and Findings:

The Bolton Conservation Commission, hereinafter referred to as "the Commission," has determined that this project shall not cause adverse impacts to the resource areas based on the site characteristics and the special conditions enumerated herein. The following Special Conditions to the Applicant are fully incorporated as part of Amended DEP File #112-0727.

The Commission Finds the Following:

The construction of the culvert shall incorporate armoring for the adjacent tree root system.

Fencing shall be incorporated to deter beaver damming following the completion of this project.

Outlet shall incorporate roughness to provide further downstream protections.

The Commission finds stockpiling shall occur outside of the resource area on site.

The Commission finds snow removal shall not be directed toward the resource area.

The performance standards of the Massachusetts Wetlands Protection Act shall be adhered to. The proposed project shall be constructed according to the revised Notice of Intent narrative and final revised plans submitted by the Applicant, as referenced above, and shall conform to the conditions listed herein.

The Order of Conditions and the above referenced plans shall remain on site at all times during construction and shall be incorporated into a weather-tight receptacle located so as to be available to the Commission at all times.

This Order of Conditions does not grant authority to the Applicant/Contractor to perform work on other private property or to perform work that is not or may not be in accordance with other Town Bylaws. The Applicant must obtain all approvals, all applicable permits, and/or easements prior to commencement of the work.

2. Registry of Deeds.

The Order of Conditions and final approved plan shall be recorded at the Worcester County District Registry of Deeds prior to the commencement of construction. No work may take place under this Order until the

Order of Conditions (WPA & Bylaw)
DEP# 112-0727
DPW Town of Bolton
Sawyer Rd. Bolton, Ma 01740

Commission has received written proof of the registry filing. This proof may be either 1) a copy of the Registrar's receipt which includes date, amount paid, an "instrument" or "document" number, and time registered or 2) a copy of the first page of the Order or Conditions which has the date, time, book and page of registration imprinted by the Registry office. Page 7 of 7 of the Order of Conditions may be used.

3. Construction Sequence & Plan.

(a) The Applicant or his representative shall provide a Construction Plan to the Commission at least two (2) weeks prior to commencement of any alterations on site. The Construction Plan shall include the following:

1. Sequence of events and proposed schedule, including but not limited to:
 - placement of sedimentation and erosion control measures;
 - site preparation;
 - marking of trees to be removed on the site, otherwise known as the "tree cutting plan";
 - date(s) of tree cutting and stumping; and
 - key dates and/or milestones for construction;
2. Site Management (as described in Section 5) meeting date(s) and location;
3. Name, address, and telephone number of contractor;
4. Name, address, and telephone number of Site Supervisor; and
5. Frequency and type of Progress Reports during project construction.

(b) The Conservation Commission or its agent must approve the Construction Sequence and Plan before any work on the property can be undertaken.

4. Site Supervisor / Consultant.

(a) When required by the Commission, the Site Supervisor shall be a registered professional engineer, architect, wetland scientist, botanist, or land surveyor who shall be present throughout construction of the entire project or provide oversight of the project on a weekly basis and shall provide progress reports to the Commission as detailed in Bolton Wetland Bylaw Regulations Section 3

(b) A botanist, biologist, wetland scientist, or other individual with qualification and a minimum of five years' experience and acceptable to the commission shall be retained by the owner throughout the grading and planting of the AURA restoration areas and wetland restoration to assure compliance with this order of conditions. Said individual shall provide progress reports to the commission on a weekly basis during active construction. Then provide a progress report upon completion of growing season 1. The restoration work shall be monitored for a period of two years and shall be reviewed by the conservation commission and/or its agent for confirmation of completion.

5. Site Management and Coordination.

(a) At least seven (7) days prior to commencing construction, the Applicant shall coordinate an on-site inspection pursuant to Section 3 with the Commission for the purpose of reviewing this Order of Conditions, erosion and sedimentation control measures, limits of construction activities, and the construction to take place. The Applicant as well as the contractor, and the Site Supervisor for the Applicant shall be present at this meeting. The meeting shall take place after the placement of erosion and sedimentation control measures and prior to the commencement of excavation or other ground alteration.

