If you have printed this bid from the City of Quincy's Website or through an email, it is your responsibility to check for addenda at www.quincyma.gov before you turn in your proposal. “Please send an acknowledgment that you have printed out this bid via email to; kimtrillcott@quincyma.gov” The City of Quincy will not be responsible for any bids received omitting any addenda acknowledgement.

Thank you
Houghs Neck Maritime Center
Boat Ramp Improvements Project
Quincy, MA

City of Quincy, MA

January 2020

Tighe & Bond
177 Corporate Drive
Portsmouth, NH 03801
# Houghs Neck Maritime Center Ramp Improvements Project
## City of Quincy
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DIVISION 0
CITY OF QUINCY, MASSACHUSETTS
Department of Public Works

Thomas P. Koch
Mayor

Paul Hines
Commissioner of Public Buildings

INVITATION TO BID

The Department of Public Works in the City of Quincy, Massachusetts is seeking sealed bids for the project of HOUGHS NECK BOAT RAMP RECONSTRUCTION until 11:00 a.m. local time on Thursday, January 23, 2020 in the offices of the Purchasing Agent, 1305 Hancock St., Quincy, Massachusetts 02169, at which time and place all bids will be publicly opened and read aloud.

The work consists of the removal of the existing boat ramp located at 137 Bay View Ave, Quincy, MA and the construction of an approximately 135 LF precast concrete plank boat ramp, the construction of 78 LF of pile supported timber pier, installation of a 100 LF gangway, and the installation of approximately 160 LF floating docks, and improvements to the surrounding area. Improvements include reconstruction and restriping of the paved parking area and installation of new rip-rap revetment. The existing boat ramp shall remain in operation and accessible to the public during construction until the proposed boat ramp is operational.

A non-mandatory pre-bid walk thru will be held on Wednesday, January 15, 2020 at 10:30 a.m. starting at 137 Bay View Ave, Quincy, MA 02169.

All work under this contract shall be completed within one hundred (100) calendar days.

Detailed specifications are available on-line at the City of Quincy’s website, www.quincyma.gov and also available at the Office of the Purchasing Agent, Quincy City Hall, 1305 Hancock Street, Quincy, Massachusetts, 02169, between the hours of 8:30 AM and 4:30 PM for a non-refundable printing charge of $25.00. Specifications will be available January 8th, 2020.

Each bid shall be accompanied by a bid security in the amount of five percent (5%) of the total value of the bid in the form of a bid bond or certified/treasurer’s check.

The bidding and award of this contract shall be in full compliance with Massachusetts General Laws, Chapter 30, Section 39M, as last revised. All Federal, State and City of Quincy regulations and subject to the minimum wage rates set under the Massachusetts Prevailing Wage Law Chapter 149, §26 to 27H and/or any applicable federal rates. The City reserves the right to waive any informality in or to reject any or all bids when such an action is deemed in the best interests of the City.

Non-responsive and/or unbalanced bids may be rejected.

Thomas P. Koch  Paul Hines  Kathryn R. Logan
Mayor  Commissioner of Public Buildings  Purchasing Agent

Consulting Engineer: Tighe & Bond, Inc. 1 University Ave, Westwood MA

Advertise  Req. No.
The Quincy Sun  January 9, 2020
The Central Register  January 8, 2020

1305 Hancock St., Quincy MA 02169
Telephone: (617) 376-1060  Fax: (617) 376-1074

Printed on Recycled Paper
00100-1
SECTION 00200
INSTRUCTIONS TO BIDDERS

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ARTICLE 1  DEFINED TERMS

1.1 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions.
ARTICLE 2  COPIES OF BIDDING DOCUMENTS

2.1 Refer to Advertisement for Bids for information on examination and procurement of documents.

2.2 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.

2.3 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 confer a license or grant for any other use.

ARTICLE 3  QUALIFICATIONS OF BIDDERS

3.1 Bidders shall be experienced in the kind of Work to be performed, shall have the necessary equipment, and shall possess sufficient capital to properly execute the Work within the time allowed. Bids received from Bidders who have previously failed to complete Work within the time required, or who have previously performed similar Work in an unsatisfactory manner, may be rejected. A Bid may be rejected if Bidder cannot show that he has the necessary ability, plant and equipment to commence the Work at the time prescribed and thereafter to prosecute and complete the Work at the rate or within the time specified. A Bid may be rejected if Bidder is already obligated for the performance of other Work which would delay the commencement, prosecution or completion of the Work.

3.2 Bidders shall have a minimum of 2 years of experience and shall have successfully completed projects of similar scope within the past 2 years. Submit with the bid a summary of experience and representative projects to show compliance with these qualifications.

3.3 Bidders may be investigated by Owner to determine if they are qualified to perform the Work. All Bidders shall be prepared to submit within five days of Owner’s or Engineer’s request, written evidence of such information and data necessary to make this determination. The investigation of a Bidder will seek to determine whether the organization is adequate in size, is authorized to do business in the jurisdiction where the project is located, has had previous experience and whether available equipment and financial resources are adequate to assure Owner that the Work will be completed in accordance with the terms of the Agreement. Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of such Bidder fails to satisfy Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein.

A. Bidders may be required to provide a letter stating that the Bidder is in good financial standing. The letter must:

1. Be provided by a financial institution or certified public accountant having a relationship with the Bidder;

2. Be on the bank or accountant’s letterhead;

3. Include name and contact information for the bank or accountant including address, email and telephone number;
4. Identify the account holder(s), whose names must match the name of the Bidder, the type and length of business relationship, and the historical status of the accounts (i.e. good standing, timely payments, no overdrafts, etc.); and

5. NOT include account numbers, account amounts, or lines of credit.

ARTICLE 4 SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER’S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.1 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 are to be obtained and paid for by Contractor.

4.2 Existing Site Conditions

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

   a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.

   b. those drawings known to Owner of physical conditions in or relating to existing surface and subsurface structures at the Site (except Underground Facilities).

   c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

   d. Technical Data contained in such reports and drawings.

2. Copies of reports and drawings referenced above will be made available for review at the Building Department Office located in the Department of Public Works (55 Sea Street, Quincy, MA 02169). These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

B. 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.
C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 5.06 of the General Conditions.

4.3 Site Visit and Testing by Bidders

A. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

B. 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.

C. 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.

D. 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.

4.4 Owner’s Safety Program

A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

ARTICLE 5 BIDDER’S REPRESENTATIONS

5.1 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, including any Addenda, data, and referenced items identified in the Bidding Documents;

B. 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;

C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, or performance of the Work;
D. carefully study all reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or adjacent to the Site which have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and carefully study all reports and drawings relating to a Hazardous Environmental Condition, if any, at or adjacent to the Site which have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;

E. 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 reports and 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;

F. 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, 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 and in accordance with the other terms and conditions of the Bidding Documents;

G. 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;

H. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and finishing of the Work; and

I. 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.

ARTICLE 6 PRE-BID CONFERENCE

6.1 A pre-Bid conference will be held at the time and location stated in the invitation or advertisement to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 INTERPRETATIONS AND ADDENDA

7.1 All questions regarding this Bid should be directed to Kathryn R. Logan, Purchasing Agent through purchasing@quincyma.gov. Questions will be accepted until Friday Jan 17, 2020 at 12:00 p.m.
7.2 Addenda may be issued to clarify, correct or change the Bidding Documents. Such Addenda, if any, will be posted on the Quincy Purchasing Department’s website.

7.3 The Bidder must acknowledge receipt of each Addendum, if any, in the space provided on the Bid Form.

**ARTICLE 8  BID DEPOSIT**

8.1 In the Bidding Documents, the terms “Bid security” and “Bid deposit” shall have the same meaning.

8.2 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% of Bidder’s maximum Bid price (including any additive alternates) and in the form of a certified check, bank money order, cash, 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.

8.3 All Bid deposits of General Bidders, except those under consideration by Owner, will be returned within 5 days, excluding Saturdays, Sundays and legal holidays, after the opening of General Bids. Other Bid deposits will be returned upon the execution and delivery of the Agreement. The Bid deposit of the Successful Bidder will be retained until such bidder has furnished the required contract security and executed the Agreement, whereupon the bid deposit shall be returned. If the Successful Bidder fails to furnish the required contract security within 15 days after the Notice of Award and execute the Agreement within 5 days after receipt from Owner, Owner may annul the Notice of Award and the Bid deposit of that Bidder will be forfeited to Owner as liquidated damages for such failure.

**ARTICLE 9  CONTRACT TIMES**

9.1 The number of days within which, or the dates by which, the Work is to be:

A. substantially completed, and/or

B. completed and ready for final payment are set forth in the Agreement.

**ARTICLE 10  LIQUIDATED DAMAGES**

10.1 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.

**ARTICLE 11  SUBSTITUTE AND “OR EQUAL” ITEMS**

11.1 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. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in the General Conditions and may be supplemented in the General Requirements.
ARTICLE 12 PREPARATION OF BID

12.1 A Bid must be made on the Bid form included with the Project Manual. The Bid form shall not be altered in any way. Each hard copy of the Bidding Documents contains a separate, unbound copy of the Bid form to be used for submittal.

12.2 The Bid form must be completed in ink. Blank spaces in the Bid form must be filled in correctly where indicated, and the Bidder must state, both in words and numerals, the prices for which he proposes to complete each and every item of Work. Ditto marks shall not be used.

12.3 A Bidder shall execute his Bid as stated below.

A. A Bid by an individual shall show the Bidder’s name and official address.

B. A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature) accompanied by evidence of authority to sign. The official address of the partnership shall be shown.

C. A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature) and must be accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the corporate secretary. The state of incorporation and the official corporate address shall be shown.

D. 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.

E. A Bid by a joint venture shall be executed by an authorized representative of each joint venture in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

F. All names must be printed in ink below the signature.

12.4 The Bid shall contain an acknowledgment of the receipt of all Addenda in the space provided on the Bid form.

12.5 Postal and email addresses and telephone number to which communications regarding the Bid are to be directed shall be shown.

12.6 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.

12.7 In order to be considered for selection, the Bidder must submit a complete bid package in accordance with these Bidding Documents. Partial Bids will not be accepted. Refer to the Bid Form for a list of documents that shall be submitted in addition to the Bid Form.

12.8 Any deviations in completion of the Bid Form and accompanying documents from the instructions provided in this Article may be cause for rejection of the Bid.
12.9 The following listed documents shall be submitted in addition to the Bid form:

A. Bid Deposit
B. Signature Authorization Form
C. Certificate of Non-Collusion
D. Tax Compliance Certificate
E. Certification Relating to Debarment and Suspension
F. Certification of General/Sub-bidders on Public Construction Projects Regarding Health and Safety and Non-Collusion
G. Reference Form

ARTICLE 13 BASIS OF BID

13.1 Lump Sum

A. Bidders shall submit a Bid on a lump sum basis as set forth in the Bid form.
B. The award will be based on the lowest eligible Bid.

13.2 Allowances

A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor’s overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents in accordance with paragraph 13.02 of the General Conditions.

ARTICLE 14 SUBMITTAL OF BID

14.1 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement for Bids and shall be enclosed in an opaque sealed envelope plainly marked with the Project title, the name and address of Bidder, and shall be accompanied by the Bid deposit 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 envelope plainly marked on the outside with the notation “BID ENCLOSED”. When using the mail or other delivery system, the Bidder is totally responsible for the mail or other delivery system delivering the Bid at the place and prior to the time indicated in the Advertisement for Bids. A mailed Bid shall be addressed to Owner at the address in the Advertisement for Bids.

14.2 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.

ARTICLE 15 MODIFICATION OR WITHDRAWAL OF BID

15.1 Withdrawal Prior to Bid Opening

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.
15.2 Modification Prior to Bid Opening

A. If a Bidder wishes to modify its Bid prior to the Bid opening, Bidder must withdraw its initial Bid in the manner specified in paragraph 15.1.A and submit a new Bid prior to the date and time for the opening of Bids.

ARTICLE 16 OPENING OF BIDS

16.1 Bids will be opened as indicated in the Advertisement for Bids and publicly read.

16.2 In order to be considered for selection, Bids must arrive at the designated location on or before the date and time specified in the Advertisement for Bids. Bidders mailing their Bids should allow for normal mail delivery time to ensure timely receipt of their Bids by Owner.

16.3 Bids received by mail or otherwise after the time specified for the opening of Bids will not be accepted and will be returned to the Bidder unopened.

16.4 No responsibility will attach to Owner, its employees or the Engineer for premature opening of a Bid not properly addressed and identified in accordance with the Bidding Documents.

ARTICLE 17 DISQUALIFICATION OF BIDDERS

17.1 More than one Bid for the same Work from an individual, or a firm, partnership, corporation or an association under the same or different names will not be considered. Reasonable grounds for believing that any Bidder is interested in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder is interested.

ARTICLE 18 BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.1 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 deposit prior to the end of this period.

ARTICLE 19 EVALUATION OF BIDS AND AWARD OF CONTRACT

19.1 Owner reserves the right to reject any and all Bids, to waive any and all informalities, and the right to disregard all nonconforming, nonresponsive or conditional Bids.

19.2 Owner reserves the right to reject any Bid not accompanied by specified documentation and Bid deposit.

19.3 Owner reserves the right to reject any Bid if it shows any omissions, alterations of form, additions not called for, conditions or qualifications, or irregularities of any kind.

19.4 Owner reserves the right to reject any Bid that, in his sole discretion, is considered to be unbalanced or unreasonable as to the amount bid for any lump sum or unit price item.

19.5 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.

19.6 In evaluating whether a Bidder is responsible, Owner will consider the qualifications 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.

19.7 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.

19.8 If the Owner awards the Contract for the Work, such award shall be to the responsible Bidder (who has neither been disqualified nor rejected pursuant to Article 17 or this Article 19) submitting the lowest responsive Bid.

19.9 Contents of the Bid of the Successful Bidder will become part of any contract awarded.

ARTICLE 20  CONTRACT SECURITIES

20.1 Performance and payment bonds shall be furnished by the successful Bidder. The amounts of and other requirements for performance and payment bonds are stated in Article 6 of the General Conditions. Performance and payment bonds submitted shall be posted by a recognized surety company having a place of business in the Commonwealth of Massachusetts. All performance and payment bonds signed by an agent must be accompanied by a certified copy of the authority to act. Performance Bonds and Payment Bonds shall be submitted on the forms included in Sections 00610 and 00615, respectively, of the Contract Documents. Additional requirements may be stated in the General or Supplementary Conditions.

20.2 Within 15 days from the date of the Notice of Award, the Successful Bidder shall deliver to Owner and Engineer, for review and approval, the performance bond and the payment bond he proposes to furnish at the time of the execution of the Agreement.

20.3 The required contract securities will become part of the Contract Documents.

ARTICLE 21  CONTRACT INSURANCE

21.1 The requirements for insurance to be provided by the Successful Bidder are stated in Article 6 of the General Conditions and in the Supplementary Conditions.

21.2 Within 15 days from the date of the Notice of Award, the Successful Bidder shall deliver evidence of required insurance to Owner and Engineer.

21.3 The required insurance certificates will become part of the Contract Documents.

ARTICLE 22  SIGNING OF AGREEMENT

22.1 The Owner will transmit the required number of unsigned Agreements to the Successful Bidder with the Notice of Award. Within 15 days of the date of the Notice of Award, the Successful Bidder shall sign the Agreements and return them to the Owner. The Owner will return one executed Contract to the Successful Bidder.

ARTICLE 23  SALES TAXES

23.1 Owner is exempt from Massachusetts State sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid. The tax exemption number will be provided to the Successful Bidder.
ARTICLE 24  MASSACHUSETTS PREVAILING WAGE RATES

24.1 Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. The Wage Rate Determination is included in Part II of the Supplementary Conditions.

24.2 It is the responsibility of the Bidder before bid opening to request any additional information on Minimum Wage Rates for those tradespeople who may be employed for the proposed Work under this Contract.

END OF SECTION
SECTION 00410

FORM FOR GENERAL BID

PROJECT IDENTIFICATION:

HOUGHS NECK BOAT RAMP RECONSTRUCTION PROJECT

TABLE OF ARTICLES

1. Bid Recipient
2. Bidder’s Acknowledgements
3. Bidder’s Representations
4. Bidder’s Certifications
5. Basis of Bid
6. Time of Completion
7. Attachments to This Bid
8. Bid Submittal

ARTICLE 1 - BID RECIPIENT

1.1 This Bid is submitted to:

City of Quincy, MA

PROCUREMENT OFFICE – ATTN KATHRYN LOGAN

1305 Hancock Street Quincy, MA 02169

1.2 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER’S ACKNOWLEDGEMENTS

2.1 Bidder accepts all of the terms and conditions of the Advertisement for Bids and Instructions to Bidders, including without limitation, those dealing with the disposition of Bid deposit. The Bid will remain subject to acceptance for 30 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 - BIDDER’S REPRESENTATIONS

3.1 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents and hereby acknowledges the receipt of all Addenda.
B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered 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 any Site-related reports and 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.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this 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.

G. Bidder 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 Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 - BIDDER’S CERTIFICATION

4.1 Bidder certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work, that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration.
that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee, and that Bidder will comply fully with all laws and regulations applicable to awards made subject to MGL Chapter 30, Section 39M.

4.2 Bidder certifies that, under penalty of perjury, Bidder is not presently debarred from doing public construction work in the Commonwealth under the provisions of MGL Chapter 29, Section 29F or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder; and is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

4.3 Bidder hereby certifies under the penalties of perjury, to the best of Bidder’s knowledge and belief, that Bidder has filed all State tax returns and paid all State taxes required by law.

4.4 Bidder certifies that, under the penalties of perjury, this Bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word “person” shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

4.5 Bidder certifies that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

4.6 Bidder certifies that Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

4.7 Bidder certifies that Bidder has not solicited or induced any individual or entity to refrain from bidding.

4.8 Bidder certifies that Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph:
   A. “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
   B. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of the Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
   C. “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
   D. “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.

ARTICLE 5 - BASIS OF BID

5.1 Bidder proposes to furnish all labor and materials required for construction of the Houghs Neck Boat Ramp Reconstruction Project in accordance with the accompanying Bidding

Q0044-4/12/31/19 00410-3 Form for General Bid
Documents prepared by Tighe & Bond, Inc., for the Contract Price specified below, subject to additions and deductions according to the terms of the Bidding Documents.

5.2 This Bid includes Addenda numbered __________________________.

5.3 The proposed Contract Price (base bid including subbids) is:

$_________________ (words)

($___________) (figures)

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item Name and Unit Bid Prices</th>
<th>Total Amount of Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>Pile Driving in excess of 24’ embedment:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X LF. = $_________________</td>
<td></td>
</tr>
</tbody>
</table>

*Failure to in any or all spaces in the Bonds Required column will be construed as an entry of the word "no."

5.4 Bidder agrees that each of the above named Sub-Bidders will be used for the work indicated at the amount stated, unless a substitution is made. Bidder further agrees to pay the premiums for the performance and payment bonds furnished by Sub-Bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item 1 of this Bid.

5.5 Bidder agrees, if this Bid is accepted, to promptly confer with Owner on the question of Sub-Bidders, and that Owner may substitute for any Sub-Bid listed above a Sub-Bid filed with Owner by another Sub-Bidder for the sub-trade against whose standing and ability Bidder makes no objection; and that Bidder will use all such finally selected Sub-Bidders at the amounts named in their respective Sub-Bids and be in every way as responsible for them and their work as if they had been originally named in this General Bid, the total Contract Price being adjusted to conform thereto.

ARTICLE 6 - TIME OF COMPLETION

6.1 Bidder agrees that the Work will be substantially completed and ready for final payment in accordance with paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.2 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times as stated in the Agreement.

ARTICLE 7 - ATTACHMENTS TO THIS BID

7.1 The following documents are attached to and made a condition of this Bid:

A. Bid Bond

B. Relevant Previous Experience
C. Statement of Bidder's Qualifications
D. Certificate of Acknowledgment of Contractor for Bid
E. Signature Authorization
F. Certificate of Non-Collusion
G. Tax Compliance Certificate
H. Certification of Bidder Regarding Equal Employment Opportunity
I. Right-To-Know Law
J. Non-Collusion Affidavit
K. Certification Non-Segregated Facilities
L. Affidavit Regarding Prior Labor Disputes
M. Certification Internal Accounting
N. Certification of Bidders/Sub-Bidders on Public Construction Projects
bid submittal

BIDDER: [Indicate correct name of bidding entity]

By: ________________________________________________________________
[Signature] __________________________________________________________

[Printed name] _______________________________________________________
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach
evidence of authority to sign.)

Attest: _____________________________________________________________
[Signature] __________________________________________________________

[Printed name] _______________________________________________________
Title: ______________________________________________________________
Submittal Date: _______________________________________________________
Address for giving notices:

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
Telephone Number: ____________________________________________________
Fax Number: __________________________________________________________
Contact Name and e-mail address: __________________________________________
____________________________________________________________________
Bidder’s License No.: __________________________________________________
(where applicable)

END OF SECTION

J:\Q\Q0044 Quincy Homeland Security\Marine Unit\Q0044-4_Maritime
Center\Construction\Specifications\00\00410-LS.docx
STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the date given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheet. The bidder may submit any additional information, if desired.

1. Name of Bidder:

2. Permanent main office address:
   a. Treasury Number (Employer's Identification No.):

3. When organized?

4. If a corporation, where incorporated?

5. How many years have you been engaged in the contracting business under your present firm or trade name?
   a. Names and home addresses of principal officers and their social security numbers: (attach separate sheet).

6. Contracts on hand: (Schedule these, showing gross amount of each contract and the approximate anticipated dates of completion. Name and address of client and name of person supervising for client.) (Attach separate sheet)

7. General character of work performed by your company?

8. Have you ever failed to complete any work awarded to your? If so, where and why?

9. Have your ever defaulted on a contract? If so, where and why?

10. List the more important contracts recently completed by you stating approximate cost of each, and the month and year completed. (Give names and addresses of client and name of person supervising for client). (See attached form.)

11. List your major equipment available for this contract. (Use separate sheet)

12. Experience in construction work similar in importance to this project. (See form)

13. Background and experience of the principle members of your organization, including the officers.
14. Credit available: $_____________________.

15. Give bank reference, including bank name, address, telephone and contact name.

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required?

17. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City of Quincy in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated this _______ day of ______________, 20___.

Name of Bidder: ________________________________.

By: ________________________________.

Title: ________________________________.

State of ________________________________.

County of ________________________________.

______________________________ being duly sworn, deposed and says that he is ________________________________ of ________________________________.

(office) (Name of Organization)

and that the answers to the foregoing questions and all statements contained therein are true and correct.

SUBSCRIBED AND SWORN TO, before me the ______ day of ______________, 20

__________________________________________________________

(Notary Public) Seal

My commission expires: ________________________________.
CERTIFICATE OF ACKNOWLEDGMENT  
OF CONTRACTOR FOR BID

State of ____________________________ .  Date: __________ 20__.  
County of ____________________________ .

On this ______ day of ________________________________ , 20____,  
before me personally appeared ________________________________ .

who being duly sworn, did depose and say as follows:

______________________________________________________, that said firm consists of  

(Company Name)

______________________________________________________ .  

(name of principals in firm and position)

______________________________________________________ .  

______________________________________________________ .  

that he executed the foregoing instrument on behalf of said firm for the uses and purposes stated  
herein.  If a corporation, the seal affixed to the foregoing instrument is such corporate seal and it was  
so affixed by order of the Board of Directors of said corporation, and that by like order, he signed  
thereto his name and official designation.

______________________________________________________ .  

(Notary Public)  (Seal)

My commissioner expires: ________________________________ .
SIGNATURE AUTHORIZATION

At a duly authorized meeting of the Board of Directors of the 

(NAME OF CORPORATION)

held on ______________________, at which all the Directors were present or waived notice, it was 

(DATE) VOTED, that:

___________________________________  ____________________________________

(NAME)       (OFFICER)

of this company, be and he/she hereby is authorized to execute Contracts and Bonds in the name and behalf of said Company, and affix its Corporate Seal thereto, and such execution of any Contract or obligation in this Company’s name on its behalf by such _______________________ under seal of the Company, shall be valid (OFFICER)

and binding upon this Company. It was further voted that the City of Quincy may rely on such authorization of future Contracts until notified to the contrary.

A true copy,

ATTEST: ______________________________ (CLERK’S SIGNATURE)

PLACE OF BUSINESS: ______________________________

DATE OF THIS CONTRACT: ______________________________

I hereby certify that I am the Clerk of the:

___________________________________ that ____________________________________ is the (COMPANY)       (NAME)

duly elected __________________________ of said Company, and that the above VOTE has not been (TITLE)
amended or rescinded and remains in full force and effect as of the date of this Contract.

_____________________________ CORPORATE SEAL
CERTIFICATE OF NON-COLLUSION

The undersigned certifies 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 natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

_____________________________________ ____________________________________
Signature of person signing proposal                          Agency Name
I hereby certify that I have complied with all laws of the Commonwealth of Massachusetts
Relating to taxes.