(b) Before construction of the driveways, drainage swales, and culvert installation can take place, the applicant shall coordinate with the Commission and/or its agent, an on-site meeting to inspect and verify the placement of the surveyed staking of the structures, associated drainage structures, mitigation, replication and restoration areas. This meeting may be combined with the inspection of the sedimentation and erosion control measures if deemed appropriate the commission and/or its agent.

(c) The need for any dewatering activities shall be reported immediately and shall not be directly discharged into a wetland resource area and shall make use of a sedimentation sack or similar device to remove sediment before the water is released. The method of dewatering shall be as the commission and/or its agent approves. The commission shall be notified prior to the commencement of dewatering activities. Should a sub pump or permanent dewatering be required this shall be directly tied into the septic system.

6. Erosion and Sedimentation Control Measures.

(a) No work may take place under this Order until all erosion and sedimentation control measures are in place and approved by the Commission or its agent. Upon the initial inspection of these control measures, the Commission may require installation of additional erosion and sedimentation control measures and/or other measures deemed necessary by the Commission to protect the resource.

(b) Wattles and silt fence shall be installed on site as depicted on plans to function as erosion controls and limit of work delineation. Silt fence may be utilized as necessary. Wattles within a resource area shall be certified weed free, straw. Wattles can be a source of invasive and non-native plants. Alternative control measures can be considered such as groundscapes filter mitt, and compost blends.

(c) All erosion and sedimentation control measures, as defined on the above referenced plan and narrative submitted by the Applicant, shall be in accordance with the following provisions:

- Shall be in effect for the duration of the project;
- Shall be in place prior to the use of any wheeled or tracked vehicles within the wetland resource area, river front area, and the Buffer Zone;
- Shall be installed in accordance with the above referenced plan;
- Shall be installed by hand and anchored to the ground in such a manner as to preclude sediment from migrating through or undermining erosion and sedimentation control measures; and
- Shall be inspected daily, and accumulated sediments removed by hand if sediment accumulation compromises proper erosion and sedimentation control.

(d) When required by the above referenced plan, 'Limits of Construction Activity' shall be clearly marked with 2" x 2" x 4' wood stakes at 20 foot o.c intervals, and marked with highly visible paint or flagging or as noted on the plan.

(e) All Erosion and sediment control measures as identified on the above referenced plan shall be surveyed by a Registered Land Surveyor prior to installation to confirm placement.

(f) The construction area shall be left each day and particularly each weekend in a condition that shall prevent erosion of the construction materials, debris and subsequent sedimentation of resource areas. Erosion of materials shall be prevented during and after construction until vegetation has visibly established itself on all excavated or disturbed areas. If at any time during the course of construction, excavated materials shift to cover the compost sock or disperse beyond the silt fencing, construction will cease and desist until the removal of the material has been completed and therefore shall take place within the same day.

(g) The project will be constructed in such a manner so as to preclude the channeling of water from non-wetlands areas to wetland areas during and after construction is completed.

7. Fill, Debris, Stockpiles, and Excavated Materials.

(a) Any fill used in connection with this project or future projects 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. **This shall be a condition in perpetuity.**

(b) Debris, which includes but is not limited to construction waste, brush, and excess soils, may not be stockpiled, stored or disposed of within wetland resource or wetland resource buffer areas, including the 100-year flood plain and river front areas or within the adjacent upland resource area. **This shall be a condition in perpetuity.**

(c) No brush disposal, including but not limited to, chipping, windrowing, burning and burying, shall take place within wetland resource areas, including 100-year flood plain and river front areas or within adjacent upland resource area. **This shall be a condition in perpetuity.**

(d) Activities associated with stockpiling or the removal of stockpiled material shall not result in the destruction of underlying vegetation in resource areas other than as depicted on the approved plans. **This shall be a condition in perpetuity.**

(e) Residual soil and material from stockpile removal procedures shall be removed by hand upon request of the Commission or its agent.

(f) Stockpiling and staging shall be isolated to the areas identified as such on the final approved plans referenced above as such.

8. Vehicles

(a) Vehicles shall neither enter nor disturb in any way the resource areas beyond the designated work area. **This shall be a condition in perpetuity.**

(b) Preventative measures shall be installed at site entrance to prevent track out from construction vehicles on the public roadway. The entrance of the site should be 12ft wide 6in deep and 25ft wide riprap to reduce tracking debris and soils into the roadway as necessary.

9. Restoration/Replication of Wetland Resource Areas and Adjacent Upland Resource Area

(a) The owner shall restore the applicable Adjacent Upland Resource Area with native species, of diverse structure, at a planting rate that shall provide the same interception of rainfall in gallons per year that is proposed to be removed within jurisdictional areas of the conservation commission.

(b) The Adjacent Upland Resource Areas (AURA's) shall be restored. Planting shall be completed during the growing season and no later than 6 months from when the AURA is altered. Hydromulching shall be done with organic compost material and shall not contain any dye, fertilizers or paper products. The seed mix shall be a native conservation and wildlife mix.

10. Monitoring and Maintenance

(a) Restoration areas shall be monitored, a botanist, biology, wetland scientist, or other individual with qualifications and a minimum of five years' experience and acceptable to the commission for a period of two years after construction. A status report with the information previously described shall be filed with the commission on or before September 30th. If the qualified individual or commission does not think the restoration area will meet the success rate 2:1 (incorporated with any native pollinator gardens on site as well) with a 75% success of plantings required by the end of the second growing season appropriate measures to ensure replications will be taken including but not limited to additional plantings, and overseeding.

(b) The commission and its agents may require additional data necessary to evaluate compliance and the owner shall provide such data.

(c) The Commission may request periodic progress reports from the applicant, replication consultant and/or site supervisor.

- (d) No herbicides, pesticides, fertilizers, hazardous materials, oil, sand, or salt shall be used within wetland resource areas including, Riverfront Areas and the 100-year floodplain. **This shall be a condition in perpetuity.**
- (e) Snow shall not be placed in wetland resource areas including the 25' prohibition area under the wetland bylaw. **This shall be a condition in perpetuity.**
- (f) If a dewatering of any kind is found to be necessary by an engineer, water exiting any infrastructure on site must be piped into the septic system or proposed drywell. **This shall be a condition in perpetuity.**
- (g) There must be evidence of substantial vegetation growing in all disturbed areas covered by this Order of Conditions before compliance with these conditions can be considered.

11. Administration and Compliance.

- (a) This Order of Conditions does not grant authority to the Applicant to perform work on other private property or to perform work that is not or may not be in accordance with Town Bylaws.
- (b) The Applicant prior to commencement of the work must obtain all approvals, all applicable permits, and/or easements.
- (c) The Commission and its agents may enter and inspect the premises upon written or telephone notice to evaluate the premises, those portions thereof which are subject to these conditions.

12. Subsequent Owners and Other Successors in Interest.

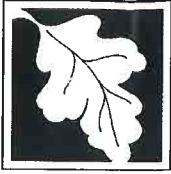
- (a) This Order of Conditions shall apply to any subsequent owner or successor in interest to the property or portion thereof which is subject to this Order. While this Order of Conditions is in effect, the Bolton Conservation Commission shall be notified in writing of any such change of ownership of the property. This notification shall be in the form of a Deed and Affidavit regarding ownership of the property. This notification shall include certification by the new owners that they have read and understand this Order.
- (b) Any person who during or after construction, purchases, inherits or otherwise acquires interest in real property upon which work has been completed in compliance of the Order shall undertake any and all measures necessary to protect and eliminate adverse impact to any and all wetlands and adjacent upland resource areas.
- (c) Any person who during or after construction, purchases, inherits or otherwise acquires interest in real property upon which work has been completed in violation of this Order, shall immediately comply with this Order and restore the real property to a condition that complies with this Order.
- (d) Any change or plan modification, whether actual or intended shall be submitted to the Commission for review. The Commission shall determine whether the change is substantial and may at its discretion require a new filing, amend the Order, or require no action.