Signed under the pains and penalties of perjury.

(1) Individual Contractor  _________________________________________
                    Contractor’s Name and Signature)

(2) Corporation, Association
            or Partnership
                    (Contractor’s Name)

Federal Tax ID Number, or
Social Security Number

By: _________________________________________
    (Authorized Signature)

Note to Contractor: Please sign at (1) or (2), whichever applies.
§ 47A TAXATION

1983 Enactment. St. 1983, c. 233, § 35, by § 101 made effective upon passage, was approved July 1, 1983. Emergency declaration by the Governor was filed on the same date.

Library References
Licenses ← 22. S.J.S. Licenses § 34, 38, 39.

§ 48. Liability of lessee for tax due from lessor

The lessee of real estate or tangible personal property of any corporation, company or association subject to taxation under chapter sixty-three shall also be liable for the payment of the tax due from the lessor under chapter sixty-three. Upon such payment, the lessee may, in the absence of an agreement to the contrary, retain it out of the rent of the property, or recover it in an action against the lessor.

Added by St. 1976, c. 415, §22.

1976 Enactment. This section was derived from c. 63, §74.

§ 49. Information for collection of taxes; injunction

Taxes due from a company, association or corporation may be collected by an information brought in the supreme judicial court by the attorney general at the relation of the commissioner. The court may issue an injunction upon such information, restraining the further prosecution of the business of the company, association or corporation until such taxes, with interest and costs thereon, have been paid and until the returns required by this chapter have been filed.

Added by St. 1976, c. 415, §22.

1976 Enactment. This section was derived from c. 63. § 745; c. 64D, § 5.

Cross References
Penalties and forfeitures imposed by chapter 63 or § 74 of this chapter, collection remedies under this section and §47 of this chapter, see c. 63, §80.

§ 49A. Certification of compliance with tax laws as prerequisite to obtaining license or governmental contract

(a) Any person applying to any department, board, commission, division, authority, district or other agency of the commonwealth or any subdivision of the commonwealth, including a city, town or district, for a right or license to conduct a profession, trade or business, or for the renewal of such right or license, shall certify upon such application, under penalties of perjury, that he has complied with all laws of the commonwealth relating to taxes. Such right or license shall not be issued or renewed unless such certification is made.

(b) No contract or other agreement for the purposes of providing goods, services or real estate space to any of the foregoing agencies shall be entered into, renewed or extended with any person unless such person certifies in writing, under penalties of perjury, that he had complied with all laws of the commonwealth relating to taxes.

(c) Any such agency, which has been notified by the commissioner pursuant to section forty-seven A that a person who holds a license or certificate of authority issued by such agency or who has agreed to furnish goods, services or real estate space to such agency has neglected or refused to file any returns or to pay any tax required under this chapter and that such person has not filed in good faith a pending application for abatement of such tax or a pending petition before the appellate tax board contesting such tax, shall refuse to reissue, renew or extend such license, certificate of authority, contract or agreement until the agency receives a certificate issued by the commissioner that the person is in good standing with respect to any and all returns due and taxes payable to the commissioner as of the date of issuance of said certificate, including all returns and taxes referenced in the initial notification.


1983 Enactment. St. 1983, c. 233, §36, by §101 made effective upon passage, was approved July 1, 1983. Emergency declaration by the Governor was filed on the same date.

1985 Amendment. St. 1985, c. 593, §22, purported to amend par. (c) by substituting “forty-seven A” for “forty-seven” as appearing in line 14 of the 1984 GLM but apparently intended to substitute such amendment where appearing in line 15 of the 1984 GLM.

St. 1985, c. 593, was approved Dec. 18, 1985. Emergency declaration by the Governor was filed on the same date.


1986 Legislation

St. 1986, c. 557, §72, an emergency act, approved Dec. 8, 1986, in par. (c) substituted “forty-seven A” for “forty-seven” as apparently intended by the 1985 amendment.

Library References Licenses ← 22. C.J. S. Licenses §§ 34, 38, 39.
CERTIFICATION OF BIDDER
REGARDING EQUAL EMPLOYMENT OPPORTUNITY

This certification is required pursuant to Executive Order 112A6 (30 R.R. 123 1935). The implementing rules and regulations, provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity cause: and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven (7) calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

NAMES AND ADDRESS OF BIDDER (Include Zip Code):

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
   
   Yes          No

2. Compliance reports were required to be filed in connection with such contract or subcontract.
   
   Yes          No

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.
   
   Yes          No

4. Have you ever been or are you being considered for sanction due to violation of the Executive of 112A6, as amended?
   
   Yes          No

Name and Title of Signatory (Please Type)

Signature: ____________________________  Date: ______________________


RIGHT-TO-KNOW LAW

A bidder will not be eligible for award of this contract under this invitation for bids unless such bidder has submitted as part of its bid the following certification which will be deemed a part of the resulting contract.

CERTIFICATION

The Bidder hereby certifies that, if awarded this contract, he will fully comply with the Massachusetts Right-To-Know Law, c.470 of the Acts of 1983, (the Act). In addition, he shall:

1. obtain a Material Safety Data Sheet (MSDS), for all substances or mixtures of which appear on the Massachusetts Substance List that he or any of his subcontractors brings to or uses on the work site and will keep a copy of the MSDS on the work site of this contract;

2. label each container of a substance or mixture of substances on the Massachusetts Substance List, as required, in section 7 of the Act;

3. provide the same training and non-technical instruction that he is required to provide under section 15 of the Act to all Quincy personnel. Training shall include instructing on the nature and effects of any substance or mixture of substances listed on the Massachusetts Substance List which the Bidder or any of his subcontractors brings to or uses on the worksite.

4. provide to Quincy DPW employees on the work site the same protective equipment that the bidder or any of his subcontractors provides to his employees.

__________________________________________
Signature of Authorized Representative of Bidder

Bidder's Name: __________________________________

Bidder's Address: __________________________________
NON-COLLUSION AFFIDAVIT

A bidder will not be eligible for award of this contract under this invitation for bids unless such bidder has submitted as part of its bid the following certification which will be deemed a part of the resulting contract.

State of __________________________  Date: __________________  20_______
County of __________________________

The undersigned being duly sworn, deposes and says that he is the:

_____________________________________________________________________________
(sole owner, partner, president, treasurer, or other duly authorized official)

of ____________________________________________
(name of company - bidder - as appears in submitted proposal)

for work in __________________________ on __________________________
(City/Town) (Bid Opening Date)

and certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

_____________________________________
Signature/Title of Person Making Affidavit

Sworn to before me this:

________________ day of __________________________ 20_______

_____________________________________
(Notary Public)

My commission expires: __________________________ 20_______
CERTIFICATION
NON-SEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under this control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion or national origin, because of habit, local custom or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000.00 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his file.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. ss.1001.

Date: ______________________, 20____

Official Address (including Zip Code) By:

____________________________________

(Name of Bidder)

___________________________________

(Title)
AFFIDAVIT
REGARDING PRIOR LABOR DISPUTES

The Bidder must execute and complete the following statements as to whether it has been the subject of, or otherwise been involved in, any labor dispute during the past five (5) years. If the Bidder has been the subject of, or otherwise been involved in any labor dispute during this period, the bidder must also provide a detailed description of each labor dispute, including the name and location of the project worked on, the nature of the dispute was resolved. For these purposes, "labor disputes" shall include picketing or any other activity which disrupted or delayed the work.

I ____________________________, being first duly sworn, do hereby depose/state:

(Name)

1. I make each of the following statements with full authorization to bind

_____________________________ to each of the representations made below.

(Name of Bidder)

2. ___________________________ has/has not been involved in a labor dispute

(Name of Bidder)

as described above, within the past five (5) years.

3. (Complete only if bidder has been involved in dispute).

The dispute(s) occurred on the following project(s). (Use separate sheet if necessary)

<table>
<thead>
<tr>
<th>Name and Location of Project</th>
<th>Date Dispute Began</th>
<th>Date Concluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Attach separate sheet and give full description of the nature of each dispute and an explanation of how it was resolved. (Please give a full description below, for each such dispute).

Signed under the penalty of perjury this _____ day of ________________, 20____.

BY: ______________________________________

on behalf of: ________________________________

(Company name)
(To be typed onto letterhead of the Certified Public Accountant)

City of Quincy  
City Solicitor's Office  
1305 Hancock Street  
Quincy, MA 02169

Attn: James S. Timmins  
City Solicitor

RE: ______________________________________  
Project Name

Dear Mr. Timmins:

Please be advised that I have reviewed the statement on internal accounting controls prepared by/for  
__________________________________________ (Name of Company), in connection with the above captioned project. This statement is required under Massachusetts General Laws, Chapter 30, Section 39R. In our opinion, representations of management are consistent with our evaluation of the system of internal accounting controls. In addition, we believe that they are reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the firm's financial statements.

Yours sincerely,

____________________________________________  
Certified Public Accountant

Note: This form is to be completed only when the contract exceeds $100,000. and is for the purchase of materials or for the construction, renovation, etc. of public works or public buildings.
CERTIFICATION
INTERNAL ACCOUNTING

The Contractor certifies that it has internal accounting controls, as required by Chapter 30, Section 39R and that the Contractor will:

1. maintain accurate and detailed accounts for a six (6) year period after the final payment;
2. file regular statements of management concerning internal auditing controls;
3. file an annual audited financial statement; and
4. submit a statement from an independent certified public accountant that such CPA has examined management's internal auditing controls and expresses an opinion as to their consistency with management's statements in (2) above, and whether such statements are reasonable with respect to transactions and assets that are substantial in relation to designer's financial statements. General Laws, Chapter 7, Section 301 (e).

Signed under the pains and penalties of perjury:

_________________________________________________________________
Name of Company

_________________________________________________________________
Authorized Signature

Note: This form is to be completed only when the contract exceeds $100,000 and is for the purchase of materials or for the construction, renovation, etc. of public works or public buildings.
CERTIFICATION OF GENERAL BIDDERS ON PUBLIC CONSTRUCTION PROJECTS

1. CERTIFICATION REGARDING HEALTH AND SAFETY

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations application to awards made subject to section 44A.

2. CERTIFICATION REGARDING NON-COLLUSION AND DEBARMENT

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word “person” shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date: __________________

______________________________
Name of General Bidder

By ________________________________
Signature

______________________________
Print name and title

______________________________
Business Address

______________________________
Street Address City and State
CERTIFICATION OF SUB- BIDDERS (IF ANY) ON PUBLIC CONSTRUCTION PROJECTS

1. CERTIFICATION REGARDING HEALTH AND SAFETY

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupation Safety and Health Administration that is at least ten hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards of subcontracts subject to section 44F.

2. CERTIFICATION REGARDING NON-COLLUSION AND DEBARMENT

The undersigned further certifies under penalties of perjury that this subbid is in all responses bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the “person” shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date ____________________

_________________________________________
Name of Sub-bidder

By _______________________________________
Signature

__________________________________________
Print Name and Title

__________________________________________
Business Name

__________________________________________
Street Address, City and State
SECTION 00520

AGREEMENT

This Agreement is made this ________________ day of ________________ in the year two thousand nineteen between the City of Quincy, MA, as requested by its Building Department hereinafter called Owner and ________________ hereinafter called Contractor.

Owner and Contractor hereby agree as follows:

ARTICLE 1 WORK

1.1 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described with the following title: “Houghs Neck Boat Ramp Reconstruction Project”.

ARTICLE 2 ENGINEER

2.1 The Project has been designed by Tighe & Bond, Inc., One University Drive Suite 104 Westwood MA 02090 who is hereinafter called Engineer. Engineer will act as Owner’s representative, assuming all duties and responsibilities, 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 3 CONTRACT TIMES

3.1 Dates for Substantial Completion and Final Payment

A. The Work will be substantially completed no later than 100 days of the Notice to Proceed being issued and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before 100 (Memorial Day Weekend 2020) days from the issuance of the Notice to Proceed.

3.2 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 11 of the General Conditions. 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), Contractor shall pay Owner $1,000 for each day that expires after the time specified in Paragraph 3.1 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner $1,000 for each day that expires after the time specified in Paragraph 3.1 for completion and readiness for final payment until the Work is completed and ready for final payment.
ARTICLE 4  CONTRACT PRICE

4.1 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the prices stated in Contractor’s Bid, attached hereto as an exhibit.

ARTICLE 5  PAYMENT PROCEDURES

5.1 Applications for Payment shall be processed in accordance with Article 15 of the General Conditions and in accordance with Massachusetts General Law.

5.2 Owner shall make progress payments on account of the Contract Price on the basis of processed Applications for Payment monthly during construction, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All progress payments will be measured by the Schedule of Values established as provided in the General Conditions, or in the event there is no schedule of values, as provided elsewhere in the Contract.

5.3 Owner shall retain from progress payments 5 percent of the value of Work completed.

ARTICLE 6  CONTRACTOR’S REPRESENTATIONS

6.1 Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the site 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 federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; 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, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor’s safety precautions and programs.

E. Based on the information and observations referenced in Paragraph 6.1 above, Contractor does not consider that any 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 Documents.

F. 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.
G. 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.

H. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 7 CONTRACT DOCUMENTS

7.1 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 00520-1 to 00520-6, inclusive);
2. Performance Bond;
3. Payment Bond;
4. General Conditions (title pages, table of contents, and pages 1 to 72, inclusive);
5. Supplementary Conditions (pages 00800-1 to 00800-12, inclusive);
6. General Requirements (Division 1);
7. Specifications (Divisions 2 through 16);
8. Drawings consisting of a cover sheet and 7 sheets labeled G101 through C503, inclusive, with each sheet bearing the following general title: Houghs Neck Boat Ramp Reconstruction Project;
9. Exhibits to this Agreement (enumerated as follows):
   a. Contractor’s Bid (pages 00410-1 to 00410-6, inclusive);
   b. Documentation submitted by Contractor prior to Notice of Award;
10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
   a. Notice to Proceed;
   b. Written Amendments;
   c. Work Change Directives;
   d. Change Order(s).

B. The documents listed in Paragraph 7.1.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 7.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 8 MISCELLANEOUS

8.1 Terms
A. Terms used in this Agreement will have the meanings indicated in the General Conditions and the Supplementary Conditions.

8.2 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.

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

8.4 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.

8.5 Contractor 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 8.5:

1. “corrupt practice” means the offering, giving, receiving, or soliciting of anything 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.

8.6 As per DEP’s Policy Memorandum #10 – the agreed upon DIRECT LABOR MARKUP (percentage) for Change Orders on this project shall be ___ percent.
IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

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

OWNER:

__________________________

By: ________________________

Title: ______________________

[CORPORATE SEAL]

Attest ______________________

Address for giving notices: ______________________

__________________________

(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 of other documents authorizing execution of Owner-Contractor Agreement.)

CONTRACTOR:

__________________________

By: ________________________

Title: ______________________

[CORPORATE SEAL]

Attest ______________________

Address for giving notices: ______________________

__________________________

License No. ____________________

(Where applicable)

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)
Certified as to the availability of funds:

__________________________
Date

__________________________
Signed

__________________________
Title

END OF SECTION
INDEMNITY AGREEMENT

In consideration of the award of Contract No.____________________________________

by the City of Quincy, hereinafter referred to as INDEMNITEE, to the CONTRACTOR/BIDDER:

_____________________________________________________________________________

hereinafter referred to as INDEMNITOR, and for other good and valuable consideration, said
INDEMNITOR agrees to hold INDEMNITEE, City of Quincy, and its various department and employees
harmless from any and all liability, loss or damage that INDEMNITEE may suffer as the result of claims,
demands, costs, including attorneys fees, or judgement or other actions against it by reason of any and all
work done by or on behalf of the INDEMNITOR in connection with the above-referenced contract.

INDEMNITOR,

________________________________________
By Duly Authorized Agent

Date:____________________________________
NOTICE TO PROCEED

TO: ____________________  DATE: ____________________
Project: ____________________

You are hereby notified to commence WORK on or before ____________________.

In accordance with contract documents the contract time is 100 calendar days. The date for completion of all work is therefore ____________________.

BY:

Name: Paul Hines
Title: Building Commissioner

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by:

(Company Name)

Signature: ____________________  Date: ____________________
Print Name: ____________________  Title: ____________________

Q0044-4/12/31/19 00550-1 Notice to Proceed
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

__________________________________________________________________________(seal)
Contractor’s Name and Corporate Seal

By: ____________________________

Signature

Print Name

Title

Attest: ____________________________

Signature

Title

SURETY

__________________________________________________________________________(seal)
Surety’s Name and Corporate Seal

By: ____________________________

Signature (attach power of attorney)

Print Name

Title

Attest: ____________________________

Signature

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:
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

__________________________ (seal)
Contractor's Name and Corporate Seal

By: __________________________
Signature

Print Name
Title
Attest: ________________________
Signature

SURETY

__________________________ (seal)
Surety's Name and Corporate Seal

By: __________________________
Signature (attach power of attorney)

Print Name
Title
Attest: ________________________
Signature

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
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

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.

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:
CERTIFICATE OF INSURANCE

This is to certify that the ____________________________ (Company) has issued the policies listed below, that these policies are written in accordance with the Company's standard policies and endorsements, except as indicated below or as noted in the attachments herewith, which policies and endorsements will be made available to ENGINEER and OWNER UPON request, that they provide coverage and limits of liability shown with respect to the insurance indicated that they are in force on this date, that all deductible amounts are indicated below, and that this Certificate is furnish in accordance with and for the purpose of satisfying the requirements of OWNER and ENGINEER in connection with the award and performance of a contract or agreement between _____________________________________________ and _____________________________________________.

1. Name of Insured
2. Address of Insured
3. Location and Description of Work
4. Project

Coverage and Limits of Liability

(At least as shown below)

<table>
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<tr>
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<th>Effective Date</th>
<th>Expiration Date</th>
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<th>Each Aggregate Limit</th>
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<td>B. Comprehensive General Liability</td>
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CONTRACTUAL LIABILITY

CONTRACTOR shall at all times indemnify and save harmless OWNER, ENGINEER and their respective officers, agents and employees on account of any and all claims, damages, losses, litigation, expenses, counsel fees and compensation arising out of injuries (including death) sustained by or alleged to have been sustained by the officers, agents and employees of said OWNER or ENGINEER or of CONTRACTOR, his subcontractors, or material men, and from injuries (including death sustained by or alleged to have been sustained by the public, any or all persons on or near the Work, or by any other person or property, real or personal (including property of said OWNER or ENGINEER caused in whole or in part by the acts, omissions, or neglect of CONTRACTOR including but not limited to any neglect in safeguarding the work or through the use of unacceptable materials in contracting the Work by CONTRACTOR, any subcontractor, material man, or anyone directly or indirectly employed by them or any of them while engaged in the performance of the contract, including the entire elapsed time from the date ordered to start work or the actual start, whichever occurs first, until completion of the one year correction period, as certified by OWNER or ENGINEER.

Policies A, B, C & D shall remain in effect during the one year correction period.

Such insurer as is herein certified applies to all operations of the insured in connection with, and necessary and incidental to, the work herein described at the locations stated.

It is hereby understood and agreed that the above policies will not be restricted, suspended, materially changed, nor canceled without 15 days advance notice by registered mail to OWNER and ENGINEER.

Authorized Representative Signature ____________________________
Address ____________________________

Q0044/7/6/18 00621-1 Certificate of Insurance
STANDARD GENERAL CONDITIONS
OF THE CONSTRUCTION CONTRACT

Prepared by

EJDC
ENGINEERS JOINT CONTRACT
DOCUMENTS COMMITTEE

Issued and Published Jointly by

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AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

National Society of Professional Engineers®
# 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 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; 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, 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 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 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 subcontrators 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.

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**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, expediters, 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.
SECTION 00800
SUPPLEMENTARY CONDITIONS

PART 1 AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700, 2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

The address system used in the Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix “SC” added thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01 Add the following after paragraph 1.01A.4:

1.01A.4.a. Filed Sub-Bidder – The individual or entity who submits a Bid to the General Bidder for projects subject to MGL Chapter 149, Section 44F.

1.01A.4.b. General Bidder – The individual or entity who submits a Bid directly to the Owner for projects subject to MGL Chapter 149, Section 44E.

1.01A.4.c. General Contractor – The individual or entity with whom the Owner has entered into the Agreement for projects subject to MGL Chapter 149, Section 44E.

SC-1.01 Delete paragraph 1.01A.38 in its entirety and insert the following in its place:

1.01A.38. Specifications – Sections included under Division 1 through Division 16 of the Project Manual.

SC-1.01 Add the following language at the end of the first sentence of paragraph 1.01A.40:

or has been completed except for work having a contract price of less than one percent of the then adjusted total Contract Price.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.02 Delete paragraph 2.02A in its entirety.

ARTICLE 3 - DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-3.01 Replace paragraph 3.01E with the following paragraph:
3.01E  In the event of conflicts, inconsistencies or discrepancies among the Contract Documents, to the extent applicable, the better quality or greater quantity of work shall be provided without change to the Contract Price. In the event of such conflicts, inconsistencies or discrepancies which do not relate to the quality or quantity of work, the Contractor shall request clarifications or interpretations from the Engineer as provided herein.

SC-3.01  Add the following new paragraph immediately after paragraph 3.01E:

3.01F  Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.01  Delete paragraph 4.01A in its entirety and insert the following in its place:

4.01A  The Contract Times will commence to run on the date specified in the Notice to Proceed.

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

SC-5.03  Add the following new paragraphs immediately after paragraph 5.03B.3:

5.03C  In the preparation of Drawings and Specifications, Engineer has relied upon the data obtained from tests of subsurface and latent physical conditions of the site. Such data is in the form of boring logs which are included in the Project Manual. The locations of the test borings are shown on the Drawings. Such logs and samples are not part of the Contract Documents.

5.03C.1  The subsurface data are not guaranteed as to accuracy or completeness.

5.03C.2  Bidders are cautioned that the subsurface data have been utilized for general design purposes only. No explicit or implicit representation is made as to the nature of the materials which may be encountered below the surface of the ground.

5.03C.3  The making available of this subsurface data to Bidders is not intended to relieve them from their responsibility to familiarize themselves with subsurface and other site conditions.
SC-5.04 Add the following new paragraph immediately after paragraph 5.04D.4:

5.04D.5 Adjustment resulting from subsurface or latent physical conditions will be in accordance with Massachusetts General Law Chapter 30, Section 39N referenced in Part II of the Supplementary Conditions.

SC-5.06 Add the following new paragraphs immediately after paragraph 5.06A.2:

5.06A.3 The following reports regarding Hazardous Environmental Conditions at the Site are known to the Owner. Copies of these items may be examined by appointment at Owner’s office during regular business hours. Such items are not part of the Contract Documents.


ARTICLE 6 - BONDS AND INSURANCE

SC-6.03 Add the following new paragraph immediately after paragraph 6.03B.3:

6.03B.4 Insurance certificate(s) shall also contain the following:

1. Confirmation that the General Liability policy covers only the Work under this Contract, with project specific limits.
2. Confirmation that automobile insurance covers all Scheduled, Hired and Non-Owned vehicles.
3. Names of all additional insureds as specified herein.

SC-6.03 Add the words “and Paragraph 6.04” after the words “Paragraph 6.03” in Paragraph 6.03I.

SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

6.03.K The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the amounts indicated in Section 00621 or greater where required by Laws and Regulations:

1. Workers’ Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

2. Contractor’s Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions which shall include completed operations and product liability coverages for not less than the amounts indicated in Section 00621:

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions including all scheduled, hired and non-owned vehicles for not less than the amounts indicated in Section 00621:
6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following:

SC-6.04 Delete paragraph 6.04 in its entirety and insert the following in its place:

6.04 Contractor shall purchase and maintain a separate Owner’s Protective Liability policy, issued to Owner at the expense of Contractor, including Owner and Engineer as named insureds. This insurance shall provide coverage for not less than the amounts indicated in Section 00621:

A. Insurance coverage for the Contractor’s Comprehensive General and Excess Liability policies and for the Owner’s Protective Liability policy shall be written by one and the same insurance company to avoid the expense of duplicate and/or overlapping coverage and to facilitate and expedite the settlement of claims.

B. The Owner’s Protective Liability policy shall protect from claims which may arise from operations under the Contract, including operations performed for a named insured by independent contractors and general inspection or monitoring by a named insured. The policy also shall protect against Automobile Non-Ownership Liability in connection with the Contractor’s operations under the Contract, whether such operations be by itself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

SC-6.05 Add the following new subparagraph after subparagraph 6.05.A.1:

6.05.A.1.a In addition to Owner, Contractor, and all Subcontractors, include as insureds the following:

1) Tighe & Bond (53 Southampton Rd, Westfield, MA 01085)

ARTICLE 7 - CONTRACTOR’S RESPONSIBILITIES

SC-7.02 Add the following new paragraph immediately after paragraph 7.02B.

7.02C Whenever Owner shall notify Contractor in writing that any person on the Work appears to be incompetent, disorderly, or otherwise unsatisfactory, such person shall be removed from the Project and shall not again be employed on it except with the consent of Owner.