13. Certificate of Compliance

- (a) If the project has been completed in accordance with plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor, a written statement by such a professional person certifying substantial compliance with the plans and setting forth what deviation, if any, exists from the plans approved in the Order shall accompany the request for the Certificate of Compliance.

(b) After the project is constructed, a certified 'as-built' plan shall be provided to the Commission. The 'as-built' plan shall include but not be limited to: location of all buffer zone work, final grades, crossing locations, culvert inlet and outlet elevations, utility placement, replication areas, and any additional information necessary to aid the Commission's evaluation of the project before issuance of a Certificate of Compliance for the work under this Order.

(c) As built plans shall be submitted both in physical to scale form and a digital format such as a dbf, tif or autocad drawing. If the digital information is already based on USGS data, it must be provided in the Mass GIS state plane coordinate system with two points being referenced.



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:

112-0727

MassDEP File #

eDEP Transaction #

Bolton

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.

7/27/2023

1. 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.

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.

Signature [Handwritten Signature]

Brian Berube

Printed Name

Signature [Handwritten Signature]

James Geraghty

Printed Name

Signature [Handwritten Signature]

Lori Stephenson

Printed Name

Signature [Handwritten Signature]

Paal Brandvold

Printed Name

Signature _____

William Payne

Printed Name

Signature _____

Printed Name

Signature _____

Printed Name

Signature _____

Printed Name

by hand delivery on

by certified mail, return receipt requested, on

7/27/2023

Date

Date

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:

MassDEP File #:112-0727

eDEP Transaction #:1593298

City/Town:BOLTON

E. Signatures

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

7/11/2023

1. Date of Original Order

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

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.

Signatures:

James Geraghty

Lori Stephenson

Paal Brandvold

by hand delivery on

by certified mail, return receipt requested, on

Date

Date

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.

G. Recording Information

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

APPENDIX B – DRAINAGE EASEMENTS

SAWYER ROAD CULVERT REPLACEMENT PROJECT
BOLTON, MA
DRCDG PROJECT #7073
OCTOBER 2023

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N/F NICEWICZ
ASSESSOR MAP 3A
PARCEL 63
116 SAWYER ROAD
DEED BK. 21249 PG. 280

N/F NICEWICZ
ASSESSOR MAP 3A
PARCEL 64.1
116 SAWYER ROAD
DEED BK. 21249 PG. 280

N/F NICEWICZ
ASSESSOR MAP 3A
PARCEL 63
116 SAWYER ROAD
DEED BK. 21249 PG. 280

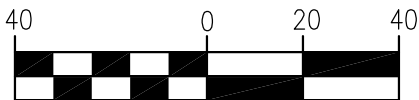
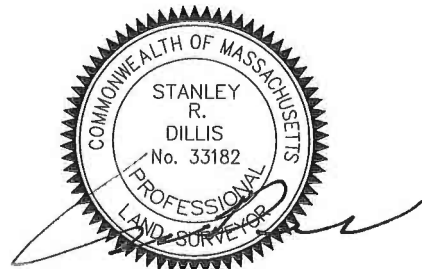
N/F NICEWICZ
ASSESSOR MAP 3A
PARCEL 64.1
116 SAWYER ROAD
DEED BK. 21249 PG. 280

N/F MUNYON
ASSESSOR MAP 3A
PARCEL 65
137 SAWYER ROAD
DEED BK. 9952 PG. 269

TEMPORARY
CONSTRUCTION EASEMENT
7,731± S.F.

TEMPORARY
CONSTRUCTION EASEMENT
8,035± S.F.

SAWYER
ROAD



1 in. = 40 ft.