SC-7.06 Add the following language at the end of paragraph 7.06O.2:

Contractor shall make payments to Subcontractors in accordance with Massachusetts General Law Chapter 30, Section 39F which is referenced in PART II of these Supplementary Conditions.
SC-7.06  Add the following language at the end of Paragraph 7.06L:

except as required otherwise by Massachusetts General Law Chapter 149, Section 44F.

SC-7.07  Delete paragraph 7.07B in its entirety and replace it with the following:

7.07B  Not used.

SC-7.08  Delete the word “Owner” in the last sentence of Paragraph 7.08A and replace with the word “Contractor.”

SC-7.08  Add the following new paragraph immediately after paragraph SC-7.08A:

7.08B  The Owner has obtained the following permits and approvals for the Project. The Contractor is required to comply with the permit provisions. Copies of the permits are appended to this section.

A.  MassDEP Chapter 91 Waterways License – Pending Approval
B.  City of Quincy Order of Conditions - Obtained
C.  MassDEP 401 Water Quality Certificate – Obtained
D.  ACOE Section 404 Preconstruction Notification – Pending Approval
E.  MassDEP Chapter 91 Demolition Approval - Obtained

SC-7.10  Add the following new paragraph immediately after paragraph 7.10C.

7.10D  Contractor shall comply with all applicable provisions of Chapter 30, Section 39R of the Massachusetts General Laws regarding Contractor’s records.

SC-7.18  Add the following new paragraph immediately after paragraph 7.18.C.

7.18D  If, through acts of neglect on the part of Contractor, any other Contractor or any Subcontractor shall suffer loss or damage on the Work, Contractor shall settle with such other Contractor or Subcontractor by agreement or arbitration if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against Owner on account of any such damage alleged to have been sustained, Owner shall notify Contractor, who shall indemnify, defend, and save harmless Owner against any such claim.

ARTICLE 8 - OTHER WORK AT THE SITE

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION
SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR’s actions.

1. RPR’s dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including “or-equal” items).

2. Exceed limitations of Engineer’s authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor’s work.

5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

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

SC-11.06 Insert the following sentence at the end of Paragraph 11.06.A.2:

If Engineer does not take action on the Change Proposal and neither Owner nor Contractor submit a letter to the other party indicating that the Change Proposal is deemed denied, then the Change Proposal shall be deemed denied after 60 days of Engineer’s receipt of the Contractor’s supporting data, thereby commencing the time for appeal of the denial under Article 12.
ARTICLE 13 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01 Delete the word “superintendents,” in the second sentence after the word “limitation,” in paragraph 13.01B.1.

SC-13.01 Delete paragraph 13.01B.5.c in its entirety and replace with the following:

13.01B.5.c The fair rental and operating cost of all machinery and equipment used on the extra work for the period of such use. The fair rental and operating cost for all machinery and equipment shall be based upon the most recent edition of “Rental Rate Bluebook for Construction Equipment” (the “Bluebook”), published by Equipment Watch (equipmentwatch.com), or a similar publication approved by Engineer and adjusted for regional and age adjustments as specified in the “Bluebook.” Rental periods corresponding to the overall period of use shall be used, except if a piece of equipment used on extra work is already on the job, or has previously been rented for a long period of time (months), then the long-term rental rate (monthly) shall be used in determining costs. The hourly rental rate for long-term rental equipment will be determined by the monthly rental rate divided by 176.

For the situation where equipment is on the job and available for use but cannot be used due to a delay or suspension of a portion or all of the Contract activities, a rental standby rate may be paid if the Contractor can conclusively demonstrate to the satisfaction of the Engineer that: (1) the equipment cannot be used elsewhere on the Project or demobilized and remobilized at a cost lower than the cost of standby time, (2) that the equipment cannot be put in use due to factors beyond the Contractor’s control, and (3) the equipment on standby would have been used as part of the Work that is suspended or put on hold. The standby rate will be calculated as no more than 50% of the rental rate as listed in the “Bluebook” and adjusted for regional and age adjustments. Lesser standby rates may apply if the Owner or Engineer can demonstrate that the Contractor’s standby cost is less than this rate. The standby rate will not include operating costs. A standby rate will not be paid for equipment which is being employed for portions of the Work which are still underway. A standby rate will also not be paid for equipment which is readily demobilized including construction equipment categorized as “shop tools” or “miscellaneous” in the “Bluebook.” Standby rates for durations of less than four hours will not be considered.

SC-13.01 Insert in the first sentence after the word “architects,” the word “superintendents,” in paragraph 13.01C.5

SC-13.01 Add the following new paragraph immediately after paragraph 13.01C.5:

13.01C.6 Costs of or rental of small tools; costs of or rental of buildings.
13.02C Not used.

SC-13.03 Delete Paragraph 13.03B in its entirety and replace it with the following:

13.03B Since subject to change upon determination of actual quantities, estimated quantities of items of Unit Price Work are not guaranteed and serve to facilitate comparison of Bids and to determine an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

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

SC-14.02 Insert after the word “notice” the words “(minimum 24 hours)” in paragraph 14.02A.

SC-14.03 Delete paragraph 14.03B in its entirety and replace with the following:

14.03B Engineer’s Authority: At any time during the progress of the Work, Engineer shall have the authority to determine whether Work is defective, and reject defective Work, even though such work has been previously inspected and paid for.

SC-14.06 Add the following new paragraph immediately after paragraph 14.06A.

14.06B If Owner stops work under Paragraph 14.06, Contractor shall not be entitled to an extension of Contract Time nor to an increase in Contract Price.

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

SC-15.01 Insert the following sentence at the end of paragraph 15.01B.1:

The Certificate of Insurance for stored materials must list Tighe & Bond and the City of Quincy as additional insureds.

SC-15.01 Delete paragraph 15.01C.1 in its entirety and insert the following in its place:

15.01C.1 Progress Payments will be made in accordance with Massachusetts General Law Chapter 30, Section 39G, which is referenced in Part II of these Supplementary Conditions.

SC-15.01 Delete paragraph 15.01D.1 in its entirety and insert the following in its place:

15.01D.1 Progress Payments will be made in accordance with Massachusetts General Law Chapter 30, Section 39G, which is referenced in Part II of these Supplementary Conditions.
SC-15.03 Delete the second sentence in Paragraph 15.03A in its entirety.

SC-15.03 Add the following new paragraph immediately after paragraph 15.03A:

15.03A.1 Substantial Completion shall be as defined in Chapter 30, Section 39G of the Massachusetts General Laws.

SC-15.03 Delete paragraph 15.03C in its entirety and insert the following in its place:

15.03C If, after consultation with Owner, Engineer considers and the Owner agrees that the Work is substantially complete, Engineer will prepare and deliver to Contractor, in a form approved by Owner, a Certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be included with the certificate a list of items to be completed or corrected before final payment.

SC-15.03 Delete the word “preliminary” from paragraph 15.03D.

SC-15.03 Add the following new paragraph immediately after paragraph 15.03F:

15.03G. The procedure for Substantial Completion shall be in accordance with Chapter 30, Section 39G of the Massachusetts General Laws.

SC-15.04 Add the following new paragraph immediately after paragraph 15.04A.3:

15.04A.4 Owner may at any time request Contractor in writing to permit Owner to take over operation of any part of the Work although it is not substantially complete. A copy of such request will be sent to Engineer, and within a reasonable time thereafter Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If Contractor does not object in writing to Owner and Engineer that such part of the Work is not ready for separate operation by Owner, Engineer will finalize the list of items to be completed or corrected and will deliver such lists to Owner and Contractor together with a written recommendation as to the division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, maintenance, utilities, insurance, warranties, and guarantees for that part of the Work which will become binding upon Owner and Contractor at the time when Owner takes over such operation (unless they shall have otherwise agreed in writing and so informed Engineer). During such operation and prior to Substantial Completion of such part of the Work, Owner shall allow Contractor reasonable access to complete or correct items on said list and to complete other related Work.

Paragraph 15.04.A.4 shall be renumbered to 15.04.A.5
Delete paragraph 15.06.D in its entirety and insert the following in its place:

D.  *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, or other time period in accordance with applicable laws and regulations, 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.

**ARTICLE 16 - SUSPENSION OF WORK AND TERMINATION**

Delete paragraph 16.01.A in its entirety and insert the following in its place:

16.01.A  Owner may order, at any time and without cause, suspension of the Work in accordance with Massachusetts General Law Chapter 30, Section 39O, which is referenced in Part II of the Supplementary Conditions.

Add the following new paragraph immediately after paragraph 16.02.A.4:

16.02.A.5  If Contractor abandons the Work, or sublets this Contract or any part thereof, without the previous written consent of Owner, or if the Contract or any claim thereunder shall be assigned by Contractor otherwise than as herein specified.

**ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

Add the following paragraph after paragraph 17.01:

17.02  **Venue**

A.  Any suit by either party arising under this Contract shall be brought only in the Superior Court in the county where the Project is located. The parties hereto waive any argument that this venue is improper or that the forum is inconvenient.

**ARTICLE 18 - MISCELLANEOUS**

Add the following new paragraphs immediately after paragraph 18.08.

18.09  **Wage Rates**

A.  The requirements and provisions of all applicable laws and any amendments thereof or additions thereto as to the employment of labor, and to the schedule of minimum wage rates established in compliance with laws shall be a part of these Contract Documents. Copies of the wage schedules are included in Part II of these Supplementary Conditions.
Conditions. If it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such rates as shall be determined by the officials administering the laws mentioned above. Such approved minimum rate shall be retroactive to the time of the initial employment of such person in such trade or occupation.

B. The schedules of wages referred to above are minimum rates only, and Owner will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage rate in excess of the applicable rate contained in these Contract Documents. All disputes in regard to the payment of wages in excess of those specified in the schedules shall be resolved by Contractor.

C. Per MGL Chapter 149, Section 27, Contractor shall comply with annual updates to the prevailing wage schedule which shall be effective on the anniversary date of the execution of the Contract.

D. The said schedules of wages shall continue to be the minimum rates to be paid during the life of this Agreement and a legible copy of said schedules shall be kept posted in a conspicuous place at the site of the work.

18.10 US EPA Phase II Storm Water Program

Comply with requirement of the US EPA Phase II Storm Water Program for Construction Activities Greater than 1 Acre.

PART II – FEDERAL AND STATE GOVERNMENT PROVISIONS

Federal and State Government Provisions referenced or included herein, have been selected from those to which specific references have been made elsewhere in the Contract Documents. Each and every other provision of law or clause required by law to be inserted in this Contract shall be deemed to be also inserted herein in accordance with paragraph 3.01.F of the Supplementary Conditions.

1.0 FEDERAL GOVERNMENT PROVISIONS

1.1 FmHA Compliance Statement

1.4 FmHA Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions

1.5 FmHA Certification for Contracts, Grants and Loans

1.6 FmHA Supplemental General Conditions EOCD

2.0 COMMONWEALTH OF MASSACHUSETTS PROVISIONS

2.1 The Owner and Contractor agree that the following Commonwealth of Massachusetts Provisions apply to the work to be performed under this Contract and that these provisions supersede any conflicting provisions of this Contract.
2.2 Massachusetts General Laws

2.3.1 Chapter 30, Section 39M

2.4 520 CMR 14.00 Excavation Trench Safety

2.5 State Wage Rates

2.6 Massachusetts Construction Grants Policy Memoranda

2.7 Conservation Commission Order of Conditions

END OF SECTION

J:\Q\Q0044 Quincy Homeland Security\Marine Unit\Q0044-4_Maritime Center\Construction\Specifications\00\00800.docx
ATTACHMENTS TO SUPPLEMENTARY CONDITIONS
ATTACHMENT A
MASSACHUSETTS STATE WAGE RATES
ATTACHMENTS TO SUPPLEMENTARY CONDITIONS
NOTICE OF PROJECT CHANGE
April 6, 2018

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
NOTICE OF PROJECT CHANGE

PROJECT NAME : Houghs Neck Maritime Center Improvement Project
PROJECT MUNICIPALITY : Quincy
PROJECT WATERSHED : Boston Harbor
EEA NUMBER : 15630
PROJECT PROPONENT : City of Quincy, Homeland Security/Marine Police Unit
DATE NOTICED IN MONITOR : February 21, 2018

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62I) and Section 11.10(6) of the MEPA regulations (301 CMR 11.00), I have reviewed the Notice of Project Change (NPC), and hereby determine that this project does not require the preparation of an Environmental Impact Report (EIR).

Project Change

Changes to the project have been proposed to reduce impacts to resources areas and to improve the resiliency of this project to the effects of climate change. The modifications have been developed through consultation with State Agencies and in response to the Certificate on the Environmental Notification Form (ENF).

This project provides an example of the potential vulnerabilities of resources and infrastructure to the effects of climate change which include sea level rise, changes in precipitation, and increases in temperature. I encourage the Town to participate in the Municipal Vulnerability Preparedness (MVP) grant program. The MVP program is a community-driven process to define natural and climate-related hazards, identify existing and future vulnerabilities and strengths of infrastructure, environmental resources and vulnerable populations, and develop, prioritize and implement specific actions the Town can take to reduce risk and build resilience.
Project Description

The project consists of redevelopment of the Houghs Neck Maritime Center located on the eastern shore of Houghs Neck in Quincy. The site and Maritime Center is owned by the Massachusetts Department of Conservation and Recreation (DCR). It provides office space to the Quincy Harbormaster and staff, an operational base for an emergency response team (Homeland Security/Marine Police Unit) and public meeting space. The boat ramp is used for public recreational and commercial boating. The City of Quincy (City) has managed the facility pursuant to an operational agreement with DCR. The boat ramp is owned by the Massachusetts Department of Fish and Game (DFG).

The purpose of the project is to increase functionality of the Maritime Center, improve traffic flow and safety, and improve safety of the boat ramp and floating dock. The project will include expansion and reconfiguration of a boat launch because it is deteriorating and its use is limited at lower tides; improvements to the floating dock and access gangways; demolition of the Maritime Center and three residential buildings (126 Bay View Avenue, 128 Bay View Avenue and 1303 Sea Street); reconstruction of the Maritime Center to include a basement, second floor, cupola, and deck; reconfiguration of the parking area; relocation of the public pier to the north of the boat ramp; and roadway improvements, including traffic calming measures.

As described in the NPC, the project has been modified to account for changes to the Federal Emergency Management Agency (FEMA) flood zones, minimize impacts to resources areas, and include boater/swimmer safety considerations. Since the ENF was issued, in-water work areas have been accounted for in the size of the parcel which increases it slightly from 2.2 acres to 2.31 acres. Changes include:

- Relocation of the Maritime Center building to remove it from the VE Zone;
- Advancement of Maritime Center building design, size\(^1\), and uses based on historical character of neighborhood, needs of harbormaster/emergency rescue operations, support of continuing recreational uses, and provision of community meeting space;
- Revisions to replacement boat ramp and floating dock to accommodate revised building location and refinements to site traffic and pedestrian circulation design;
- Addition of a pier for floating docks to prevent grounding out at low tide;
- Construction of a new platform, gangway and dock system at the end of the public landing to create a protected swimming area;
- Increase in amount of on-site green space and restoration of mudflats;
- Improvement of traffic circulation, revision to size and configuration of parking area, and elimination of previously proposed changes to adjacent streets; and
- Revision of resource area impact calculations associated with changes in project design and re-delineation of wetland resource areas.

The project is proposed in the following phases: replacement of the boat launching ramp and floating dock access support and installation of guide piles; demolition and reconstruction of the Maritime Center; demolition of houses, reconfiguration of parking area and roadway improvements; and potential relocation of the public pier to the north to improve public access.

\(^1\) Total proposed building area will be 12,150 sf with a 5,830 sf exterior deck (3,340 sf increase from area reviewed in ENF).
A Certificate on the ENF was issued on January 20, 2017, which indicated that the project did not require an EIR and that no further MEPA review was required for improvements to the boat ramp and floating dock. However, the Certificate directed the City to file a NPC to address the remaining elements of the project because additional analysis of alternatives, impacts, and mitigation for these elements was necessary. The Certificate required the NPC to include a thorough alternatives analysis; indicate how the building and parking could be sited and designed to improve the resiliency of the project and adapt to the effects of climate change, including sea level rise and more severe storms; and, address whether the operating and use agreement with DCR required updating or amending. Comments from DCR indicate that it is negotiating a new license agreement with the City for a term of ten years. DCR will own all buildings, structures, and infrastructure on the project site, including the improvements constructed by the project change. Construction the boat ramp and floating dock is proposed to commence in June 2018 and to be completed by the end of August 2018. Reconstruction of the Maritime Center is anticipated to commence in 2019.

Project Site

The 2.31-acre project site is located on Sea Street. It is bounded to the north by the Quincy Yacht Club (QYC), to the west by Sea Street and residences, to the south by Bay View Avenue and residences, and to the east by the Weymouth Fore River. The site is developed and almost entirely impervious. It includes a 2,330-square foot (sf) marine building, 38 parking spaces (25 spaces for boat trailers and 13 spaces for passenger vehicles), a public pier, a double-lane boat launching ramp (52 feet wide by 255 feet long) and a floating dock. The permanent access bridge is 4 feet wide by 40 feet long, the gangway (seasonal) is 4 feet wide by 30 feet long and the floating dock (seasonal) is 8 feet wide by 228 feet long. The only guidance fixture is a single support.

Coastal wetland resource areas include Land Subject to Coastal Storm Flowage (LSCSF), Coastal Bank, Land Under the Ocean (LVO), and Land Containing Shellfish (LCS). The mean tide range in the project area is almost 10 feet. At low tide, the intertidal and immediate subtidal area consists of sand and gravel with rip-rap. The site is located within a Special Flood Hazard Area Zone AE (base flood elevation (BFE) 15 NAVD) and VE (BFE 16 ft NAVD) zone according to FEMA Flood Insurance Rate Map (FIRM) (25021C0089F, revised to reflect Letter of Map Revision (LOMR) effective August 21, 2015).

This area is mapped shellfish habitat for soft shell clam (Mya arenaria) and is in a designated shellfish growing area (GBH1.27) which is conditionally restricted. The Weymouth Fore River supports winter flounder (Pseudopleuronectes americanus) and diadromous fish species including alewives (Alosa pseudoharengus), blueback herring (Alosa aestivalis), rainbow smelt (Osmerus mordax), American eel (Anguilla rostrata), white perch (Morone americana), and Atlantic tomcod (Microgadus tomcod).

Environmental Impacts and Mitigation

Environmental impacts associated with the project as proposed in the ENF included temporary and permanent impacts to coastal resource areas including: LVO (2,388 sf temporary, 2 sf permanent), Coastal Bank (64 linear feet (lf) temporary, 20 lf permanent), and LSCSF (53,135 sf temporary). The ENF indicated that the project would reduce impervious area by approximately 4,356 sf (0.1 acre).
As described in the NPC, the project change will increase parking by five spaces for a total of 47 spaces\(^2\), it will decrease impervious area by 0.9 acres for a total of 1.1 acres, and it will reduce overall impacts to coastal resource areas.

Measures to avoid, minimize and mitigate environmental impacts include reconstructing the boat ramp in same general footprint; construction period measures including use of erosion and sedimentation control best management practices (BMPs), staging construction from the parking lot, scheduling work at low tide, and use of a full-depth turbidity curtain around work below Mean Low Water; and roadway improvements to improve safety, circulation and access. Project construction will be phased to maintain access during the prime boating season.

**Jurisdiction and Permitting**

The original project was subject to MEPA review pursuant to 301 CMR 11.03(3)(b)(1)(a), 11.03(3)(b)(1)(e), and 11.03(3)(b)(1)(f), and 11.03(3)(b)(6) because it requires a State Agency Action and will alter a coastal bank; consists of new fill or structure or expansion of existing fill or structure in a velocity zone or regulatory floodway; will alter one half or more acres of other wetlands; and will reconstruct or expand an existing solid fill structure of 1,000 or more sf base area in flowed tidelands or other waterways. The project requires a Chapter 91 (c. 91) License and a Section 401 Water Quality Certification (WQC) from the Massachusetts Department of Environmental Protection (MassDEP).

The project requires an Order of Conditions from the Quincy Conservation Commission (and a Superseding Order of Conditions from MassDEP if the local Order is appealed); Section 404/10 Authorization from the U.S. Army Corps of Engineers (ACOE); and a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) from the U.S. Environmental Protection Agency (EPA).

The NPC will continue to exceed the ENF thresholds and require the permits previously listed. It indicates that the project also requires a Construction and Access Permit and new license agreement from DCR. The project may be subject to federal consistency review by the Massachusetts Office of Coastal Zone Management (CZM). The project change does not meet or exceed any review thresholds that were not previously identified.

The project will receive funding from the Massachusetts Seaport Economic Council and DCR. Because the project includes Financial Assistance, MEPA jurisdiction is broad in scope and extends to all aspects of the project that may cause Damage to the Environment, as defined in the MEPA regulations.

**Review of NPC**

The NPC includes existing and proposed conditions plans; describes changes to the project elements, configuration, and schedule; and compares the changes to the project as previously reviewed in the ENF. It includes additional analysis of alternatives; impacts, measures to avoid, minimize, and mitigate impacts; climate change resiliency; and opportunities to restore coastal wetland resources and reduce impervious area. The City consulted with State and Federal Agencies regarding the changes to

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\(^2\) In-season parking will include 18 trailer spaces and 15 car spaces for a total of 33 spaces; the 18 trailer spaces will be restriped to allow 32 car spaces for a total of 47 spaces in the off-season.
the project, including MassDEP, DFG, the Massachusetts Division of Marine Fisheries (DMF), CZM, and ACOE.

Alternatives Analysis

The goals for replacing the Maritime Center building include improving resiliency of the site to effects of climate change, accommodating existing uses (offices of Harbormaster/Marine Police, staging for Homeland Security, public uses) and expanded community uses, incorporating local historical design elements, and minimizing environmental impacts. The NPC expands on the analysis provided in the ENF and includes the No-Build alternative, New Location Maximizing Distance from FEMA Flood Zones (Alternative 2), and New Location Outside of VE Zone with Waterfront Access (preferred). The No-Build was dismissed as it would not meet project goals. Alternative 2 would reconstruct the building in the southwestern corner of the site, outside of all mapped FEMA flood zones and with the maximum distance between the building and the potential impacts of wave action and sea level rise. The ENF indicates that this alternative is not feasible because it would not be compatible with the needs of the Harbormaster and Marine Police. The Preferred Alternative will construct the new building in an inland location outside of the mapped VE Zone while also providing waterfront access to support continued water-based recreation and emergency responders.

The NPC analyzes alternatives for the boat ramp including two locations (existing or new location (preferred) and three design widths (existing, 28 feet (preferred) and ACOE 32 feet). It indicates that a width of 28-feet is consistent with other DFG Office of Fishing and Boating Access (OFBA) boat ramp facilities. Dual lane use of the ramp will increase safety for boaters, improve site circulation, minimize idling time for queued vehicles, have less environmental impacts than a width of 32 feet (ACOE), and require less rip rap side slope material.

The NPC also analyzes three alternatives for the floating dock access including Continued Use of Single Beach Support with Guide Piles, Continued Use of Single Beach Support with Float Stops, and Construction of Pier and Guide Piles (preferred). In the Preferred Alternative, connecting the floats to a pier will prevent the floating docks from grounding on tidal areas during low tide and will minimize environmental impacts of creating a beach access to the floating docks. The addition of guide piles will keep the floating docks oriented parallel to the boat ramp for improved safety.

The NPC analyzes four parking area alternatives including Maintain Existing Number and Orientation of Parking Spaces, Maximize Parking Area, Minimize Impervious Area, and Improve Orientation of Parking Spaces/Reduce Impervious (preferred). The Preferred Alternative represents a balance in an increase in the number, size, and orientation of parking spaces for improved safety with a reduction in impervious area.

The NPC analyzes three traffic circulation alternatives including Maintain Existing Traffic Circulation Pattern, Widen Bay View Avenue for Primary Access, Create One-Way Traffic Pattern for Boaters and Trailers (preferred). The Preferred Alternative will accommodate boaters/trailers separately from other vehicles to provide a clearer traffic pattern to improve vehicular and pedestrian safety.

Wetlands, Waterways, and Stormwater

Overall, the project change will result in a net decrease in coastal resource area alteration compared to existing conditions. The Quincy Conservation Commission will review the project to
determine its consistency with the Wetlands Protection Act (WPA), the Wetlands Regulations (310 CMR 10.00), and associated performance standards, including stormwater management standards (SMS). MassDEP will review the project for consistency with the 401 WQC Regulations (314 CMR 9.00) and the Waterways Regulations (310 CMR 9.00). Comments from CZM and DMF are generally supportive of the project change, in particular, for relocating the Maritime Building out of the FEMA Velocity Zone and for restoration of Coastal Beach to mudflat. Comments identify additional design considerations that may be required to ensure the project will be resilient to climate change.

Permanent impacts to coastal resources include: 6,200 sf of Coastal Beach/LCS (intertidal area) for the construction of the new boat ramp (offset by 8,900 sf of existing fill that will be restored); 2,040 sf of LUO for placement of new fill (a portion of which is offset by 770 sf of existing fill that will be removed); 85 lf of Coastal Bank (offset by 140 lf of existing concrete pad areas that will be removed); and 22,800 sf of LSCSF (offset by 29,500 sf of existing fill that will be removed). The project change will result in a net increase to LUO by 1,270 sf.

The project change will decrease impervious area on the site and include installation of a stormwater management system. The project will comply with the SMS to the maximum extent practicable for redevelopment. The proposed stormwater management system will include two rain gardens to provide water quality treatment and recharge. Comments from CZM recommend further reduction in impervious areas to minimize the impacts of waves and overwash which often speed up when flowing over smooth, impervious surfaces. CZM comments further recommend redesigning the proposed ramp extending from the basement of the relocated building to the boat ramp to reduce the potential of funneling waves towards the new building.

The City should consult FEMA guidance for designing buildings in high hazard areas and evaluate storage alternatives for critical equipment, rather than locate critical equipment in the basement of the new building. In addition, the City should continue to consult with CZM for technical guidance as the project design is finalized.

I refer the City to the comments from DCR regarding the role of its Flood Hazard Management Program (FHMP) with the National Flood Insurance Program (NFIP). DCR comments note that if any part of the Maritime Center building, including anything attached to it such as a deck post or cantilevered deck, extends over the VE Zone, then the structure is considered to be within the VE Zone and must be designed and constructed to meet those standards. For construction in A zones, the enclosed space below the required elevation, depending on the use, must either be dry or wet floodproofed in accordance with the American Society of Civil Engineers (ASCE) requirements.

Proposed work in intertidal areas will take place in the dry, and within subtidal areas will take place fully contained within siltation barriers to minimize turbidity. The City will relocate live shellfish found during excavation activities. I encourage the City to minimize new fill within resource areas to the maximum extent practicable. In addition, I refer the City to comments from DMF regarding mitigation for unavoidable impacts, project sequencing to remove existing fill prior to the placement of new fill to avoid temporary impacts; conditioning permits to require reporting and contingency plans to support a successful restoration of mudflat; and addressing potential conflicts between the proposed swimming area and the public that may be fishing or boating nearby. The City will continue to coordinate with DMF regarding construction methodology for in-water work and along Coastal Beach which may be conditioned to avoid time-of-year (TOY) restrictions related to winter flounder and shellfish.
Construction Period

The project must comply with MassDEP Solid Waste and Air Pollution Control regulations, pursuant to M.G.L. c.40, s.54 during construction and demolition (C&D). All C&D should be undertaken in compliance with the conditions of all State and local permits. The project will provide BMPs to control erosion and sedimentation during the construction period. The project will require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the NPDES CGP.

The City should evaluate construction period impacts and consider feasible measures that can be implemented to eliminate or minimize these impacts. The City will conduct a hazardous materials assessment prior to demolition and remediation indicates that it will be guided by the assessment and regulatory requirements. I encourage the City to set an aggressive goal for recycling of construction waste and manage solid waste to divert it from landfills.

The City has committed to select project contractors that have installed retrofit emissions control devices, or vehicles that use alternative fuels to reduce emissions of VOCs, carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment. Off-road vehicles are required to use ultra-low sulfur diesel fuel (ULSD). The City is advised that if oil and/or hazardous material are identified during the implementation of this project, notification pursuant to the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000) must be made to MassDEP.

Conclusion

The NPC has sufficiently defined the nature and general elements of the project for the purposes of MEPA review. Comments from State Agencies do not request additional MEPA review and I am satisfied that any outstanding issues can be addressed by State Agencies during permitting.

April 6, 2018
Matthew A. Beaton

Comments received:

03/12/2018 Massachusetts Division of Marine Fisheries (DMF)
03/16/2018 Massachusetts Office of Coastal Zone Management (CZM)
03/29/2018 Massachusetts Department of Conservation and Recreation (DCR)
MAB/PPP/ppp
March 27, 2018

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
Attn: Purvi Patel, MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: EOEEA #15630 Houghs Neck Maritime Center Improvement Project NPC

Dear Secretary Beaton:

The Department of Conservation and Recreation ("DCR" or "Department") is pleased to submit the following comments in response to the Notice of Project Change ("NPC") submitted by the City of Quincy (the "Proponent") for the Houghs Neck Maritime Center Improvement project (the "Project").

As described in a December 2016 ENF, the Project proposes demolition of the existing Maritime Center building, construction of a replacement building, reconfiguration of a parking area, reconstruction and expansion of the boat ramp, replacement of the floating dock support, and installation of steel guide piles. The NPC was filed to provide an update on a redesign of the Project. As part of the redesign, the Proponent will move the replacement building outside of the recently revised FEMA VE zone; relocate the proposed replacement boat ramp and floating dock; and add a proposed pier for the floating dock.

The proposed Project is located on property owned by DCR. The NPC states that the work is authorized by a 2003 agreement (the "2003 MDC Agreement") with the Metropolitan District Commission (a predecessor agency to DCR). The project requires a Construction and Access permit from DCR. Also, the Project requires a new license agreement, as the 2003 agreement has expired.

DCR offers the following comments on the NPC:

Flood Hazard Management

As proposed, the Project involves activities within a 100-year floodplain as delineated on the current effective Flood Insurance Rate Map ("FIRM") for Norfolk County, dated July 16, 2015.

DCR's Flood Hazard Management Program ("FHMP"), under agreement with the Federal Emergency Management Agency ("FEMA"), is the state coordinating agency for the National Flood Insurance Program ("NFIP"). As such, the FHMP provides technical assistance to communities that participate in the NFIP related directly to the program and also related to floodplain management in general. As mentioned in our December 2016 comments on the Project ENF, communities that participate in the NFIP are required by FEMA, as a condition of their participation, to regulate development within the 100-year floodplain in a manner that meets or exceeds the minimum standards established by FEMA (see 44 CFR 60.3). Participating communities such as Quincy are required to adopt the NFIP requirements through locally enforceable measures. In Massachusetts, many of the requirements contained in 44 CFR 60.3 are enforced through

COMMONWEALTH OF MASSACHUSETTS - EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2119
617-626-1250 617-626-1351 Fax
www.mass.gov/dcr

Charles D. Baker
Governor

Matthew A. Beaton, Secretary, Executive Office of Energy & Environmental Affairs

Karyn E. Polito
Lt. Governor

Leo Roy, Commissioner
Department of Conservation & Recreation
existing state regulations such as the State Building Code (780 CMR) and Wetlands Protection Act regulations (310 CMR 10.00). Communities typically adopt the remainder of the requirements as part of a zoning ordinance or other locally enforceable measure. Quincy has a zoning ordinance that includes a Floodplain District section which has been accepted by FEMA as meeting their requirements under the NFIP.

In our role as NFIP coordinator, the FHMP offers comments on the proposed Project’s relationship to many of the above regulations and requirements. The FHMP does not directly administer any of these requirements and therefore does not provide official determinations as to compliance with them; rather, our comments are provided as an overview of the requirements and the documentation necessary to demonstrate compliance with these requirements.

Based on information submitted with the NPC, the existing structure is within the 100-year floodplain on the current effective FIRM, specifically a zone AO with a depth of three feet and a zone VE with a base flood elevation of 18 feet above North American Vertical Datum ("NAVD"). Because of its location in the 100-year floodplain, compliance with the requirements of several federal, state and local measures related to floodplain development is required. The Massachusetts State Building Code (780 CMR) Ninth Edition, includes specific standards for structures newly constructed or substantially improved in the floodplain.

The structure is located primarily in the AO zone, but is very close to the VE zone. The Proponent should be aware that if any part of the structure, or anything attached to the structure is in, or extends over the VE zone, then the structure is considered to be within the VE zone and must be designed and constructed to meet VE zone standards. This could include a deck post or even a cantilevered deck. For construction in A zones, the enclosed space below the required elevation, depending on the use, must be either dry or wet floodproofed in accordance with the requirements of ACSE 24-14, Chapter 6, Dry Floodproofing and Wet Floodproofing.

Authorization

DCR notes that the 2003 MDC Agreement has expired and is no longer valid. DCR and the Proponent are negotiating a new license agreement for a term of ten years. DCR will own all buildings, structures, and infrastructure on the property, including the improvements constructed by the Project.

DCR appreciates the opportunity to comment on the NPC. If you have any questions regarding these comments on the Flood Hazard Management Program, please contact Eric Carlson, Assistant Director of DCR’s Flood Hazard Management Program at (617) 626-1362 or eric.carlson@state.ma.us.

Sincerely,

Leo P. Roy
Commissioner

cc: Eric Carlson, Joy Duperauti, John Scannell (DCR)
MEMORANDUM

TO: Matthew A. Beaton, Secretary, EEA
ATTN: Purvi Patel, MEPA Unit
FROM: Bruce Carlisle, Director, CZM
DATE: March 13, 2018
RE: EEA 15630, Hough’s Neck Maritime Center Improvement Project, Quincy

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Notice of Project Change (NPC), noticed in the Environmental Monitor dated February 21, 2018.

Project Description

CZM last reviewed this project in December 2016 when it was under review as an Environmental Notification Form (ENF) with the MEPA office. The project includes the reconfiguration and reconstruction of the existing Hough’s Neck Maritime Center which houses the Homeland Security/Marine Police Unit. The building is currently used as office space for the Quincy Harbormaster and staff, Homeland Security operational base, and public meeting space. The primary components of the project have not changed since the filing of the ENF however, the project has been modified to account for changes to the Federal Emergency Management Agency (FEMA) flood zones, minimize impacts to resources areas, and include boater/swimmer safety considerations. Although impacts to resource areas have been reduced in the current project proposal, impacts to coastal bank, land under the ocean, land subject to coastal storm flowage, and land containing shellfish will occur.

The project received funding from the Massachusetts Seaport Economic Council, the Quincy Community Preservation Act, and the MA Department of Conservation and Recreation.

Project Comments

Under the updated project proposal, the proposed Maritime Center Building is shifted landward so that it is located out of the FEMA mapped V Zone. CZM commends the City for making this change to the project layout.

The updated project plan reduced the amount of paved area on the site overall. However, much of the area within the Velocity flood zone mapped by FEMA includes pavement, concrete and other solid surfaces. Because waves and overwash often speed up when flowing over smooth, impervious surfaces, CZM recommends further reduction in impervious areas where possible. Similarly, the ramp extending from the basement of the proposed building to the boat ramp may facilitate the funnelling of waves towards the new building. CZM recommends the exploration of alternative design options to mitigate this unintended consequence.

Although the proposed building is located outside the FEMA mapped Velocity Zone, CZM recommends that the City consult FEMA guidance for designing buildings in high hazard areas. The NPC indicates that the basement of the building will be used for equipment storage for the fire department and marine unit. Due to the criticality of the equipment, CZM encourages the City to evaluate storage alternatives to reduce the potential for damage. CZM is available to provide technical assistance as the project design is finalized.
Federal Consistency

The proposed project may be subject to CZM federal consistency review. For further information on this process, please contact, Robert Boeri, Project Review Coordinator, at 617-626-1050 or visit the CZM web site at www.state.ma.us/czm/fcr.htm.

BKC/lbe/rh

cc: Ben Lynch, Waterways Program, MA DEP Boston
    Lealdon Langley, MA DEP Boston
    Josh Helms, ACOE Regulatory Division
    Jill Carr, MA DMF
March 12, 2018

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Purvi Patel, EEA No. 15630
100 Cambridge Street, Suite 900
Boston MA 02114

Re: Houghs Neck Maritime Center Improvement Project

Dear Secretary Beaton:

Division of Marine Fisheries (MarineFisheries) staff have reviewed the Notice of Project Change submitted by Quincy Homeland Security/Marine Police Unit for the reconstruction of the Houghs Neck Maritime Center and boat ramp. Design changes include the redesign and relocation of the proposed Maritime Center building to outside of the FEMA VE Zone, relocation of the boat ramp and floating dock outside of the existing footprint, addition of a new pier section to prevent float grounding, and increased green space. Permanent impacts to marine habitats include: 6,200 SF of intertidal disturbance for the construction of the new boat ramp (offset by 8,900 SF of existing fill that will be restored), and 2,040 SF of new fill placed in the subtidal (a portion of which is offset by 770 SF of existing fill that will be removed) and placement of 22, 12.75” steel piles to support the pier and floating docks. An optional design element includes the construction of a new platform, gangway and dock system at the end of the existing public landing pier to create a protected swimming area.

The project site is located along the eastern shore of Houghs Neck in the Weymouth Fore River. This area is mapped shellfish habitat for soft shell clam (Mya arenaria) and is in designated shellfish growing area GBH1.27, which is currently conditionally restricted and is a productive, harvestable fishing flat when open. We would like to note that the Designated Shellfish Growing Area polygon as drawn in MORIS and in Figure 4 in the ENF is of coarse resolution and imprecise. GBH1.27 extends north of the ramp to the neighboring yacht club building. The Weymouth Fore River also supports winter flounder (Pseudopleuronectes americanus) and diadromous fish species including alewives (Alosa pseudoharengus), blueback herring (Alosa aestivalis), rainbow smelt (Osmerus mordax), American eel (Anguilla rostrata), white perch (Morone americana), and Atlantic tomcod (Microgadus tomcod).

Regarding project impacts to fisheries habitats, MarineFisheries has the following comments and concerns:

- A net decrease of fill in the intertidal and net increase of fill in the subtidal are proposed compared to existing conditions. New fill should be minimized to the greatest extent possible, and unavoidable impacts should be subject to mitigation.
- There will be a temporal accumulation of impacts to the intertidal and subtidal if the new boat ramp is built before or during the existing ramp demolition, totaling at least 17,910SF (0.4 acres) of fill in these resource areas. Ideally, existing fill is removed prior to the placement of new fill. If possible, the applicant should consider project sequencing that can avoid the temporal overlap while also providing boaters with ramp access during the peak season.
The installation of a fixed pier leading to the seasonal floats addresses our previous comments regarding floats grounding on the mudflat at low tide.

Proposed work, including removal of existing boat ramp features and piling extraction, has the potential to generate turbidity. We concur that work in the intertidal should take place in the dry, and subtidal work should take place fully contained within siltation barriers.

We concur with the Coastal Beach Restoration Monitoring Plan regarding the existing ramp area that will be returned to mudflat. The applicant should be aware that during State and Federal permitting processes, DMF may recommend that a condition be included in the permit that requires reporting and/or a contingency plan should the area not naturally restore to match the surrounding mudflat.

We concur with the mitigating measures described for the relocation of excavated shellfish.

The design of the dock configuration at the end of the pier to create a swimming area involves minimal fisheries impacts (e.g. installation of 10 piles), however the applicant should address any conflicting uses this may have with public that may be fishing from or near the pier or otherwise boating in its vicinity.

Questions regarding this review may be directed to Jill Carr in our Gloucester office at (978) 282-0308 ext. 108.

Sincerely,

David E. Pierce, PhD
Director

DP/JC/sd

cc: Quincy Conservation Commission
    Greg Bettencourt, DMF
    Lisa Engler, Rebecca Haney, MA CZM
    Ed Reiner, EPA
    Josh Helms, ACOE
ORDER OF CONDITIONS
A. General Information

1. From: Quincy
   Conservation Commission

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

3. To: Applicant:
   Lt. Robert Gillan
   a. First Name
   b. Last Name

   Quincy Homeland Security/Marine Pol
   c. Organization
   1 Sea Street
   d. Mailing Address
   Quincy
   e. City/Town
   MA
   f. State
   02169
   g. Zip Code

4. Property Owner (if different from applicant):
   a. First Name
   b. Last Name

   City of Quincy
   c. Organization

   d. Mailing Address
   e. City/Town
   f. State
   g. Zip Code

5. Project Location:
   136 Bayview Avenue
   a. Street Address
   1009
   b. City/Town
   Quincy
   c. Assessors Map/Plat Number
   23
   d. Parcel/Lot Number
   42d27m154s
   e. Latitude
   -70d950m270s
   f. Longitude
A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):
   Norfork
   a. County
   b. Certificate Number (if registered land)
   11089
   c. Book
   d. Page

7. Dates:  
   a. Date Notice of Intent Filed
   b. Date Public Hearing Closed
   March 16, 2018  May 2, 2018
   c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):
   Reconstruction Project Plans
   a. Plan Title
   b. Prepared By
   c. Signed and Stamped by
   d. Final Revision Date
   e. Scale
   Stormwater Report
   f. Additional Plan or Document Title
   March 18, 2018
   g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:
   Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:
   a. ☐ Public Water Supply  
   b. ☐ Land Containing Shellfish  
   c. ☐ Prevention of Pollution  
   d. ☐ Private Water Supply  
   e. ☐ Fisheries  
   f. ☐ Protection of Wildlife Habitat  
   g. ☐ Groundwater Supply  
   h. ☐ Storm Damage Prevention  
   i. ☐ Flood Control

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

Approved subject to:

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

Denied because:

b. ☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. A description of the performance standards which the proposed work cannot meet is attached to this Order.

c. ☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act’s interests, and a final Order of Conditions is issued. A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).

3. ☐ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) a. linear feet

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

<table>
<thead>
<tr>
<th>Resource Area</th>
<th>Proposed Alteration</th>
<th>Permitted Alteration</th>
<th>Proposed Replacement</th>
<th>Permitted Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. ☐ Bank</td>
<td>a. linear feet</td>
<td>b. linear feet</td>
<td>c. linear feet</td>
<td>d. linear feet</td>
</tr>
<tr>
<td>5. ☐ Bordering Vegetated Wetland</td>
<td>a. square feet</td>
<td>b. square feet</td>
<td>c. square feet</td>
<td>d. square feet</td>
</tr>
<tr>
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<td>a. square feet</td>
<td>b. square feet</td>
<td>c. square feet</td>
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<td>7. ☐ Bordering Land Subject to Flooding</td>
<td>a. square feet</td>
<td>b. square feet</td>
<td>c. square feet</td>
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<td>f. cubic feet</td>
<td>g. cubic feet</td>
<td>h. cubic feet</td>
</tr>
<tr>
<td>8. ☐ Isolated Land Subject to Flooding</td>
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<td>g. cubic feet</td>
<td>h. cubic feet</td>
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<td>9. ☐ Riverfront Area</td>
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<td>Sq ft within 100 ft</td>
<td>g. square feet</td>
<td>h. square feet</td>
<td>i. square feet</td>
<td>j. square feet</td>
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<td>Sq ft between 100-200 ft</td>
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B. Findings (cont.)

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

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</table>
B. Findings (cont.)

23. ☐ Restoration/Enhancement *:

   a. square feet of BWV
   b. square feet of salt marsh

24. ☐ Stream Crossing(s):

   a. number of new stream crossings
   b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.

2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.

3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. The work is a maintenance dredging project as provided for in the Act; or
   b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
   c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.

5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).

6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on May 2, 2021 unless extended in writing by the Department.

7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
C. General Conditions Under Massachusetts Wetlands Protection Act

8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry’s Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,

   "Massachusetts Department of Environmental Protection" [or, "MassDEP"]
   "File Number 059-1409"

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.

12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

13. The work shall conform to the plans and special conditions referenced in this order.

14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

19. The work associated with this Order (the “Project”)
   (1) ☑ is subject to the Massachusetts Stormwater Standards
   (2) ☐ is NOT subject to the Massachusetts Stormwater Standards

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

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:
   i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
   ii. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
   iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;
C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

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

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

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

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

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

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

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

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.
g) The responsible party shall:
   1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
   2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
   3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

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

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

1. Is a municipal wetlands bylaw or ordinance applicable? ☑ Yes ☐ No

2. The Quincy Conservation Commission hereby finds (check one that applies):
   a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

   1. Municipal Ordinance or Bylaw
   2. Citation

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

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

   Quincy Wetlands Protection Act
   1. Municipal Ordinance or Bylaw
   2. Citation

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

   The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):
   1. A copy of the Order of Conditions and Approved Plans shall be on-site during all operations.
   2. Prior to any activity on site, the Applicant shall inform the Commission of the Name and Contact information of the on-site Construction Supervisor as well as the start date of the project.
   3. Erosion and sediment control shall be maintained at all times and not removed until approved by the Commission.
   4. Comply with comment letters from all City Departments; All DEP & Commission Requests
E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance. Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission. 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:

Maureen C. Glynn

Jeffrey Graeber

John T. Brennan

Thomas Carroll

☐ by certified mail, return receipt requested, on May 4, 2018

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

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

Quincy
Conservation Commission

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

To:

Quincy
Conservation Commission

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

136 Bayview Avenue
Project Location

Has been recorded at the Registry of Deeds of:

Norfolk
County

for:
City of Quincy
Property Owner

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

Book
Page

In accordance with the Order of Conditions issued on:

May 2, 2018
Date

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

Instrument Number

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

Document Number

Signature of Applicant
PREVAILING WAGES RATES
Awarding Authority: City of Quincy

Contract Number: QUINCY

City/Town: QUINCY

Description of Work: Houghs Neck Boat Ramp Reconstruction - Remove existing maritime center and boat ramp located at 137 Bay View Ave, Quincy, MA and the construct approximately 135 LF precast concrete plank boat ramp

Job Location: 40 Sea Street, Quincy, MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- 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 from the Department of Labor Standards ("DLS") 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 any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person 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 DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.
- 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. Awarding authorities are required to request these updates 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, 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. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to 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. A sample of a payroll reporting form may be obtained at 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.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- 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
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Apprentice to Journeyworker Ratio: 1:4

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### BRICK/PLASTER/CEMENT MASON - Local 3 Quincy

**Apprentice -**

**Effective Date:** 08/01/2019

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**Notes:**

Apprentice to Journeyworker Ratio: 1:5

### BULLDOZER/GRADER/SCRAPE

**Operating Engineers Local 4**

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For apprentice rates see "Apprentice - OPERATING ENGINEERS"

### CAISSON & UNDERPINNING BOTTOM MAN

**Laborers - Foundation and Marine**

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For apprentice rates see "Apprentice - LABORER"

### CAISSON & UNDERPINNING LABORER

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For apprentice rates see "Apprentice - LABORER"

### CAISSON & UNDERPINNING TOP MAN

**Laborers - Foundation and Marine**

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For apprentice rates see "Apprentice - LABORER"
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For apprentice rates see "Apprentice- LABORER"

### CARPENTER

**CARPENTERS -ZONE 2 (Eastern Massachusetts)**

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**Apprentice - CARPENTER - Zone 2 Eastern MA**

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**Notes:**

- % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
- Step 1&2 $29.99/ 3&4 $35.85/ 5&6 $54.22/ 7&8 $60.14
- Apprentice to Journeyworker Ratio:1:5

### CARPENTER WOOD FRAME

**CARPENTERS -ZONE 2 (Wood Frame)**

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All Aspects of New Wood Frame Work
### Carpenter (Wood Frame) - Zone 2

**Effective Date:** 10/01/2019

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**Notes:**
- % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
- Step 1 & 2 $19.65/ 3 & 4 $27.19/ 5 & 6 $34.50/ 7 & 8 $37.29

**Apprentice to Journeyworker Ratio:** 1:5

### CEMENT MASONRY/PLASTERING - Quincy

**Effective Date:** 07/01/2019

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**Effective Date:** 01/01/2020

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

**Apprentice to Journeyworker Ratio:** 1:3
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**Notes:**
- Steps are 750 hrs.