SCALE: 1" = 40'

DATE: OCTOBER 30, 2023
REFERENCE: PL. BK. 838 PL. 92
PL. BK. 822 PL. 123
JOB FILE NO. 7073

TEMPORARY CONSTRUCTION EASEMENT PLAN

BOTLON, MASSACHUSETTS
PREPARED FOR: TOWN OF BOLTON



CIVIL ENGINEERS	LAND SURVEYORS	WETLAND CONSULTANTS
CORPORATE OFFICE:		CONCORD OFFICE:
1 MAIN STREET, SUITE 1	978-779-6091	100 MAIN ST., SUITE 310
LUNENBURG, MA 01462	www.dillisandroy.com	CONCORD, MA 01742



Town of
Bolton
Massachusetts
Incorporated 1738

Department of Public Works
12 Forbush Mill Road
Bolton, MA 01740
978-779-6402

Right of Entry - Construction

Parcels: Map 3A; Parcel 63
Map 3A; Parcel 64.1

Recording Information: Deed - Book 21249, Page 280

Owner(s): Nicewicz, Vera & David J. & Kenneth J.

Project: Sawyer Road Culvert Replacement Project

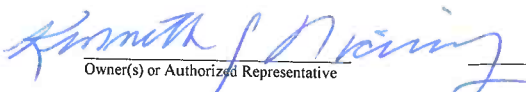
Permission is hereby given to the Town of Bolton, or its duly authorized agents or subcontractors, to enter upon my property indicated above in connection with the Sawyer Road Culvert Replacement project.

Plans for this project are available at the office of the Department of Public Works. The affected areas of the property are as indicated on the plan entitled "Temporary Construction Easement Plan", dated October 30, 2023, prepared by Dillis & Roy Civil Design Group.

The purpose of this Right of Entry is to allow for work associated with the replacement of the culvert under Sawyer Road, including the construction of headwalls, construction of a beaver control device and restoration of the area as indicated on the plans.

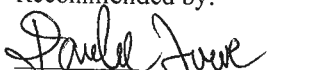
This Right of Entry is made of our free will. We waive our Rights(s) to an appraisal and compensation. This entry is made without prejudice to my rights in settlement of any claims for damages that may hereafter appear. This Right of Entry shall terminate upon final acceptance of the Project, by the Town of Bolton and expiration of the warranty period of the Contract for Construction and Order of Conditions Certificate of Compliance.

Granted by:


Owner(s) or Authorized Representative

Date: 1-04-2024

Recommended by:


Donald Lowe, Town Administrator

Date: 01-04-24



Town of
Bolton
Massachusetts
Incorporated 1738

Department of Public Works
12 Forbush Mill Road
Bolton, MA 01740
978-779-6402

Right of Entry - Maintenance

Parcels: Map 3A; Parcel 63
Map 3A; Parcel 64.1

Recording Information: Deed - Book 21249, Page 280

Owner(s): Nicewicz, Vera & David J. & Kenneth J.

Project: **Sawyer Road Culvert Replacement Project**
Maintenance of beaver control device

Permission is hereby given to the Town of Bolton, or its duly authorized agents or subcontractors, to enter upon my property indicated above in connection with the Sawyer Road Culvert Replacement project for the purpose of maintaining the beaver control device installed as part of this project.

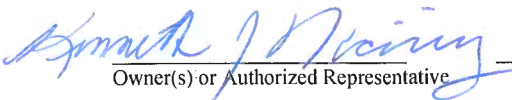
The purpose of this Right of Entry is to allow for work associated with the maintenance of the beaver control device.

The beaver control device, a passive device, will require periodic maintenance to clear the inlet and outlet of the device structure and may include repairs/adjustments as needed to ensure proper operation of the device.

This Right of Entry is made of our free will. We waive our Rights(s) to an appraisal and compensation. This entry is made without prejudice to my rights in settlement of any claims for damages that may hereafter appear.

This Right of Entry shall terminate upon permanent removal of the control device.

Granted by:


Owner(s) or Authorized Representative

Date: 1-04-2023

Recommended by:


Donald Lowe, Town Administrator

Date: 01-04-24