- Apprentice to Journeyworker Ratio: 1:1

**DEMO: ADZEMAN**

LABORERS - ZONE 1

12/01/2019  $39.30  $8.10  $16.60  $0.00  $64.00

For apprentice rates see "Apprentice- LABORER"

**DEMO: BACKHOE/LOADER/HAMMER OPERATOR**

LABORERS - ZONE 1

12/01/2019  $40.30  $8.10  $16.60  $0.00  $65.00

For apprentice rates see "Apprentice- LABORER"

**DEMO: BURNERS**

LABORERS - ZONE 1

12/01/2019  $40.05  $8.10  $16.60  $0.00  $64.75

For apprentice rates see "Apprentice- LABORER"

**DEMO: CONCRETE CUTTER/SAWYER**

LABORERS - ZONE 1

12/01/2019  $40.30  $8.10  $16.60  $0.00  $65.00

For apprentice rates see "Apprentice- LABORER"

**DEMO: JACKHAMMER OPERATOR**

LABORERS - ZONE 1

12/01/2019  $40.05  $8.10  $16.60  $0.00  $64.75

For apprentice rates see "Apprentice- LABORER"

**DEMO: WRECKING LABORER**

LABORERS - ZONE 1

12/01/2019  $39.30  $8.10  $16.60  $0.00  $64.00

For apprentice rates see "Apprentice- LABORER"
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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For apprentice rates see "Apprentice- PILE DRIVER"

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For apprentice rates see "Apprentice- ELECTRICIAN"

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### Apprentices - ELECTRICIAN - Local 103

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- 03/01/2019
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  - 2 $20.44 $13.00 $0.61 $0.00 $34.05
  - 3 $23.00 $13.00 $14.34 $0.00 $50.34
  - 4 $23.00 $13.00 $14.34 $0.00 $50.34
  - 5 $25.55 $13.00 $14.76 $0.00 $53.31
  - 6 $28.11 $13.00 $15.17 $0.00 $56.28
  - 7 $30.66 $13.00 $15.58 $0.00 $59.24
  - 8 $33.22 $13.00 $16.00 $0.00 $62.22
  - 9 $35.77 $13.00 $16.40 $0.00 $65.17
  - 10 $38.33 $13.00 $16.82 $0.00 $68.15

### Notes:

- App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80
- Apprentice to Journeyworker Ratio: 2:3***

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

**ELEVATOR CONSTRUCTOR HELPER**

*ELEVATOR CONSTRUCTORS LOCAL 4*

**FENCE & GUARD RAIL ERECTOR**

*LABORERS - ZONE 1*

**FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY**

*OPERATING ENGINEERS LOCAL 4*

**FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY**

*OPERATING ENGINEERS LOCAL 4*
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**Notes:**

- Steps are 750 hrs.
- % After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
- Step 1&2 $32.00/ 3&4 $38.36/ 5&6 $57.45/ 7&8 $63.86
- Apprentice to Journeyworker Ratio: 1:1

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### FORK LIFT/CHERRY PICKER

**OPERATING ENGINEERS LOCAL 4**

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

### GENERATOR/LIGHTING PLANT/HEATERS

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

### GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

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**Effective Date** - 01/01/2020

### Notes:
- Steps are 750 hrs.
- Apprentice to Journeyworker Ratio: 1:1

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**HOISTING ENGINEER/CRANES/GRADALLS**

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**Issue Date:** 12/26/2019  **Wage Request Number:** 20191226-018  **Page 14 of 40**
### Classification: Operating Engineers - Local 4

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#### Notes:

- **Apprentice to Journeyworker Ratio:** 1:6

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### HVAC (DUCTWORK)  
**SHEETMETAL WORKERS LOCAL 17 - A**

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For apprentice rates see "Apprentice- SHEET METAL WORKER"

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### HVAC (ELECTRICAL CONTROLS)  
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For apprentice rates see "Apprentice- ELECTRICIAN"

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### HVAC (TESTING AND BALANCING - AIR)  
**SHEETMETAL WORKERS LOCAL 17 - A**

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For apprentice rates see "Apprentice- SHEET METAL WORKER"
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

| HVAC MECHANIC | 09/01/2019 | $54.69 | $10.95 | $19.74 | $0.00 | $85.38 |
|  | 03/01/2020 | $56.19 | $10.95 | $19.74 | $0.00 | $86.88 |
|  | 09/01/2020 | $57.69 | $10.95 | $19.74 | $0.00 | $88.38 |
|  | 03/01/2021 | $59.19 | $10.95 | $19.74 | $0.00 | $89.88 |

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

| HYDRAULIC DRILLS | 12/01/2019 | $39.90 | $8.10 | $16.60 | $0.00 | $64.60 |
|  | 06/01/2020 | $40.89 | $8.10 | $16.60 | $0.00 | $65.59 |
|  | 12/01/2020 | $41.87 | $8.10 | $16.60 | $0.00 | $66.57 |
|  | 06/01/2021 | $42.89 | $8.10 | $16.60 | $0.00 | $67.59 |
|  | 12/01/2021 | $43.90 | $8.10 | $16.60 | $0.00 | $68.60 |

For apprentice rates see "Apprentice- LABORER"

| INSULATOR (PIPES & TANKS) | 09/01/2019 | $48.44 | $12.80 | $16.40 | $0.00 | $77.64 |

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston**

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**Notes:**

Steps are 1 year

**Apprentice to Journeyworker Ratio: 1:4**

| IRONWORKER/WELDER | 03/16/2019 | $46.66 | $8.00 | $23.50 | $0.00 | $78.16 |

**Issue Date:** 12/26/2019  
**Wage Request Number:** 20191226-018
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Notes:
** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR
LABORERS - ZONE 1

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For apprentice rates see "Apprentice- LABORER"

LABORER
LABORERS - ZONE 1

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Notes:

Apprentice to Journeyworker Ratio:1:5
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**Notes:**

- Apprentice to Journeyworker Ratio: 1:3

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**Notes:**
- **Apprentice to Journeyworker Ratio:** 1:5

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### MECH. SWEEPER OPERATOR (ON CONST. SITES)

*OPERATING ENGINEERS LOCAL 4*

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

### MECHANICS MAINTENANCE

*OPERATING ENGINEERS LOCAL 4*

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

### MILLWRIGHT (Zone 1)

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### Notes:
- Steps are 2,000 hours
- Apprentice to Journeyworker Ratio: 1:5

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For apprentice rates see "Apprentice- LABORER"

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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**Notes:**

- Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

---

**PAINTER (SIGN, PICTORIAL & DISPLAY)**

**PAINTERS LOCAL 35 - ZONE 2**

06/01/2013  $25.81 $7.07 $7.05 $0.00 $39.93
## Apprentices - PAINTER SIGN - Local 35 Zone 2

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### Notes:
- Steps are 4 mos.

### Apprentices to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.

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**Issue Date:** 12/26/2019  **Wage Request Number:** 20191226-018  **Page 23 of 40**
## Classification

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

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**Notes:**
- Steps are 750 hrs.
- Apprentice to Journeyworker Ratio: 1:1

### PAINTER (SPRAY OR SANDBLAST, REPAINT)

PAINTER (SPRAY OR SANDBLAST, REPAINT)

PAINTERS LOCAL 35 - ZONE 2

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**Notes:**
- Steps are 750 hrs.
- Apprentice to Journeyworker Ratio: 1:1

**PAINTER (TRAFFIC MARKINGS)**

For Apprentice rates see "Apprentice- LABORER"

**LABORERS - ZONE 1**

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**PAINTER / TAPER (BRUSH, NEW)**

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Notes:
- Steps are 750 hrs.
- Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, REPAINT)
PAINTERS LOCAL 35 - ZONE 2
### Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

**Effective Date:** 07/01/2019

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**Effective Date:** 01/01/2020

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**Notes:**
- Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:** 1:1

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**PANEL & PICKUP TRUCKS DRIVER**

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**PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)**

**PILE DRIVER LOCAL 56 (ZONE 1)**

- For apprentice rates see "Apprentice- PILE DRIVER"

**PILE DRIVER**

**PILE DRIVER LOCAL 56 (ZONE 1)**

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**Issue Date:** 12/26/2019  **Wage Request Number:** 20191226-018  **Page 27 of 40**
### Apprentice - PILE DRIVER - Local 56 Zone 1

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**Effective Date:** 08/01/2019

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#### Notes:

Apprentice to Journeyworker Ratio: 1:5

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### PIPEFITTER & STEAMFITTER

**PIPEFITTERS LOCAL 537**

| Apprentice to Journeyworker Ratio: 1:5 |

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**Effective Date:** 09/01/2019

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**Effective Date:** 03/01/2020

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**Notes:**

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
** Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

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### Apprentice - PIPEFITTER - Local 537

**Effective Date:** 09/01/2019

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**Notes:**

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
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For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS
PLUMBERS & GASFITTERS LOCAL 12

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Notes:
** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic$64.20, Step5 with lic$71.67

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.)
PIPEFITTERS LOCAL 537

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

PNEUMATIC DRILL/TOOL OPERATOR
LABORERS - ZONE 1

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For apprentice rates see "Apprentice- LABORER"
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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For apprentice rates see "Apprentice- ROOFER"

**Apprentice - ROOFER - Local 33**

**Effective Date - 08/01/2019**

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**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:**

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For apprentice rates see "Apprentice- ROOFER"
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### Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio: 1:4

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**Issue Date:** 12/26/2019  
**Wage Request Number:** 20191226-018  
**Page 32 of 40**
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### Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1

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### Notes:
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  - Steps are 850 hours
- Apprentice to Journeyworker Ratio: 1:3
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
| OPERATING ENGINEERS LOCAL 4 | 12/01/2019 | $48.23 | $12.50 | $15.70 | $0.00 | $76.43 |
| | 06/01/2020 | $49.31 | $12.50 | $15.70 | $0.00 | $77.51 |
| | 12/01/2020 | $50.45 | $12.50 | $15.70 | $0.00 | $78.65 |
| | 06/01/2021 | $51.54 | $12.50 | $15.70 | $0.00 | $79.74 |
| | 12/01/2021 | $52.68 | $12.50 | $15.70 | $0.00 | $80.88 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| TELECOMMUNICATION TECHNICIAN | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
| ELECTRICIANS LOCAL 103 | 03/01/2019 | $38.33 | $13.00 | $16.82 | $0.00 | $68.15 |

### Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

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### Notes:
Apprentice to Journeyworker Ratio: 1:1

| TERRAZZO FINISHERS | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
| BRICKLAYER'S LOCAL 3 - MARBLE & TILE | 08/01/2019 | $53.34 | $10.75 | $21.30 | $0.00 | $85.39 |
| 02/01/2020 | $53.98 | $10.75 | $21.30 | $0.00 | $86.03 |
| 08/01/2020 | $55.33 | $10.75 | $21.45 | $0.00 | $87.53 |
| 02/01/2021 | $55.97 | $10.75 | $21.45 | $0.00 | $88.17 |
| 08/01/2021 | $57.37 | $10.75 | $21.61 | $0.00 | $89.73 |
| 02/01/2022 | $57.96 | $10.75 | $21.61 | $0.00 | $90.32 |
### Apprentice - **TERRAZZO FINISHER - Local 3 Marble & Tile**

**Effective Date:** 08/01/2019

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**Notes:**

- Apprentice to Journeyworker Ratio: 1:3

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### Apprentices - LINEMAN (Outside Electrical) - East Local 104

**Effective Date:** 09/01/2019

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**Notes:**

Apprentice to Journeyworker Ratio: 1:2

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**TELEDATA CABLE SPLICER**  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

02/04/2019  
$30.73  
$4.70  
$3.17  
$0.00  
$38.60

**TELEDATA LINEMAN/EQUIPMENT OPERATOR**  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

02/04/2019  
$28.93  
$4.70  
$3.14  
$0.00  
$36.77

**TELEDATA WIREMAN/INSTALLER/TECHNICIAN**  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

02/04/2019  
$28.93  
$4.70  
$3.14  
$0.00  
$36.77

**TREE TRIMMER**  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company; and (b) for the purpose of operating, maintaining, or repairing the utility company’s equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground.  
This classification does not apply to wholesale tree removal.

01/31/2016  
$18.51  
$3.55  
$0.00  
$0.00  
$22.06

**TREE TRIMMER GROUNDMAN**  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company; and (b) for the purpose of operating, maintaining, or repairing the utility company’s equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground.  
This classification does not apply to wholesale tree removal.

01/31/2016  
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$19.87
### Classification

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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, 4:5, 4:6, 5:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 2:2, 2:3, 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.
DIVISION 1
SECTION 01110
SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Work of the Contract is shown and described on the plans and in the specifications for the City of Quincy, Houghs Neck Boat Ramp Reconstruction Project, Bay Avenue, Houghs Neck, Quincy, Massachusetts.

2. The Work includes the following major items:
   a. Demolition of ancillary structures and items within the Limit of Work indicated on the Drawings, but not specifically shown;
   b. Utility cut/cap, abandonment and disconnection;
   c. General site cleanup, surface restoration, and removal of miscellaneous structures
   d. Construction of a new boat ramp and pile supported pier
   e. Construction of a 100 LF aluminum gangway and installation of 160 LF of floating docks
   f. Removal of existing boat ramp concrete planks and revetment within the limits of work shown on the Drawings.
   g. Repaving and restriping the parking areas within the limits of work shown on the Drawings.

1.2 SUBMITTALS

A. Informational Submittals

1. Submit copies of permits or approvals required for the Work, prior to initiating the Work.

1.3 PROJECT/SITE CONDITIONS

A. Permits

1. Obtain the permits and approvals listed below:
   a. MassDEP AQ06 Renovation / Demolition permit
   b. Permits and licenses of a temporary nature necessary to perform the Work
   c. Permits for disposal of construction wastes including disposal of cleared and grubbed materials where applicable
   d. Local permits related to trenching and/or excavation
e. Other permits or licenses required for the Contractor’s operations or required elsewhere in the Contract Documents and not included herein

2. Comply with the permits and approvals listed below (Copies are provided in Section 00800):
   a. MassDEP Chapter 91 Waterways License
   b. City of Quincy Order of Conditions
   c. MassDEP 401 Water Quality Certificate
   d. ACOE Section 404 Preconstruction Notification approval
   e. DCR Construction and Access Permit
   f. MEPA Certificates on the Notices of Project Change

3. Obtain required time extensions to permits obtained by the Contractor, if construction authorized by permits has not been completed by the expiration date noted on these permits.

4. Obtain permits and approvals from appropriate jurisdictional agencies and property owners for use of premises not furnished by the Owner, and for all off-site areas.

5. Submit copies of permits prior to performance of Work authorized by permits.

B. Existing Conditions

1. Use of Premises and Off-site Work
   a. The Work shall occur on the Owner’s property.
   b. Obtain permits and approvals for use of any land and access thereto that is deemed necessary for the Work, where such land is not available for use by the Owner, including land for temporary construction facilities, access and egress, or for storage of materials. Confine apparatus and storage to such additional areas.
   c. Obtain permits and written approvals from appropriate jurisdictional agencies for the use of premises not available for use by the Owner, including all offsite staging areas, borrow pits and waste areas. Submit copies of all permits and approvals to the Owner prior to using areas.
   d. Provide for the disposal of waste materials off-site in accordance with all applicable laws.
   e. Adhere to the limits of Work and any traffic control plans as indicated, to minimize obstruction to traffic and inconvenience to the Owner, general public, and residents in the vicinity of the Work, and to protect people and property. Keep fire hydrants on or adjacent to the Work accessible to fire fighting equipment at all times.
   f. Make temporary provisions for the use of sidewalks and maintain functioning stormwater systems, drainage ditches, and culverts.
g. Maintain public access to businesses and residences including driveways and parking lots at all times during the Work.

PART 2 PRODUCTS

2.1 MATERIALS FURNISHED BY OWNER

A. The Owner will not furnish any materials, labor or equipment under this Contract.

PART 3 EXECUTION – NOT USED

END OF SECTION
SECTION 01140
WORK RESTRICTIONS

PART 1 GENERAL

1.1 SUMMARY
A. Section Includes
   1. Work Schedule
   2. Construction Constraints
   3. Vehicle Access
   4. Available Work Area
   5. Site Usage Plan
B. Related Requirements
   1. Section 01310 - Coordination
   2. Section 01325 - Scheduling of Construction

1.2 SUBMITTALS
A. Incorporate the requirements of this Section in the project schedule submitted under Section 01325.
B. Action Submittals
   1. Submit site usage plan within 30 days of the Notice to Proceed.

1.3 WORK SCHEDULE
A. Conduct the Work during daylight hours on Monday through Friday, and within the time between 7:00 a.m. and 5:00 p.m. Saturday work is allowed at Contractors discretion with advance notice to the City. No work is to be done on Owner’s holidays, Sundays or outside of the work hours described above.
B. Cutting of paved surfaces, excavation within any paved roadway, or pavement resurfacing activities is not allowed from November 15th to April 1st without permission from the Engineer.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 CONSTRUCTION CONSTRAINTS -NOT USED

3.2 VEHICLE ACCESS
A. No vehicles will be permitted to travel over the existing beach, except where vehicle crossing locations have been approved for Contractor access.
3.3 AVAILABLE WORK AREA

A. Limits of construction are defined on the Drawings. No work will be permitted to be performed outside these boundaries.

3.4 SITE USAGE PLAN

A. Locations of available staging areas are shown on the Drawings.

B. Submit a site usage plan showing all proposed staging areas, locations of all office and storage trailers, and material laydown areas. The site usage plan should be a drawing showing the proposed locations and shall include on-site traffic modifications and temporary utilities as may be applicable.

END OF SECTION
SECTION 01290

APPLICATION AND CERTIFICATE FOR PAYMENT

PART 1  GENERAL

1.1 SUMMARY

A. Section Includes

1. Definition and description of measurement and payment to be used for the Work
2. Payment procedures
3. Payment requests for stored materials

B. Related Requirements

1. Section 01295 - Schedule of Values

1.2 GENERAL

A. The following paragraphs describe payment procedures for the work to be done under the respective items in the Bid Form.

B. Each lump sum will be deemed to include an amount considered by the Contractor to be adequate to cover the Contractor’s overhead and profit for each separately identified item.

C. Except as provided for in Section 01295, no separate measurement or payment will be made for Work called for in Division 0 or Division 1 of the Contract Specifications, unless specifically covered under the Bid items listed below. All costs associated with this Work will be considered incidental to the Contract Bid price.

D. Division 2 through Division 16 Work will be measured and paid for at the Contractor’s lump sum Bid price as indicated on the Bid form. Those payable Work items, and related prices as Bid, will be the basis for all compensation to the Contractor for Work performed under this Contract. Work not specifically included as a Bid item, but which is required to properly and satisfactorily complete the Work is considered ancillary and incidental to the Bid item Work, and payment for such Work is considered to be included in the values as Bid for payable items.

1.3 LUMP SUM ITEMS

A. Each lump sum price stated in the Bid form shall constitute full compensation for all labor, equipment and materials necessary and required to complete the work specified under that particular item, and also all costs for doing related work as set forth in the Contract Documents or implied in carrying out their intent.

1. Measurement

a. There will be no measurement of quantities for lump sum items. Periodic partial payments for this Work, included under the
Agreement, shall be based on the percent completion of each work item listed in the Schedule of Values provided under Section 01295 estimated by the Contractor and approved by the Engineer.

2. Payment
a. The lump sum payment shall be full compensation for furnishing all labor, materials, tools, equipment, and services necessary for the construction of the Hough Neck Maritime Center Boat Ramp Improvement excluding Item 1A, in its entirety as detailed in the Contract Documents.

1.4 UNIT PRICE ITEMS
A. Each unit price stated in the Bid form shall constitute full compensation for all labor, equipment and materials necessary and required to complete the Work specified under that particular item, and also all costs for doing related work as set forth in the Contract Documents or implied in carrying out their intent.
B. Payment of the unit price items will only be made for the actual quantity of Work performed in accordance with the Contract Documents.
C. Item 1A – Pile Driving in excess of 24’ embedment
   1. Measurement
      a. Measurement for pile driving in excess of 24’ embedment will be on a liner foot basis as measured in the field by the Engineer.
   2. Payment
      a. Payment of the bid price for pile driving in excess of 24’ embedment will be full compensation for all labor, equipment and materials required for or incidental to the work.

1.5 PAYMENT REQUESTS FOR STORED MATERIALS
A. Requests for payment for stored materials shall be made in accordance with Section 00700 and shall be accompanied by the attached "Certificate for Stored Materials" form. Payment for stored materials shall not exceed the value actually paid by the Contractor for the stored materials as evidenced by the accompanying bill of sale, invoice, or other documentation.
B. Partial payment requests for materials stored or so-called "engineering costs" by equipment manufacturers will not be allowed. All such costs shall be distributed proportionately among the various items of equipment/hardware to be furnished.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
CERTIFICATE FOR STORED MATERIALS

We, ________________________________, request payment for materials and/or equipment not incorporated in the work included under our firm’s contract with ___________________________________________ as listed below.

We hereby certify under penalty of perjury, that the materials not incorporated in the work have been delivered and are securely stored at the site or at _______________________________ and that we have title to said materials free and clear of all Liens, as evidenced by the attached bill of sale, invoice, or other documentation.

We also certify that an inventory of said materials and/or equipment has been compiled for the purposes of this monthly partial payment request. This list of materials and/or equipment, including unit prices for said material not incorporated in the work for which payment is hereby requested, consisting of ________ pages and dated ________________, is signed and attached hereto.

We acknowledge that payments made based on this request for materials and/or equipment not incorporated in the work does not relieve the contractor of its responsibility for furnishing all materials and equipment required for the satisfactory completion of the project pursuant to the contractual requirements.

We further certify that we can and will adequately protect said materials and/or equipment until they are incorporated in the work; that they meet the requirements of the specifications, and that they will be needed for incorporation in the work in the near future.

IN WITNESS WHEREOF, we, the said _______________________________ hereby set our hand and seal this ___________ day of __________________, 20__. 

____________________________________
Contractor’s Firm Name

SIGNED, SEALED AND DELIVERED IN THE PRESENCE OF

By _______________________________
Title _____________________________

Notary Public
SCHEDULE OF STORED MATERIALS

Job No. ____________________
Contract No. ________________
Contractor: ________________
Location: ________________ Date ____________________

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Supplier/Manufacturer</th>
<th>Quantity Stored and not Incorporated</th>
<th>Unit $</th>
<th>Certified Value</th>
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Signature: __________________________
Contractor's Principal

Total Amount Due for Stored Materials ______________________________

Title: ______________________________

Q0044/01/03/20 01290-4 Application and Certificate for Payment
SECTION 01295

SCHEDULE OF VALUES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Schedule of Values

1.2 SUBMITTALS

A. Action Submittals
   1. Submit 3 copies of the Schedule of Values for approval within 10 days after the Effective Date of the Agreement.

1.3 SCHEDULE OF VALUES

A. Schedule of Values shall be a detailed breakdown of the lump sum Work items showing values allocated to the various elements of the Work.

B. The format of the Schedule of Values shall be a breakdown by Specification Section and content and shall be submitted on EJCDC C-620, Contractor’s Application for Payment. The Engineer may require additional detailed documentation to support the values in the form of executed purchase orders, subcontracts, or other agreements.

C. The Engineer will determine the level of breakdown and detail required. The breakdown shall include materials, installation, and start-up for equipment and controls where applicable. The final document will be the basis of payment requests for the duration of the Contract. No progress payment will be made until the Schedule of Values is approved by the Engineer.

D. An unbalanced Schedule of Values providing overpayment on items of work performed first will not be accepted.

E. At the Contractor’s option, items for mobilization and demobilization may be included in the Schedule of Values. The combined value shall not exceed 5 percent of the Contract Price, and the values for mobilization and demobilization shall be equal. Payment for mobilization will be included in the first payment request after the Contractor has initiated full-time construction activity. Payment for demobilization will be included in the first payment request after Substantial Completion has been reached and all equipment has been removed from the Site.

F. At the Contractor’s option, an item for bonds and insurance may be included in the Schedule of Values. If included, requests for payment including values for bonds and insurance shall be accompanied by matching invoices.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION
SECTION 01310
COORDINATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Project Management
   2. Coordination
   3. Project Meetings

B. Related Requirements
   1. Section 01140 - Work Restrictions
   2. Section 01325 - Scheduling of Construction

C. Related Work Not Included
   1. Operation of existing facilities will be performed by the Owner unless otherwise specified. The Owner will assist in arranging operation of any existing facilities or equipment required by the Contractor to connect to existing facilities, and the Contractor shall not operate existing valves or equipment. Only the Owner will operate Owner valves.

1.2 SUBMITTALS

A. Incorporate the requirements of this Section, as well as Work which may impact the existing system operation, or the operations of any adjacent utility, in the project schedule submitted under Section 01325.

B. Informational Submittals
   1. Submit to the affected utility company, the Owner, and the Engineer, in writing, all requests for temporary shutdowns of facilities or interruption of operations. No shutdowns of the water or sewer system or interruptions to existing operations will be permitted except as outlined in this Section. Submit requests at least 2 weeks prior to the beginning of the Work requiring shutdown or interruption. No shutdown shall occur without the approval of the utility company or the Owner.

   2. At the pre-construction conference, supply to the Owner the cell phone number of a responsible person who may be contacted during off-hours for emergencies 24 hours a day, seven days a week.

   3. Prepare a contact list of phone numbers, including cell phone numbers, and emails for all Project personnel and submit to the Engineer at the pre-construction conference. Include Contractor, Owner, Engineer, and City personnel including police, fire, and ambulance.

   4. Submit to the Owner and Engineer, in writing, all requests for valve operations at least 2 weeks prior to commencing operation.
1.3 PROJECT MANAGEMENT
   A. Complete the Work in a continuous uninterrupted operation. Use sufficient personnel and adequate equipment to complete the Work within the Contract Time.

1.4 COORDINATION
   A. Do not interfere with the operation of the existing facilities.
   B. Perform all coordination necessary to complete connections to the existing services.
   C. Coordinate with appropriate utility companies, as well as with the Owner, where the Work crosses or is adjacent to existing utilities.

1.5 PROJECT MEETINGS
   A. Pre-Construction Conference
      1. The Contractor shall be prepared to discuss the following subjects at the Pre-Construction Conference. Documentation for these items is required to be submitted within the time frames included in individual specification sections.
         a. Project scheduling
         b. Sequencing of critical path Work items
         c. Shop Drawing procedures
         d. Project changes and clarification procedures
         e. Use of sites, access to Work areas, office and storage areas, security and temporary facilities
         f. Contractor safety plan and representative
         g. Progress payments and procedures
         h. Required documentation
         i. Project personnel contact list
   B. Progress Meetings
      1. Progress meetings will be held every 2 weeks and at other times as requested by the Owner or as required by the Progress of the Work.
      2. The Contractor’s Superintendent shall attend all progress meetings.
      3. At a minimum, progress meetings will review Work progress, schedule, Shop Drawing submission schedule, Applications for Payment, and other matters needing discussion and resolution.
      4. Review the schedule with all parties to be affected by upcoming work.
      5. Review the monthly construction report required under Section 01325.
PART 2  PRODUCTS - NOT USED

PART 3  EXECUTION

3.1  GENERAL

A. Notify DIGSAFE at 1-888-344-7233 at least 72 hours prior to any digging, trenching, rock removal, demolition, borings, backfill, grading, landscaping, or any other earth moving operations.

3.2  COORDINATION WITH THE OWNER’S OPERATIONS

A. Notify the Owner and Engineer, in writing, a minimum of 1 week in advance of commencing Work on site. Work on site shall not occur until all permits are obtained.

B. Notify the Owner and Engineer, in writing, a minimum of 1 week before commencing any work which may affect the Owner’s operations.

C. Perform all construction activities so as to avoid interference with operations of the facility and the work of others.

D. Coordinate the following operations with the Owner and the Engineer:
   1. Operation of existing valves. The opening and closing of existing valves will be performed by the Owner.
   2. Timing and duration of line stopping activities.

E. The Owner has the authority to order the Work stopped which could unreasonably result in stopping the necessary functions of the City facilities. Any costs and/or delays associated with these work stoppages due to the Contractor’s operation shall be borne by the Contractor.

3.3  SEQUENCE OF CONSTRUCTION

A. Constructing the proposed improvements while maintaining existing operations will require a specific sequence of construction. The Contractor will be allowed reasonable flexibility in scheduling the construction activities. Provide a detailed construction schedule as required in Section 01325.

3.4  SHUTDOWNS

A. Water and sewer service shutdowns as a result of pipeline construction activities are not permitted, unless otherwise noted in this Section. Existing water and sewer mains owned by other utilities shall not be shut down unless authorized by the appropriate utility company and the Owner. Notify water and sewer system customers regarding interruptions in service at least one week in advance. Coordinate with the Owner regarding scheduling such notifications. An existing main shall not be shut off for more than 6 hours.

B. Rescheduling or reactivation of any temporary shutdowns may be required if an emergency occurs in the distribution system, such as a major pipeline break or fire.

C. Test all pipelines, valves and appurtenances and place in operating condition before the final tie-ins are made to connect new equipment to the existing facility.
D. Furnish all labor, materials, tools and equipment necessary to provide temporary light, ventilation, safety personnel and equipment, gas monitoring equipment, supports and braces necessary to perform the tie-in work in a safe and secure manner. Observe all safety regulations in force at the existing facilities.

END OF SECTION
SECTION 01320

CONSTRUCTION PHOTOGRAPHS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Photographs taken at specified intervals before, during and after construction.

1.2 SUBMITTALS

A. Informational Submittals
   1. Submit electronic files of each photograph on a CD or USB flash drive.

PART 2 PRODUCTS

2.1 CONSTRUCTION PHOTOGRAPHS

A. Electronic files shall be in .jpg format.

PART 3 EXECUTION

3.1 PRE-CONSTRUCTION PHOTOGRAPHY

A. Prior to the commencement of any Work under this Contract, take a minimum of 2 photographs at each location at 100 foot intervals along the entire length and perimeter of the project. The photographs will serve as a record of the original conditions where construction activities will occur.

B. The area to be photographed shall include, but not be limited to, the area within and adjacent to the proposed construction, including roadways, utilities, driveways, landscaping, trees, structures and buildings.

C. Provide a minimum of 12 preconstruction photographs, or more as required to document the preconstruction condition of the Site and adjacent properties.

3.2 PROGRESS PHOTOGRAPHY

A. Take construction photographs of active work areas at least every 2 weeks throughout the life of the Contract. The photographs shall be indicative of the work that is currently in progress. A minimum of 3 photographs shall be taken at each scheduled interval at each location where Work is in progress.

B. Take photographs of each building site after removal of foundations and building debris and prior to backfilling and grading. The photographs shall show the entire foundation area.

C. Take photographs of all utility abandonments.

D. Take photographs of all relocated utility connections.

3.3 POST-CONSTRUCTION PHOTOGRAPHY
A. Provide post construction photography after all Work has been completed at each location. The locations to be photographed and the number of photographs required shall be as specified in Paragraph 3.1 for the preconstruction photography.

END OF SECTION
SECTION 01325

SCHEDULING OF CONSTRUCTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Progress Schedule

B. Related Requirements
   1. Section 01140 - Work Restrictions
   2. Section 01310 - Coordination

1.2 REFERENCES

A. The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry, an Associated General Contractors (AGC) of America publication.

1.3 PROGRESS SCHEDULE

A. Network Analysis

B. Graphically show the order and interdependence of activities, sequence of Work, how the start of a given activity depends on completion of preceding activities, and how completion of an activity may restrain the start of subsequent activities.

C. The Work shall be planned by the Contractor and his Project field superintendent in coordination with all Subcontractors and Suppliers whose Work is shown on the Progress Schedule.

D. Include, at a minimum, the following activities on the Progress Schedule:
   1. Project mobilization
   2. Submittal and approval of Shop Drawings
   3. Procurement of equipment and critical materials
   4. Installation of equipment and critical materials
   5. Fabrication of special equipment and material, and its installation and testing
   6. Final inspecting and testing
   7. Punchlist
   8. Final cleanup
   9. Other activities that may be critical to the Progress Schedule
10. All activities of the Owner and the Engineer which affect progress and/or affect required dates for completion of the Work

E. Take into consideration Shop Drawing submittal and approval time, the delivery times of equipment and materials, Subcontractors' Work, availability and abilities of workmen, weather conditions, any restrictions in operations at the Work site, and all other items that may affect completion of the Work within the Contract Time.

F. The Progress Schedule shall reflect the requirements and constraints outlined in Section 01310, Coordination.

G. The Progress Schedule shall reflect Work restrictions outlined in Section 01140.

H. Show information in such detail that duration times of activities will range from one to 15 days. The selection and number of activities shall be subject to the approval of the Owner and Engineer.

I. The Progress Schedule should show preceding and following event numbers for each activity, description of each activity, and activity duration in calendar days.

J. Submit the Progress Schedule on maximum sheet size 30-inches high by the width required.

1.4 SUBMITTALS

A. Informational Submittals

1. Submit four prints of the preliminary Progress Schedule prepared in accordance with Article 2.05 of Section 00700 and the requirements of this section. Progress schedule must be submitted within 10 days after the Effective Date of the Agreement. Progress Schedule must be approved by the Owner and Engineer before the first progress payment will be made.

2. Revised analyses - Within 10 days after receipt of the review comments, submit four prints of the Progress Schedule revised in accordance with those comments.

3. Periodic reports - On the first progress meeting of each month, submit four prints of the updated Progress Schedule, as well as a report of construction activities in the prior month.

4. Before initiating the Work, submit an estimated monthly rate of Contractor payments for the project. If the payment schedule deviates from the original projection, submit a revised rate of expenditure schedule.

1.5 PERIODIC REPORTS

A. At the first scheduled progress meeting of each month, present four copies of a construction report which details the Work performed during the preceding period. The report shall include the following at a minimum:

1. Actual progress of Work. Update the Progress Schedule accordingly.

2. The Progress Schedule, or revised Progress Schedule, should show the portions of the Progress Schedule impacted by the Work progress.

3. Activities or portions of activities completed during the reporting period, and their total value as basis for Contractor's periodic request for payment.
Payment made will be based on the total value of such activities completed or partially completed after verification by the Engineer.

4. State the percentage of the Work actually completed and scheduled as of the report date, and the progress along the critical path in terms of days ahead of or behind the dates defined in the Progress Schedule.

5. If the Work is behind the dates set forth in the Progress Schedule, also report progress along other paths with negative slack.

6. Include a narrative which includes:
   a. A description of problem areas, anticipated and current
   b. Delaying factors and their impact
   c. An explanation of corrective actions taken or proposed

7. Show the date of latest revision.

PART 2  PRODUCTS - NOT USED

PART 3  EXECUTION - NOT USED

END OF SECTION

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SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Action Submittals
   2. Informational Submittals

1.2 DEFINITIONS

A. Action Submittals – includes written and graphic information submitted by Contractor that requires Engineer’s approval.

B. Informational Submittals – includes information submitted by Contractor that does not require Engineer’s approval. The Engineer will acknowledge receipt of such documents and provide comments when the submittals lack the detail required by the Contract Documents.

1.3 ACTION SUBMITTALS

A. Shop Drawings
   1. Shop Drawings as defined in the General Conditions, and as specified in individual work sections include, but are not necessarily limited to, custom-prepared data such as fabrication and erection/installation drawings, schedule information, piece part drawings, actual shopwork manufacturing instructions, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certification, as applicable to the Work.

   2. Shop Drawings shall be of standardized sizes to enable the Owner to maintain a permanent record of the submissions. Approved standard size drawings shall be
      a. 24-inches by 36-inches
      b. 22-inches by 34-inches
      c. 11-inches by 17-inches
      d. 8.5-inches by 11-inches

   3. Submit Shop Drawings at the proper time so as to prevent delays in delivery of materials. Coordinate submittals for related or interdependent equipment.

   4. Advise the Engineer in writing of any deviations from the requirements of the Contract Documents.

   5. Check all Shop Drawings regarding measurements, size of members, materials, and details to determine if they conform to the Contract Documents. Shop Drawings found to be inaccurate, not in compliance, or
otherwise in error shall be returned to the Subcontractors or Suppliers for correction before submission to the Engineer. Drawings that are current shall be marked with the date, name, and approval stamp of the Contractor.

6. All details on Shop Drawings submitted for approval shall show clearly the relation of the various parts to the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the Shop Drawings before being submitted for approval.

7. Detailed installation drawings (sewers, equipment, piping, electrical conduits and controls, HVAC work, and plumbing, etc.) shall be drawn to scale and fully dimensioned.

8. No material or equipment shall be purchased or fabricated until the required Shop Drawings have been submitted and approved. Materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by the Shop Drawings.

9. Until the necessary approval has been given, do not proceed with any portion of the work, the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which approval is required.

10. If submitted equipment requires modifications to the structures, piping, layout, or other details shown on the Drawings, details of the proposed modifications must also be submitted for approval. If such equipment and modifications are approved, perform all Work necessary to make such modifications at no additional cost to the Owner.

B. Product Data: Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing, and printed product warranties, as applicable to the Work.

C. Samples and color selection charts: Provide sample, when requested by individual Specification to establish conformance with the Specifications, and as necessary to define color, texture and pattern selections available.

D. Product Substitutions: In accordance with Section 01630.

E. Operation and Maintenance Manuals: In accordance with Section 01770.

F. Schedule of Values: In accordance with Section 01295.

G. Site Usage Plan: In accordance with Section 01140.

1.4 INFORMATIONAL SUBMITTALS
A. Schedule of Submittals
   1. Submit a preliminary Schedule of Submittals within 10 days of the Effective Date of the Agreement in accordance with Article 2.05 of Section 00700.

B. Schedule of Manufacturers and Suppliers
   1. Submit a schedule of manufacturers and Suppliers within 7 days after Notice to Proceed including the names and addresses of the manufacturers and Suppliers of materials and equipment to be incorporated into the Work.

C. Schedule of Major Products
   1. Submit a schedule of major products within 30 days after Notice to Proceed including a complete list of major products proposed for use, with specification section number, name of manufacturer, trade name, and model number of each product.

D. Product Listing and Manufacturers Qualifications
   1. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation and reference standards. Specifically identify the products, the anticipated schedule for delivery and storage, and the estimated value thereof for materials which the Contractor intends to request approval for off-site storage.

E. Certificates of Compliance
   1. General:
      a. Submit sworn certificates from the manufacturer or material supplier that the materials and fabrications provided under the Specification section conform with the Contract Documents.
      b. Certificates shall be signed by an officer of the manufacturer’s corporation and witnessed by a Notary Public.
   2. Welding: Submit in accordance with individual Specification sections.
   3. Installer: Prepare written statements on manufacturer’s letterhead certifying that installer complies with requirements as specified in individual Specification sections.
   4. Material Test: Prepared by qualified testing agency, on testing agency’s standard form, indicating and interpreting test results of material for compliance with requirements.
   5. Certificates of Successful Testing or Inspection: Submit when testing or inspection is required by Laws and Regulations or governing agency, or when specified in individual Specification sections.

F. Application for Payment
1. Submit applications for payment in accordance with Section 01270, Measurement and Payment or Section 01290, Application and Certificate for Payment.
2. Submit schedule of stored materials when requesting payment for materials not yet installed.

G. Construction Photography and Videography: Provide preconstruction, progress, and post-construction photography and videography in accordance with Sections 01320 and 01321.

H. Contract Closeout Submittals: In accordance with Section 01770.

I. Contractor Design Data
   1. Written and graphic information
   2. List of assumptions
   3. List of performance and design criteria
   4. Summary of loads or load diagram
   5. Calculations
   6. List of applicable codes and regulations
   7. Name and version of software
   8. Information requested in individual Specification section

J. Manufacturer’s Instructions: Written or published information that documents manufacturer’s recommendations, guidelines, and procedures in accordance with individual Specification sections.

K. Schedules - Submit construction progress schedules and schedule updates in accordance with Section 01325.

L. Statement of Qualifications: Submit evidence of qualification, certification, or registration as required in Contract Documents to verify qualifications of professional land surveyor, engineer, materials testing laboratory, specialty subcontractor, trade, specialist, consultant, installer, and other professionals.

M. Submittals Required by Laws, Regulations, and Governing Agencies
   1. Submit promptly notifications, reports, certifications, payrolls, and other required information as may be required, directly to the applicable federal, state, or local governing agency or their representative.
   2. Transmit to Engineer for Owner’s records, one copy of correspondence and transmittals (including enclosures and attachments) between Contractor and governing agency.

N. Test and Inspection Reports
   1. Submit test and inspection reports as required by individual Specification sections.
2. Test and inspection reports shall contain signature of person responsible for test or report.

3. Reports shall include identification of product and Specification, project name, date and time of test, type of test, location, test results, corrective action required if report indicates test is not in compliance with Contract Documents, interpretation of test results, and other information as required in individual Specification sections.

O. Equipment Data: Submit information on equipment to be used in the performance of the Work as required by individual Specification sections.

P. Testing and Start-up Data: Prepare and submit testing procedures proposed to perform testing required by individual Specification sections.

Q. Vendor Training Plan: At least two weeks prior to scheduling training of Owner’s personnel, submit lesson plans for vendor training in accordance with individual Specification section and manufacturer’s Operations and Maintenance Manuals.

R. Health & Safety Plans: When specified in individual Specification sections, prepare and submit a Health and Safety Plan modified or supplemented to include job-specific considerations.

S. Submittals stamped by another Professional Engineer: When specified in individual Specification sections, prepare and submit calculations and/or drawings stamped by a Professional Engineer licensed in the State where the work is being performed.

T. Coordination Drawings: When specified in individual Specification sections, prepare and submit drawings to show how multiple system and interdisciplinary work will be coordinated. Examples are conduit routing diagrams, duct layouts, utility coordination drawings, sprinkler plans etc.

U. Work Plans: When specified in individual Specification sections, prepare and submit copies of all work plans needed to demonstrate to the Owner that Contractor has adequately thought-out the means and methods of construction and their interface with existing facilities.

V. Erosion Control Plan: When specified in Contract Documents or required by local ordinances or regulations, prepare and submit copies of erosion control plans.

W. Traffic Control Plan: When specified in Contract Documents or required by local ordinances or regulations, prepare and submit copies of traffic control plans.

X. Shutdown Requests: Submit notification of any outages required (electrical, flow processes, etc.) as may be required to tie-in new work into existing facilities. Unless otherwise specified, provide outage requests a minimum of 7 days notice shall be provided.

Y. Equipment Data: When specified in other Specification sections, information on equipment used by the Contractor to complete the Work, such as compaction equipment and closed-circuit television inspection equipment.

1.5 PROCEDURES

A. Coordination
1. Prepare and submit documentation in advance of fabrication and product manufacturer, so that the installation will not be delayed, other related work can be properly coordinated, and there is adequate time for review and resubmission, if required.

2. Provide no less than 30 days for review of submittals from the time received by the Engineer. For submittals of major equipment, that require more than 30 days to review, due to complexity and detail or those requiring review by multiple engineering disciplines, Engineer will notify Contractor of the circumstances and identify the anticipated date when the submittal will be returned.

3. Re-submittals will be subject to same review time.

4. No extension of time will be authorized due to failure to provide approvable submittals sufficiently in advance of the Work.

B. Review Shop Drawings, product data, and samples prior to submission and verify and determine:
   1. Field measurements
   2. Conformance with the Contract Documents. Advise the Engineer in writing of any deviations from the requirements of the Contract Documents
   3. Delete or strike out information that is not applicable to the Work.

C. Upload the electronic submittal files via Procore. Access to Procore will be provided by the Engineer. Files must be in .pdf format. The submittals will be returned in electronic .pdf format via Procore.

D. In addition to the electronic submission requirement, submit three hard copies of each submittal: two for Owner and one for Engineer’s construction observer.
   1. Samples – Provide one unless otherwise noted in the individual Specification section. Sample will be retained by Engineer in the field.

E. Numbering: Submissions shall be accompanied by a transmittal form referencing the project name and applicable Specification section. Submittals shall be numbered sequentially, with the applicable Specification section and a hyphen preceding the number. (e.g. Submittal number 11330-01) Resubmittals shall bear the same transmittal number with a sequential letter suffix commencing with "A". (e.g. Submittal number 11330-01A)

F. Provide a copy of the Submittal certification form (copy attached at the end of this section) which shall be attached to every copy of each Submittal as required under Article 7.16 A.2 of Section 00700. Apply the Contractor’s stamp and initials or signature certifying that the submission has been thoroughly reviewed for completeness, compliance with the Contract Documents, coordination with adjacent construction and dimensional compatibility. Items submitted without the stamp or that are incomplete will be returned by the Engineer for rework and resubmission.

G. Provide a copy of the P.E. certification form (copy attached at the end of this section) which shall be attached to every copy of each Submittal stamped by another
Professional Engineer. Items submitted without the completed certification form will be returned by the Engineer for resubmission.

H. Distribute copies of reviewed submittals along with the Engineer’s transmittal to concerned parties with instructions to promptly report any inability to comply with the provisions or integrate the requirements with interfacing work.

I. Partial and Incomplete Submittals

1. Shop Drawings shall be submitted as a complete package by Specification section, unless otherwise reviewed and approved by the Engineer. It is the intent that all information, materials, and samples associated with each Specification section be included as a single submittal for the Engineer’s review.

2. Engineer will return entire submittals if preliminary review deems it incomplete including:
   a. Missing or incomplete Submittal certification form
   b. Insufficient number of copies
   c. Missing content

3. Partial submittals may be considered, at Engineer’s option, only when necessary to expedite the Project.

4. Partial submittals shall be clearly identified as such on the transmittal to identify missing components.

J. Submittals not required by the Specification will be returned without review or action code.

K. Resubmission

1. Make corrections and modifications required by the Engineer and resubmit until approved.

2. Clearly identify changes made to submittals and indicate other changes that have been made other than those requested by the Engineer.

3. A maximum of two re-submissions of each shop drawing will be reviewed, checked and commented upon without charge to the Contractor (total of 3 submittals). Any additional submissions which are required by the Engineer to fulfill the stipulations of the Contract Documents will be charged to the Contractor as described in paragraph 7.16.E.2 of Section 00700.

L. Distribution

1. Distribute approved Shop Drawings and approved product data to the Project Site and elsewhere as required to communicate the information to Suppliers, Subcontractors, and field personnel.

1.6 ENGINEER’S REVIEW

A. The Engineer will review submittals for design, general methods of construction and detailing. The Engineer’s review and approval of submittals shall not be construed
as a complete check nor does it relieve the Contractor from responsibility for any deviations from the requirements of the Contract Documents unless he has, in writing, called the Engineer’s attention to such deviations at the time of submission. It will not extend to means, methods, technique, sequences, or procedures of construction (except where specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto.

B. The Engineer’s review of the submittals shall not relieve the Contractor from the responsibility for proper fitting of the Work, or the responsibility of furnishing any work required by the Contract Documents which may not be indicated on the submittals. The Contractor shall be solely responsible for any quantities shown on the submittals.

C. If the Contractor considers any correction indicated on the submittals to constitute a change to the Contract Documents, the Contractor shall provide written notice to the Engineer at least 7 working days prior to release for manufacture.

D. When the submittals have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

E. Action submittals as defined in paragraph 1.2 will be reviewed and returned under one of the following codes:

1. Approved (Action Code 1) is assigned when there are no notations or comments on the submittal. Equipment or materials may be released for manufacture, provided that it complies with requirements of the Contract Documents.

2. Approved as Noted (Action Code 2) is assigned when there are notations or comments on the submittal, but the equipment or materials may still be released for manufacture. All notations and comments must be incorporated in the final product. Resubmission is not necessary.

3. Revise and Resubmit (Action Code 3) is assigned when there are notations and comments requiring a resubmittal of the package. Work cannot proceed until the submittal is revised and resubmitted for review.

4. Not Approved (Action Code 4) is assigned when the submittal contains non-specified items or does not meet the requirements of the Contract Documents. It may also be assigned when there is a significant amount of missing material required for the Engineer to perform a complete review. The entire package must be resubmitted, revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the requirements of the Contract Documents.

F. Informational submittals as defined in paragraph 1.2 do not require approval by the Engineer. Such submittals will be returned under one of the following codes:

1. Receipt Acknowledged (Action Code 5) is assigned when the submittal is provided for documentation purposes and is acknowledged as received. Comments may be noted using this action code.
2. Revise and Resubmit (Action Code 6) is assigned when there are notations and comments requiring a resubmittal of the package.

PART 2 PRODUCTS – NOT USED
PART 3 EXECUTION – NOT USED

END OF SECTION

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SUBMITTAL CERTIFICATION FORM

PROJECT:_____________________________________________________________
ENGINEER:_____________________ ENGINEER’S PROJECT NO.:_______________
CONTRACTOR:__________________ CONTRACTOR’S PROJECT NO.:_____________

TRANSMITTAL NO.:_______________ SUBMITTAL NO.:_______________________
SPECIFICATION NO.:______________ DRAWING NO:_________________________
DESCRIPTION:_________________________________________________________
MANUFACTURER:_______________________________________________________

The above referenced submittal has been reviewed by the undersigned and I/we certify that the materials and/or equipment meets or exceeds the project specification requirements; that field measurements, dimensions, quantities, specified performance criteria, installation requirements, materials, catalog numbers and related materials have been verified; that all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the work has been determined and verified; that review includes all information related to the contractor’s sole responsibility for means, methods, techniques, sequences, and procedures of construction and safety; and item has been coordinated with the overall project with:

NO DEVIATIONS

A COMPLETE LIST OF DEVIATIONS AS FOLLOWS:

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

SUBMITTED BY:___________________________ DATE:_______________________

GENERAL CONTRACTOR’S STAMP
**P.E. CERTIFICATION FORM**

The undersigned hereby certifies that he/she is a professional engineer registered in the Commonwealth of Massachusetts and that he/she has been employed by

________________________________________________________________________

(Name of Contractor)

________________________________________________________________________

(Insert P.E. Responsibilities)

In accordance with Specification Section ______________________________ for the

________________________________________________________________________

(Name of Project)

The undersigned further certifies that he/she has performed the said design in conformance with all applicable local, state and federal codes, rules and regulations; and, that his/her signature and P.E. stamp have been affixed to all calculations and drawings used in, and resulting from, the design.

The undersigned hereby agrees to make all original design drawings and calculations available to the

________________________________________________________________________

(Insert Name of Owner)

or Owner’s representative within seven days following written request therefor by the Owner.

<table>
<thead>
<tr>
<th>P.E. Name</th>
<th>Contractor’s Name</th>
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SECTION 013500

HEALTH & SAFETY PLAN

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes

1.  Furnish all labor, equipment and materials and perform all operations in connection with monitoring air quality, decontaminating equipment and providing worker health and safety protection for all Contractor personnel.

2.  Develop a site-specific Health and Safety Plan (HASP) specifically addressing the potential hazards that may be encountered. This plan shall meet all OSHA requirements.

3.  Review the requirements and data presented and supplement the program with any additional measures deemed necessary to fully comply with regulatory requirements and adequately protect personnel on the site.

1.2  REFERENCES

A.  OSHA Regulation 29 CFR 1910.120

B.  OSHA Regulation 29 CFR 1926.62

C.  Massachusetts Contingency Plan, 310 CMR 40

1.3  DEFINITIONS

A.  Site Safety Official (SSO) - The individual located on a hazardous waste or construction site who is responsible to the Contractor and has the authority and knowledge necessary to implement the site safety and health plan and verify compliance with applicable safety and health requirements.

B.  Uncontrolled Hazardous Waste Site - An area identified as an uncontrolled hazardous waste site by a governmental body, whether federal, state, local or other where an accumulation of hazardous substances creates a threat to the health and safety of individuals or the environment or both.

1.4  SUBMITTALS

A.  Informational Submittals

1.  Submit the following prior to commencing work.

a.  Site-specific HASP including the Emergency Response Plan for review, including provisions for decontamination and a contingency plan for unforeseen emergencies. The Engineer’s review is only to determine if the HASP meets basic regulatory requirements and the minimum requirements of this section. The review will not determine the adequacy of the HASP to
address all potential hazards, as that remains the sole responsibility of the Contractor

b. Current certification of employee’s health and safety training and certification of employee’s baseline medical exam status
c. Certification of additional required health and safety training for supervisors
d. Qualifications and experience of the SSO

2. Submit minutes of weekly safety meetings

1.5 CONTRACTOR’S RESPONSIBILITIES

A. The Contractor is solely responsible for the health and safety of workers employed by the Contractor, any subcontractor and anyone directly or indirectly employed by any of them.

B. Work under this contract is not being performed on an “Uncontrolled Hazardous Waste Site,” as defined in 29 CFR 1910.120 and Article 1.3 B, above. Develop and follow a site-specific Health & Safety Plan (HASP) in accordance with the requirements of 29 CFR 1910.120 and paragraph 1.6.

C. Provide a full-time SSO regardless of whether or not the Work is at a defined Uncontrolled Hazardous Waste Site.

D. Pre-arrange emergency medical care services at a nearby hospital, including establishment of emergency routes of travel.

E. Conduct weekly safety meetings with all site personnel, documenting attendance and topics covered.

F. Train all workers assigned to areas where contaminated media are likely to be encountered in accordance with 29 CFR 1910.120.

G. In areas where contaminated media or hazardous/dangerous site conditions are likely to be encountered, monitor air quality in and around work area using appropriate air monitoring equipment, as indicated in Part 2. Record all readings and maintain record on site. Stop work and/or upgrade respiratory protection or personal protective equipment levels if action levels established in the HASP are exceeded. Ensure that degree and type of respiratory protection provided is consistent with the monitored concentrations and individual chemical parameters. Lawfully dispose of all contaminated clothing and equipment that cannot be decontaminated.

H. At all times, prevent oil or other hazardous substances from entering the ground, sewers, drainage areas and piping systems.

1.6 HEALTH & SAFETY PLAN (HASP) REQUIREMENTS

A. The following items shall be addressed in the HASP:

1. Safety and health hazard assessment;

2. Procedures for emergency medical treatment and first aid;
3. map indicating route to hospital for emergency medical care;
4. Lead Exposure Control Plan (29 CFR 1926.62), including lead paint
5. equipment decontamination procedures;
6. air monitoring procedures and action levels;
7. personal protective equipment and decontamination;
8. physical hazard evaluation and abatement including:
   a. equipment operation;
   b. slips and falls;
   c. building collapse;
   d. falling debris;
   e. encountering unmarked utilities;
   f. cold and heat stress;
   g. hot work (cutting and welding);
   h. excavation entry
9. training requirements;
10. recordkeeping requirements;
11. emergency response plan that includes:
   a. name of one (1) Emergency Response Contractor, experienced in the removal and disposal of oils and hazardous chemicals, that the Contractor intends to use in the event of an emergency;
   b. evacuation routes and procedures;
   c. emergency alerting and response procedures.

1.7 CONTINGENCY MEASURES & NOTIFICATIONS

A. The potential for encountering hazardous buried objects or materials that could pose a threat to human health or the environment exists. In the event potentially hazardous materials are encountered during the work under this contract, the responsibilities of the Contractor and the Engineer are described herein.

B. The procedures and protocols to be used by the SSO in defining materials that are potentially hazardous include screening with a photo-ionization detector, odor, visual appearance of a material, and obvious oil or chemical contaminated materials.

C. Upon encountering suspected hazardous buried objects or materials as described above, cover the excavation immediately if no imminent danger, as defined by the SSO, is present. If there is an imminent danger, as defined by
the SSO, evacuate the area immediately. The SSO shall then notify the Engineer and the Owner of the situation.

D. Establish, properly barricade, and mark the area as an exclusion zone under the direction of the SSO. The SSO shall establish the exclusion zone boundaries based upon air quality monitoring using a photo-ionization detector and other equipment as appropriate. The exclusion zone shall be established at a minimum 50-foot radius around the location where the potentially hazardous material is encountered. Work within the exclusion zone shall be discontinued until the hazardous condition has been remediated and testing indicates that a hazard does not exist. Other activities of the site, outside the limits of the exclusion zone shall continue. Ambient air quality monitoring shall be performed by the SSO to demonstrate that ambient air quality in other portions of the site is not adversely impacted by the exclusion zone condition.

E. Notify the Engineer and the Owner regarding the presence of potentially hazardous materials. The Owner may direct the Contractor to notify regulators and to obtain necessary regulatory approvals for remediation.

F. Mobilize the appropriate equipment and personnel to sample and test the hazardous material within the exclusion zone to determine the remedial action required, subject to the Engineer’s direction. The Contractor may be directed to remove and legally dispose of the material. Compensation for the removal and disposal of hazardous material will be as a Change in Work and Change in Contract Price in accordance with the General Conditions, if not covered under a specific bid item.

PART 2 PRODUCTS

2.1 AIR MONITORING EQUIPMENT

A. All air monitoring equipment shall remain the property of the Contractor.

B. If deemed necessary for health & safety monitoring, Contractor shall perform indoor air monitoring.

PART 3 EXECUTION

3.1 HEALTH AND SAFETY IMPLEMENTATION

A. Prepare a HASP that ensures the health and safety of all workers engaged in work at the site and the general public at all times when exposure to contaminated soil, contaminated groundwater, dust, odors, gases or unsafe site conditions is possible.

B. The Contractor shall monitor all excavations and confined space entry points using the monitoring equipment described in the Contractor’s HASP.

C. Provide adequate health and safety training for all personnel who may come in contact with or be exposed to contaminated materials or unsafe construction conditions, including below grade tunnels, structurally compromised buildings, and deep excavations.
D. As necessary, provide personnel, including personnel for subcontractors, who are confined space entry trained to complete the work specified in other Sections.

END OF SECTION
SECTION 01420
REFERENCES

PART 1 GENERAL

1.1 SUMMARY
   A. Section Includes

1.2 GENERAL
   A. Comply with the requirements of standards referenced in the Contract Documents.

1.3 ABBREVIATIONS
   A. Abbreviations used in the Specifications are defined as follows:
      1. AA – Aluminum Association
      2. AABC – Associated Air Balance Council
      3. AASHTO – American Association of State Highway and Transportation Officials
      4. ACI – American Concrete Institute
      5. ACOE – U.S. Army Corps of Engineers
      6. ADA – Americans with Disabilities Act
      7. ADC – Air Diffusion Council
      8. AFBMA – Antifriction Bearing Manufacturers Association
      9. AGA – American Gas Association
     10. AGC – Associated General Contractors of America
     11. AGMA – American Gear Manufacturers Association
     12. AI – Asphalt Institute
     13. AIA – American Institute of Architects
     14. AISC – American Institute of Steel Construction
     15. AISI – American Iron and Steel Institute
     16. AITC – American Institute of Timber Construction
     17. AMCA – Air Movement and Control Association
     18. ANSI – American National Standards Institute
     19. APA – American Plywood Association
     20. API – American Petroleum Institute
21. ARI – Air Conditioning and Refrigeration Institute
22. ASCE – American Society of Civil Engineers
23. ASHRAE – American Society of Heating, Refrigeration and Air Conditioning Engineers
24. ASME – American Society of Mechanical Engineers
25. ASPA – American Sod Producers Association
26. ASTM – American Society for Testing and Materials
27. AWG – American Wire Gauge
28. AWI – Architectural Woodwork Institute
29. AWPA – American Wood Preservers’ Association
30. AWS – American Welding Society
31. AWWA – American Water Works Association
32. BIA – Brick Institute of America
33. CDA – Copper Development Association
34. CLFMI – Chain Link Fence Manufacturer’s Institute
35. CPM – Critical Path Method
36. CPVC – Chlorinated Polyvinyl Chloride
37. CRSI – Concrete Reinforcing Steel Institute
38. CI – Cast Iron
39. DEP – Massachusetts Department of Environmental Protection
40. DCAM – Division of Capital Asset Management
41. DHI – Door and Hardware Institute
42. DI – Ductile Iron
43. EJCDC – Engineers’ Joint Contract Documents Committee
44. EJMA – Expansion Joint Manufacturers Association
45. EPDM – Ethylene Propylene Diene Monomer
46. EPT – Electrical Plastic Tubing
47. EVT – Equiviscous Temperature
48. FGMA – Flat Glass Marketing Association
49. FM – Factory Mutual
50. FS – Federal Specifications
51. GA – Gypsum Association
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<tr>
<th></th>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>52</td>
<td>GFCI</td>
<td>Ground Fault Circuit Interrupter</td>
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<td>GPR</td>
<td>Ground Penetrating Radar</td>
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<td>54</td>
<td>GPS</td>
<td>Global Positioning System</td>
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<td>55</td>
<td>HVAC</td>
<td>Heating, Ventilating and Air Conditioning</td>
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<tr>
<td>56</td>
<td>IBC</td>
<td>International Building Code</td>
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<td>57</td>
<td>IBR</td>
<td>Institute of Boiler and Radiator Manners</td>
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<td>58</td>
<td>ICBO</td>
<td>International Conference of Building Officials</td>
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<td>59</td>
<td>ICS</td>
<td>Industrial Control and Systems</td>
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<td>60</td>
<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
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<td>61</td>
<td>IMI</td>
<td>International Masonry Institute</td>
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<td>62</td>
<td>ISA</td>
<td>Instrument Society of America</td>
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<td>63</td>
<td>JIC</td>
<td>Joint Industrial Council</td>
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<td>64</td>
<td>LCD</td>
<td>Liquid Crystal Display</td>
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<td>Massachusetts Department of Environmental Protection</td>
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<td>66</td>
<td>MBMA</td>
<td>Metal Building Manufacturer’s Association</td>
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<td>Massachusetts Electric Code</td>
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<td>68</td>
<td>MFMA</td>
<td>Maple Flooring Manufacturers Association</td>
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<td>69</td>
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<td>Massachusetts General Law</td>
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<td>70</td>
<td>ML/SFA</td>
<td>Metal Lath/Steel Framing Association</td>
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<td>71</td>
<td>SDS</td>
<td>Material Safety Data Sheets</td>
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<td>72</td>
<td>MSS</td>
<td>Manufacturer’s Standardization Society</td>
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<td>73</td>
<td>NAAMM</td>
<td>National Association of Architectural Metal Manufacturers</td>
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<td>74</td>
<td>NAVD</td>
<td>North American Vertical Datum</td>
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<td>75</td>
<td>NCMA</td>
<td>National Concrete Masonry Association</td>
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<td>76</td>
<td>NEBB</td>
<td>National Environmental Balancing Bureau</td>
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<td>77</td>
<td>NEC</td>
<td>National Electrical Code</td>
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<td>78</td>
<td>NECA</td>
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<td>80</td>
<td>NFPA</td>
<td>National Fire Protection Association</td>
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<td>81</td>
<td>NRCA</td>
<td>National Roofing Contractors Association</td>
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<td>82</td>
<td>NRS</td>
<td>Non-rising Stem</td>
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</table>
83. NSF – National Sanitation Foundation
84. NSWMA – National Solid Waste Management Association
85. NWMA – National Woodwork Manufacturers Association
86. O&M – Operation and Maintenance
87. OSHA – Occupational Safety and Health Administration
88. PCA – Portland Cement Association
89. PCI – Precast/Prestressed Concrete Institute
90. PDOP – Positional Dilution of Precision
91. PLC – Programmable Logic Controller
92. PS – Product Standard
93. PVC – Polyvinyl Chloride
94. QA/QC – Quality Assurance/Quality Control
95. RCP – Reinforced Concrete Pipe
96. RCSHSB – Red Cedar Shingle and Handsplit Shake Bureau
97. RIS – Redwood Inspection Service
98. RTU – Remote Telemetry Unit
99. SCADA – Supervisory Control and Data Acquisition
100. SDI – Steel Deck Institute
101. SSPC – The Society for Protective Coatings
102. TCA – Tile Council of America
103. UL – Underwriter’s Laboratories
104. UPS – Uninterruptable Power Supply
105. USCS – Unified Soil Classification System
106. USDA – United States Department of Agriculture
107. WCLIB – West Coast Lumber Inspection Bureau
108. WOG – Water, Oil, Gas
109. WWPA – Western Wood Products Association

END OF SECTION
PART 1  GENERAL

1.1 SUMMARY

A. Section Includes
   1. Quality assurance and control of the Work
   2. Testing and inspection services
   3. Cooperation with Owner's independent testing agency
   4. Product test reports
   5. Manufacturer's field service

B. Related Requirements
   1. Section 01451 - Independent Testing Services
   2. Testing requirements are described in various Sections of the Project Manual.

1.2 SUBMITTALS

A. Informational Submittals
   1. Product test reports

1.3 QUALITY ASSURANCE

A. Monitor quality control over Suppliers, products, services, site conditions, and workmanship to produce Work of specified quality.

B. Comply fully with manufacturer's instructions. Should these instructions conflict with the Specifications, request clarification from the Owner before proceeding.

C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or requirements indicate higher standards or more precise workmanship.

1.4 TESTING SERVICES FURNISHED BY CONTRACTOR

A. Furnish all testing services required for materials and equipment proposed to be used in the Work, and quality control tests made in the field including:
   1. Concrete materials and mix designs
   2. Concrete in place
   3. Modified proctor analyses for all borrow materials used on the Project
   4. Modified proctor analysis of all subgrade material to be compacted during surface preparation and fine grading and compaction work
   5. Sieve analyses for all borrow materials used on the Project
6. Soil structure and nutrient analyses for all loam and topsoil used on the Project

7. Compaction tests performed during trench backfilling and compaction, rough grading and site preparation, fine grading and compaction of roadway and sidewalk subgrades, and placement of roadway and sidewalk subbase materials

8. Design of asphalt mixtures

9. Asphalt in place

10. Field welded joints

11. All other tests and engineering data as required in the Contract Documents.

B. Testing agencies must meet the requirements of Section 01451.

C. An independent commercial testing laboratory, with current Massachusetts certification, shall perform all tests that require the services of a laboratory to determine compliance with the Contract Documents. Independent testing laboratory requirements are defined under Section 01451.

D. Secure and deliver the required number of samples to the laboratory as required by the Contract Documents.

E. Notify Owner and Engineer of time, location and material being sampled.

F. Schedule necessary testing laboratory services.

G. Furnish written reports of each test within 48 hours of completion of testing.

H. Notify the Engineer 48 hours prior to operations requiring inspections and laboratory testing services so the Engineer may witness testing. All failed test areas shall be re-worked and re-tested until passing results are obtained.

I. The Owner may hire its own independent testing laboratory for quality control tests made in the field or laboratory on materials and equipment during and after their incorporation in the Work. Cooperate with the Owner and independent testing laboratory and furnish samples of materials, design, mix, equipment, tools, storage, and assistance as requested.

J. Re-work all failed test areas until passing results are obtained. All re-tests required as a result of the Contractor’s failure to perform the work in accordance with the Contract Documents shall be at the Contractor’s expense.

1.5 CODE COMPLIANCE TESTING

A. Provide inspections and tests required by codes or ordinances, or by a legally constituted authority having jurisdiction over the Work.

1.6 PRODUCT TEST REPORTS

A. Submit 2 copies of product test reports where required by the Contract Documents.

1.7 SUPPLIERS’ FIELD SERVICE
A. Provide qualified field service and installation personnel from material and equipment Suppliers to observe site conditions, installation techniques, quality of workmanship, equipment start-up, adjustment, and performance test where required by the Contract Documents. Observations are to be reported and incorporated in the Work procedures.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED

END OF SECTION
SECTION 01451
INDEPENDENT TESTING SERVICES

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes

1.  Independent testing services including geotechnical, concrete, grout and mortar, and welding inspection and testing

2.  Testing laboratory services

B.  Related Requirements

1.  Section 01450 - Quality Control

2.  Section 02315 - Excavation, Backfill, Compaction and Dewatering

3.  Section 02320 - Borrow Material

4.  Section 02740 - Bituminous Concrete Pavement

5.  Section 03300 - Cast-in-Place Concrete

1.2  REFERENCES

A.  General

1.  ASTM E329 – Standard Specifications for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction

B.  Soil Testing

1.  American Association of State Highway and Transportation Officials (AASHTO)

C.  Concrete Testing

1.  Cement and Concrete Reference Laboratory (CCRL)

D.  Welding Inspection

1.  AWWA D-100-96 or latest version - AWWA Standard for Welded Steel Tanks for Water Storage


3.  AWS B5.1 - Specifications for the Qualifications of Welding Inspectors

4.  AWS B5.15 - Specifications for the Qualifications of Radiographic Interpreters

5.  AWS ARE - 6 Test Methods for Evaluating Welded Joints

6.  AWS ARE - 10 Monitoring and Control of Welding and Joining Processes
E. Coating Inspection
   1. National Association of Corrosion Engineers (NACE)
   2. SSPC – The Society for Protective Coatings

F. Masonry Inspection
   1. ACI 530-02/ASCE 5-02 TMS 402-02 – Building Code Requirements for Masonry Structures
   2. ACI 530.1-02/ASCE 6-02 TMS 602 – Specifications for Masonry Structures

1.3 SUBMITTALS
A. Informational Submittals
   1. Qualifications, experience, and certifications of each proposed testing service
   2. Certificate of calibration for testing equipment
   3. Inspection and test reports

1.4 QUALITY ASSURANCE
A. General
   1. Comply with the requirements of Section 01450, Quality Control, for testing and inspection requirements.
   2. Testing services shall have the following general qualifications:
      a. Minimum five years as a firm with the type of testing specified.
      b. Ability to provide timely field testing services to minimize the impact of the testing requirements on construction progress.
      c. Certification to perform the specified services in the state in which the Work is to be performed.
   3. Testing services proposed by the Contractor shall be subject to review by the Owner and Engineer. Any testing firm not acceptable to the Owner or Engineer will be rejected.

B. All testing agencies and laboratories must meet the requirements of ASTM E329.
C. Testing company shall have been in business for a minimum of the last 5 years providing applicable testing services.
D. Testing equipment shall be calibrated at maximum 12 month intervals by devices of accuracy traceable to National Bureau of Standards. Submit copy of certificate of calibration made by accredited calibration agency.
E. Testing shall be in accordance with applicable codes and regulations referenced in individual Specification Sections, and with selected standards of the American Society for Testing and Materials.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 TESTING SERVICES - GENERAL

A. Provide testing services meeting the following:
   1. Provide qualified personnel promptly on notice.
   2. Perform inspections required by the Contract Documents. Sample and test materials and observe methods of construction to determine compliance with applicable standards and with the requirements of the Contract Documents.
   3. Take specimens and samples for testing, as required in individual Specification Sections. Provide all sampling equipment and deliver all specimens and Samples.
   4. Promptly notify the Owner and the Engineer of irregularities or deficiencies in the Work which are observed during performance of services.
   5. Promptly submit 2 copies of reports of inspections and tests to the Owner, and one copy to the Engineer including:
      a. Date issued
      b. Project title and number
      c. Testing laboratory or agency name and address
      d. Name and signature of inspector
      e. Date of inspection or sampling
      f. Record of temperature and weather
      g. Date of test
      h. Identification of product and Specification Section
      i. Location of Project
      j. Type of inspection or test
      k. Results of tests and observations regarding compliance with Contract Documents

B. Perform additional tests and services as required to assure compliance with the Contract Documents.

C. Obtain Owner’s approval of testing laboratory before performing testing services.

D. Coordinate with testing laboratory.

3.2 GEOTECHNICAL TESTING

Q0044/7/6/18 01451-3 Independent Testing Services
A. Provide field testing and laboratory services for geotechnical soil testing required in Sections 02315 and 02320.

3.3 CONCRETE TESTING

A. Provide qualified independent field and laboratory testing service to perform the concrete testing required in Division 3 of the specifications.

B. The concrete testing laboratory shall have been inspected by the CCRL within the past five years.

C. The testing laboratory shall be licensed by the Commonwealth of Massachusetts.

D. Field testing technicians shall have a Grade 1 concrete field technician license as issued by the American Concrete Institute (ACI).

3.4 COORDINATION WITH TESTING LABORATORY

A. Provide testing laboratory personnel access to site and manufacturer's operations.

B. Provide laboratory with representative samples of materials to be tested in required quantities.

C. Furnish labor and facilities:
   1. To provide access to Work to be tested.
   2. To facilitate inspections and tests.
   3. For laboratory's exclusive use for storage and curing of test samples.
   4. To provide forms for preparing concrete test beams and cylinders.

D. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

E. Arrange with laboratory and pay for additional inspections, samples, and tests required for Contractor's convenience.

END OF SECTION
SECTION 01550
TRAFFIC REGULATION

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes

1.  Traffic requirements, if required
2.  Traffic officers, if required

1.2  PAYMENT PROCEDURES

1.  Refer to 01290, Application and Certificate for Payment for procedures relating to payment for the Work.

2.  Schedule, document and pay for traffic officers if they are required. Contractor will be reimbursed for payment of traffic officers only after invoices have been paid.

3.  Owner will pay for traffic officers if they are required. Contractor is responsible for scheduling the traffic officers, with Owner's approval, and for providing all documentation.

4.  Owner will deduct from monies due Contractor for the following abnormal and unreasonable expenses:
   a.  Contractor caused delays in the prosecution of work that result in hiring traffic officers for more hours than would have been required during normal prosecution of work.
   b.  Reconstruction and/or reinstallation of any portions of the work, as a result of improper initial installation or defective material, for which traffic officers are required.
   c.  Traffic officers required at a site where Contractor is not working or outside of Contractor's standard work day as a result of obstructions to traffic that remain in the traveled way.
   d.  All other incidents resulting from Contractor's operations requiring traffic officers that would not normally be encountered during the progress of a well-organized project employing proper construction methods.
   e.  When traffic officers are requested for the convenience of Contractor and are not otherwise considered necessary to the work.

1.3  REFERENCES

A.  Manual of Uniform Traffic Control Devices, U.S. Department of Transportation

1.4  TRAFFIC REQUIREMENTS
A. Arrange construction activity so that all streets shall remain open to at least one-way traffic during periods of actual work, and to unimpeded, two-way traffic during all other periods.

B. Provide a traffic control plan to Engineer for approval showing traffic control signs, barrels, cones, traffic officers, including detour signs, meeting the approval of Engineer, Owner and local Police Departments in accordance with the Manual of Uniform Traffic Control Devices.

C. Determine the location of each day’s work and implement the approved traffic control plan. If the plan requires the use of traffic officers, notify the Police Department.

D. Contractor shall have no claim of delay if he does not notify the Police Department of his scheduled location in time to arrange for traffic officers.

E. Hand deliver written notice to individual houses affected by driveway and side road closings or detours a minimum 24 hours in advance. A recommended parking area outside the work limits shall be included in the notice.

1.5 TRAFFIC OFFICERS

A. Uniformed traffic officers shall be required at locations deemed necessary by Owner, working in conjunction with local Police and Fire Departments, for the protection of the public.

B. The Police Chief or his representative, in consultation with Owner’s representative, will determine the number of officers required for the work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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PART 1    GENERAL

1.1 SUMMARY

A. Section Includes
   1. Temporary Fencing System

B. Related Requirements
   1. Section 01720, Field Engineering

1.2 SUBMITTALS

A. Informational Submittals
   1. Submit information regarding the proposed temporary fencing system,
      including material of construction, plan layout, spacing of components, and
      anchorage.

1.3 TEMPORARY FENCING SYSTEM

A. Comply with the requirements of 520 CMR 14.00, and the local and/or regional
   permit required to be obtained as part of this regulation, for temporary fencing.

B. Provide temporary fencing system to prevent unauthorized access to active laydown
   and staging areas and areas under construction on the landward side of the seawall

C. Fencing system shall be installed such that the fence system cannot be moved by
   hand.

D. Provide temporary fencing system to prevent unauthorized access to active laydown
   and staging areas and areas under construction on the seaward side of the seawall or
   other areas where security fencing cannot be installed.

E. Do not move the fence system under any circumstances until the proposed pipeline is
   installed, the trench backfilled and compacted, and restoration activities complete.

F. The Contractor will retain ownership of the temporary fencing system after the
   completion of the Work.

1.4 SITE SECURITY

A. Provide 6-foot high chain link temporary fencing system to prevent unauthorized
   access to construction areas. The location of the temporary fence is shown on the
   drawings.

B. Do not move the fence system under any circumstances until the construction
   activities are complete.

C. Remove the temporary fencing system after the completion of the Work.
PART 2  PRODUCTS

2.1  MATERIALS

A. Temporary fencing shall be orange, 48” high and manufactured from high density polyethylene with 4” x 1” mesh size.

B. Temporary fencing material shall meet the following requirements within +/- 5%:

1. Machine Direction Breaking Load: 1210 lbs/ft
3. Machine Direction Breaking Elongation: 33%
4. Machine Direction Yield Point Elongation: 13%
5. Tensile Breaking Load: 340 lbs/ft
6. Tensile Yield Strength: 440 lbs/ft
7. Tensile Breaking Elongation: 21%
8. Tensile Yield Point Elongation: 8%

C. Site security fencing shall be a 6 foot high chain link fence supported by steel posts a minimum of 8 feet on center. Fence shall conform to the following requirements:

1. Posts, Rails, and Framework

   a. All pipes shall be galvanized cold-formed steel conforming to ASTM Designation A120, Schedule 40 latest requirements, and galvanized in conformance with ASTM A123 latest requirements.

   b. Member sizes for 6 foot fence are as follows:

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>O.D.</th>
<th>Weight/ Lin. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal, corner posts 3 in.</td>
<td>2.875</td>
<td>5.79 lbs.</td>
</tr>
<tr>
<td>Line posts 2-1/2 in.</td>
<td>2.375</td>
<td>3.65 lbs.</td>
</tr>
</tbody>
</table>

2. Fence Fabric: The fabric shall be woven aluminum-coated steel chain link conforming to ASTM Designation A491 in its entirety. The fabric shall be 9 gauge, 2 inch square mesh.

PART 3  EXECUTION

3.1  FENCE INSTALLATION

A. Install fence according to manufacturer’s instructions at locations specified in Paragraphs 1.3 above.

END OF SECTION
SECTION 01570
TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Dust control
   2. Drainage and erosion control
   3. Haybales and siltation fence
   4. Mulch
   5. Sediment trapping devices
   6. Temporary diversion piping

B. Related Requirements
   1. Section 02920 – Lawns and Grasses

1.2 SUBMITTALS

A. Informational Submittals
   1. Materials proposed for use in dust control
   2. Haybales, siltation fence, mulch, and sediment trapping devices

PART 2 PRODUCTS

2.1 HAYBALES

A. Haybales required for siltation control shall be wire tied bales of the type normally used for siltation or erosion control or construction projects.

2.2 FILTER FABRIC

A. Filter fabric siltation fencing shall be a woven filter fabric having a weight of at least 2.5 ounces per square yard, a thickness of at least 17 mils, a coefficient of permeability of not less than 0.0009 centimeters per second and allows a water flow rate of a minimum 40 gallons per minute per square yard. The material shall have a high sediment filtration capacity, high slurry flow and minimum clogging characteristics. The material shall be equal to FW-300 as manufactured by Mirafi, Inc., Charlotte, North Carolina; Amoco 2130 by Nilex, Inc., Centennial, CO; MISF 180 by Mutual Industries, PA; or equal.

2.3 SEDIMENT TRAPPING DEVICES

A. Sediment trapping devices shall be Siltsack® Dandy Bag II® or equal.

2.4 MULCH
A. Hay mulch shall consist of mowed cured grass, clover, alfalfa, timothy, oats, or wheat. No salt hay shall be used.

PART 3 EXECUTION

3.1 DUST CONTROL

A. Control dust during the Work. Use a mechanical street sweeper daily.

B. Prevent dust from becoming a nuisance or hazard. During construction, excavated material and open or stripped areas are to be policed and controlled to prevent spreading of the material.

C. Control dust during the work on-site using calcium chloride and/or water.

D. During the Work on-site, all paved road and driveway surfaces shall be scraped and broomed free of excavated materials on a daily basis. The surfaces shall be hosed down or otherwise treated to eliminate active or potential dust conditions and the natural road or wearing surface shall be exposed.

E. Ensure that the existing equipment, facilities, and occupied space adjacent to or nearby areas of the work do not come in contact with dust or debris as a result of concrete demolition, excavation or surface preparation for coatings.

F. Control dust by the construction of temporary wooden frame/polyethylene sheeting walls and covering enclosures separating adjacent or nearby areas and equipment from the Work site.

G. Submit for approval materials proposed for use for dust control, prior to start of the Work.

3.2 DRAINAGE AND EROSION CONTROL

A. Control erosion and siltation during the construction through mulching, haybales, siltation fencing, diversion and control of storm water run-off, ponding areas and similar methods.

B. Provide and maintain sediment trapping systems.

C. Discharge surface runoff from any disturbances to the site into silt containment basins. Utilize siltation prevention measures including haybale and geotextile fences before discharge to drainage systems.

D. Control surface waters within the construction area through the use of temporary culverts.

E. Install sediment trapping devices in catch basins located in existing paved areas with sediment trapping devices to minimize the transport of sediment through the subsurface stormwater collection system.

3.3 HAYBALES AND SILTATION FENCE

A. Place and maintain both haybales and a staked filter fabric siltation fence along the entire length of the proposed construction between the area of construction where shown on the Drawings or required by permit.
B. Install haybales by anchoring bales butted together to existing ground with at least 2 stakes per bale. The stake shall be a minimum of 1-inch square cross section and shall be long enough to penetrate 12 inches into the ground. Replace deteriorated haybales. Remove and dispose of the haybales following the successful growth of vegetation in the areas disturbed by the construction. Haybales shall not be removed until their removal is approved by the Engineer.

C. Install a filter fabric siltation fence in addition to the staked haybales, prior to construction and remove after full surface restoration has been achieved. Install the siltation fence parallel and immediately adjacent to the haybales as shown on the Drawings. Install as follows:

1. Hand shovel excavate a small trench on the upstream side of the desired fence line location.
2. Unroll the siltation fence system, position the post in the back of the trench (downhill side), and hammer the post at least 1½ feet into the ground.
3. Lay the bottom 6 inches of the fabric into the trench to prevent undermining by storm water run-off.
4. Backfill the trench and compact.

D. SILT SOCKS

1. Place and maintain silt socks along the entire length of the proposed construction between the area of construction and the ocean where shown on the Drawings or required by permit.
2. Install silt socks per manufacturer’s recommendations. Remove and dispose of the silt socks following the successful growth of vegetation in the areas disturbed by the construction. Silt socks shall not be removed until their removal is approved by the Engineer.

E. Perform work in accordance with City of Quincy, MA Conservation Commission Order of Conditions, and other permits as applicable.

3.4 RESTORATION

A. Provide erosion control, seed and mulch and netting for surface restoration of areas disturbed during construction activities.

B. Provide temporary stabilization of disturbed areas that remain inactive greater than 14 consecutive days to minimize erosion. Methods to minimize erosion may include but are not limited to:

1. Spreading straw and/or providing temporary planting stabilization.
2. Installing jute netting.
3. Preparing surfaces to increase the runoff flow path, reduce the runoff flow velocity, or create small storage pockets to retain surface flows. Methods of accomplishing this include using mechanical devices such as track equipment or sheep’s foot rollers.
C. Restore the ground surface in brush and/or woodland areas by machine spreading of existing stripped surface soils (loam and humus), liming, fertilizing, seeding and mulching, as well as installing jute netting where required by steep slopes.

D. Salvage existing loam and topsoil and stockpile this material for re-spreading where originally removed. On backfilling, grading shall be returned to preconstruction contours and the stockpile of loam shall be spread over areas disturbed during construction activities.

E. Place mulch on seeded areas. Use jute netting on areas having a slope greater than 3 horizontal to 1 vertical, to anchor the mulch until a satisfactory growth is obtained. If seeding is not possible because of the time of the year, apply mulch and netting to stabilize the area until such time as seed can be sown.

F. Provide grading, refertilizing, reseeding, remulching and/or netting to maintain the restored areas until the Work is accepted by the Owner.

G. Seed shall be as specified under Section 02920.

3.5 CLEANING

A. Remove any sediment that builds up around the haybales, silt socks, or catchbasins.

B. Clean sediment trapping devices periodically during the Work. Devices shall be cleaned on a weekly basis, or more frequently if the devices become clogged.

C. Clean catch basins that collect sediment as a result of the Work.

END OF SECTION
SECTION 01582
PROJECT IDENTIFICATION

PART 1 GENERAL

1.1 SUMMARY
A. Section Includes
1. Informational Signs

B. Related Requirements
1. Section 01330, Submittal Procedures
2. Section 01550, Traffic Regulation

1.2 SUBMITTALS
A. Action Submittals
1. Information on paints to be used for items under this section.
2. Layout of each sign.

1.3 QUALITY ASSURANCE
A. Finishes and painting shall resist weathering and fading for scheduled construction period.

1.4 MAINTENANCE
A. Maintain signs and supports in a neat, clean condition; repair damages to structures, framing or sign.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION
A. Informational Signs
1. Provide six painted signs with painted lettering, or standard products:
   a. Size of signs and lettering: To meet Federal Highway Administration “Standard Alphabets for Highway Signs.”
   b. Colors: As required by regulatory agencies, otherwise uniform colors throughout Project.
   c. Furnish, erect, and maintain job instruction signs, including "DANGER," "KEEP OFF," as may be required to conduct the Work safely. Such signs shall be clean, maintained in good condition, and promptly removed when they have served their purpose.

2. Erect at construction locations to provide required information.
B. Traffic Control Signs

1. Traffic control signs shall be as specified in Section 01550 and as indicated on the Drawings.

2.2 MATERIALS

A. Sign Materials

1. Structure and Framing: May be new or used, wood or metal, in sound condition, structurally adequate to work, and suitable for specified finish.

2. Sign Surfaces: Exterior softwood plywood with medium density overlay, standard large sizes to minimize joints:
   a. Thickness: As required by standards to span framing members, to provide even, smooth surface without waves or buckles.

3. Wrought Hardware: Galvanized.

4. Paint:
   a. Apply a coat of white alkyd primer wood oil to entire woodwork of sign.
   b. Apply 2 coats of white exterior latex paint to sign including framework.

B. Sign layout shall be approved by the Owner prior to fabrication.

PART 3 EXECUTION

3.1 PREPARATION

A. Project Identification Sign

1. Paint exposed surface of supports, framing and surface material; one coat of primer and one coat of exterior white paint.

2. Paint graphics in styles, sizes, and colors selected.

3. Sign to be minimum of 48 inches by 96 inches.

3.2 ERECTION

A. Project Identification Sign

1. Erect Project signs at locations approved by the Owner in the vicinity of the Bay Avenue.

2. Maintain in good condition until completion of the Project.
   a. Remove sign, framing, supports and foundations at completion of the Project.

END OF SECTION

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SECTION 01600

PRODUCT REQUIREMENTS

PART 1  GENERAL

1.1  SUMMARY

A. Section Includes

1. Products and Materials
2. Product Delivery Requirements
3. Packaging, Handling and Storage Requirements
4. Inspection of Offsite Work

1.2  QUALITY ASSURANCE

A. Review all contract Drawings and Specifications with respect to specific system characteristics, applicability of materials and equipment for the intended purposes, sizes, orientation, and interface with other systems, both existing and proposed, and certify that the materials and equipment proposed will perform as specified prior to submitting shop drawings.

B. Provide sworn certificates as to quality and quantity of materials where specified or requested by the Engineer.

C. Obtain concurrence of the Engineer prior to processing, fabricating, or delivering material or equipment.

1.3  PRODUCTS AND MATERIALS

A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by a single manufacturer unless specified otherwise.

B. Use only new and first quality material in the Work. Material shall conform to the requirements of these Specifications and be approved by the Engineer. If, after trial, it is found that sources of supply that have been approved do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved materials from other approved sources.

C. Immediately remove defective materials and equipment from the site, at no additional cost to the Owner. The Contractor may be required to furnish sworn certificates as to the quality and quantity of materials before materials are incorporated in the Work.

D. Engineer has the right to approve the source of supply of all material prior to delivery.

1.4  PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with manufacturer’s instructions.

B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

D. Progressively deliver materials and equipment to the Site so there will be neither delay in progress of the Work nor an accumulation of material that is not to be used within a reasonable time.

E. Deliver products to the Site in their manufacturer's original container, with labels intact and legible.
   1. Maintain packaged materials with seals unbroken and labels intact until time of use.
   2. The Engineer may reject as non-complying such material and products that do not bear identification satisfactory to the Engineer as to the manufacturer, grade, quality, source, and other pertinent information.

1.5 PACKAGING, HANDLING AND STORAGE REQUIREMENTS

A. Provide storage and handling of all materials and equipment required for the Work.

B. Except as otherwise indicated in the Contract Documents, determine and comply with the manufacturer's recommendations on product storage, handling, and protection. Provide manufacturer's documentation on recommended storage procedures when requested by the Engineer.

C. Properly store and protect all equipment immediately upon its arrival. All equipment shall be stored in a clean, dry, heated, secured, and insured indoor facility satisfactory to the Engineer. Equip drive motors with thermostatically controlled strip heaters. Outdoor storage with plastic, canvas, plywood or other cover will not be allowed except where specific approval for designated items not containing electrical components or bearings is obtained from the Engineer. This approval does not relieve the Contractor of responsibility for proper protection of materials.

D. Familiarize workmen and subcontractors with hazards associated with materials, equipment, and chemicals specified herein and take all necessary safety precautions.

E. Areas available on the construction site for storage of material and equipment shall be as shown on the Drawings or approved by the Owner.

F. Materials and equipment to be incorporated in the Work shall be handled and stored by the manufacturer, fabricator, supplier, and Contractor before, during and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft, or damage of any kind to the material or equipment.

G. Protect finished surfaces including floor surfaces, stairs, joints, and soffits of passageways from damage until accepted by the Engineer.

H. Promptly remove materials from the site of the Work which have become damaged or are unfit for the use intended or specified. The Contractor will not be compensated for the damaged materials or their removal costs.

I. Handle, haul, and distribute all materials and all surplus materials on the different portions of the Work, as necessary or required. Provide suitable and adequate storage room for materials and equipment during the progress of the Work, and be
responsible for the protection, loss of, or damage to materials and equipment furnished, until the final completion and acceptance of the Work.

J. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

K. All materials and equipment to be incorporated in the Work shall be placed so as to not damage any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Keep materials and equipment neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to the Owner.

L. No material or equipment will be permitted to be stored in any of the Owner's facilities, unless otherwise approved by the Engineer.

M. Do not store material or equipment in any wetland or environmentally sensitive area. Stockpile sites shall be level, devoid of mature stands of natural vegetation, and removed from drainage facilities and features, wetlands, and stream corridors.

N. Contractor shall be fully responsible for loss or damage to stored materials and equipment.

O. No item judged rusty, corroded or otherwise damaged during storage will be accepted. Any electrical or instrumentation item determined by the Engineer to be damaged shall be removed from the Site and replaced by a completely new item in first class condition. Items not properly stored will not be considered for any partial payment.

P. Provide protective and preventive maintenance during storage consisting of manually exercising equipment where required, inspecting mechanical surfaces for signs of corrosion or other damage, lubricating, applying any coatings as recommended by the equipment manufacturer as necessary for its protection and other precautions as necessary to assure proper protection of equipment stored.

Q. Treat ferrous surfaces not receiving finish coats of paint with rust preventive coating, and protect non-ferrous metal work and devices with suitable wrappings.

1.6 INSPECTION OF OFFSITE WORK

A. The Owner and Engineer will inspect Work performed away from the construction site during fabrication, manufacture, or testing, or before shipment. Give 2 weeks written notice regarding the place and time where such fabrication, manufacture, testing, or shipping will be done.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION
SECTION 01630

PRODUCT SUBSTITUTION DURING CONSTRUCTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Product substitution procedures

1.2 CONTRACTOR’S OPTIONS

A. For materials or equipment (hereinafter products) specified only by performance or reference standard, select product meeting that standard, by any Supplier. To the maximum extent possible, provide products of the same generic kind from a single source.

B. For products specified by naming several products or manufacturers, select any one of the products or Suppliers named, which fully complies with the Drawings and Specifications. Another “or-equal” product can also be considered by the Engineer if it complies with the provisions of Article 7.04, Section 00700. If a product proposed by the Contractor does not qualify as an “or-equal” item, then it can be considered as a proposed substitute item, and the Contractor must comply with the requirements of Article 7.05, Section 00700.

C. For products specified by naming products or manufacturers and followed by words indicating that no “or-equal” item or substitution is permitted, there is no option and no substitution will be allowed.

D. Where more than one choice is available as a Contractor's option, select product that is compatible with other products already selected or specified.

1.3 SUBSTITUTIONS

A. If in the Engineer’s sole discretion a product proposed by the Contractor does not qualify as an “or-equal” item under the provisions of Article 7.04 of Section 00700, it can be considered a proposed substitute item. Submit information required under Article 7.05, Section 00700 for proposed substitutes.

B. The Engineer will consider written requests from the Contractor for substitutions within 30 days after the Notice to Proceed. After this period, requests will be considered only in case of unavailability of product or other conditions beyond control of the Contractor.

C. Submit 5 copies of request for substitutions. Submit a separate request for each proposed substitution. In addition to the submittal requirements outlined in Article 7.05 of Section 00700, include the following in each substitution request:

1. For products or Suppliers:
   a. Product identification, including Supplier & manufacturer’s name and address.
b. Manufacturer’s literature with product description, performance and test data, and reference standards.

c. Samples, if appropriate.

d. Name and address of similar projects on which product was used, and date of installation.

2. For construction methods (if specified):
   a. Detailed description of proposed method.
   b. Drawings illustrating method.

3. Such other data as the Engineer may require to establish that the proposed substitution is equal to the product, Supplier or method specified.

D. The substitution request shall include written certification and statements that are outlined in Article 7.05 of Section 00700.

E. A request constitutes a representation that Contractor:
   1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
   2. Will provide same or better guarantees, warranties or bonds for proposed substitution as for specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
   4. Waives all claims for additional costs or time extension which may subsequently become apparent.
   5. Will reimburse Owner for review or redesign services associated with re-approval by authorities having jurisdiction.

F. A proposed substitution will not be accepted if:
   1. Acceptance will require changes in the design concept or a substantial revision of the Contract Documents.
   2. It will delay completion of the Work.
   3. It is intended or implied on a Shop Drawing and is not accompanied by a formal request for substitution from the Contractor.

G. The Contractor is responsible for all costs relating to substitution requests.

H. Approval of a substitution does not relieve the Contractor from the requirement for submission of Shop Drawings as set forth in the Contract Documents.

PART 2
PRODUCTS – NOT USED

PART 3
EXECUTION – NOT USED

END OF SECTION
SECTION 01720

FIELD ENGINEERING

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes

1.  Establishment of lines, benchmarks, and elevations required to layout and construct the Work

2.  Property line survey and delineation

1.2  SUBMITTALS

A.  Informational Submittals

1.  Submit the qualifications of the Registered Professional Engineer and/or Registered Land surveyor to be hired to perform various portions of the Work, as applicable.

2.  Submit documentation verifying the accuracy of field engineering work.

3.  Submit 4 copies of final record drawings of field engineering layouts and as-built survey.

4.  Submit certificate signed by registered (licensed) engineer or surveyor certifying that elevations and locations of Work are in conformance with Contract Documents. Explain deviations.

1.3  RECORDS

A.  Maintain a complete, accurate log of control and survey work as it progresses.

1.4  QUALITY ASSURANCE

A.  Employ a qualified engineer, registered with the Commonwealth of Massachusetts as a Professional Engineer or a competent surveyor, registered with the Commonwealth of Massachusetts as a Land Surveyor, as required for the particular characteristics of the work being performed.

PART 2  PRODUCTS - NOT USED

PART 3  EXECUTION

3.1  PROCEDURES

A.  The Registered Professional Engineer or Land Surveyor provided shall establish and maintain lines, elevations and reference marks needed during the progress of the Work and shall re-establish stakes and marks placed by the Engineer that are lost or destroyed through the course of the Work. Verify such work by instrument or other appropriate means.

B.  The Engineer shall be permitted at all times to check the lines, elevations and reference marks, set by the Contractor, who shall correct any errors disclosed by such check. Such a check shall not be construed to be an approval of the
Contractor’s work and shall not relieve or diminish the responsibility of the Contractor for the accurate and satisfactory construction and completion of the entire Work.

C. Make, check, and be responsible for measurements and dimensions necessary for the proper construction of and the prevention of misfittings in the Work.

D. Furnish all protective stakes and temporary structures for marking and maintaining points and lines for the building of the Work, and give the Engineer such facilities and materials for verifying said lines and points as he may require.

E. Revisions to the layout and elevations of the Work as defined by the Contract Documents shall be approved by the Engineer.

F. Maintain and prepare final record drawings of field engineering layouts and as-built survey conducted after completion of the Work.

END OF SECTION
SECTION 01725

PRESERVATION AND RESTORATION OF PROJECT FEATURES

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes

1.  Protection and replacement of trees, shrubs, signs, property markers, fences, and related project features.

2.  Taking precautions, providing programs, and taking actions necessary to protect public and private property and facilities that are outside the demolition scope from damage.

1.2  DEFINITIONS

A.  Underground Structures

1.  Underground structures are defined to include, but not be limited to, sewer, water, gas, and other piping, and manholes, chambers, electrical and signal conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.

2.  Underground structures known to the Engineer are shown on the Drawings to the extent that locations are available. This information is shown for the assistance of the Contractor in accordance with the best information available, but is not guaranteed to be correct or complete. The Contractor shall be responsible for checking on the actual locations of water, sewer, gas, electric and telephone service connection lines to avoid potential interferences.

B.  Surface Structures

1.  Surface structures are defined as existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

PART 2  PRODUCTS – NOT USED

PART 3  EXECUTION

3.1  REPAIR/RESTORATION

A.  Trees, shrubs, and similar items shall not be removed except where indicated on the drawings or as necessary to access the required demolition work, as approved by the Engineer. Items to be removed shall be clearly marked as directed by the Engineer. If objects not to be removed are damaged or removed, they shall be repaired or replaced to their original condition.
B. Trees and shrubs on private property, which are removed or damaged by the Contractor shall be replaced in kind.

C. Signs, fences, property markers, walls, guard rails and other public or private property that are outside the demolition scope shall be replaced in kind if damaged. Supports and protective devices required shall be provided.

D. Underground and Surface Structures

1. In the event of damage, injury or loss to existing utilities and structures that were not indicated to be removed or abandoned, whether shown on the Drawings or not, make all reasonable efforts to facilitate repairs and to mitigate the impact of such events upon the utility or structure owner’s normal operations. Restore the existing utility or structure to the condition required by the owner of the utility or structure or at least to the condition found immediately prior to the Work. In the event that the utility owner elects to make the repairs, provide all reasonable access and assistance, and reimburse the utility owner for the cost of repairs. If utility service is interrupted due to damage to facilities, alternate facilities shall be provided.

2. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers and curbs which are temporarily removed to facilitate the Work shall be replaced and restored to their original condition at the Contractor’s expense unless otherwise indicated in other sections of these specifications.

3. Wherever water, sewer, gas or petroleum mains, electric or telephone lines, cables or other utilities and structures are encountered and may be in any way interfered with, inform the Engineer and the appropriate utility company. Cooperate with the Engineer and utility company in the protection, removal, relocation, and replacement of structures and facilities.

4. Prior to proceeding with any demolition or construction, notify in writing owners of utilities and structures within the vicinity of the proposed Work.

5. Work affecting water distribution systems, which will take fire hydrants out of service, must be coordinated with the local fire department. The Contractor shall be prepared to restore fire flows in the event of an emergency or to provide for temporary fire flow service in accordance with the requirements of the local fire department.

6. Materials used for relocation or replacement of utilities and structures shall be of an equivalent material, type, class, grade and construction as the existing or as approved by the respective owners thereof, unless otherwise shown or specified.

7. When any survey monument or property marker, whether of stone, concrete, wood or metal, is in the line of any trench or other demolition or construction work and may have to be removed, notify the Engineer in advance of removal. Under no circumstances shall any monument or marker be removed or disturbed by the Contractor or by any of his Subcontractors, employees or agents, without the permission of the Engineer. Monuments or markers removed or disturbed shall be reset by a land surveyor licensed in the State.
where the Work is located at the Contractor’s expense. Should any monuments or markers be destroyed through accident, neglect or as a result of the Work under this Contract, the Contractor shall, at his own expense, employ a land surveyor licensed in the State where the Work is located to re-establish the monument or marker.

3.2 PROTECTION

A. The construction of certain portions of the project may require excavation within the root systems of trees. Roots with a diameter of 2 inches or more within the excavation shall not be cut. If necessary, excavation shall be made with small powered equipment or by hand to comply with this requirement. It may be necessary to excavate from more than one direction to avoid damage to the roots.

B. The trunks of trees that are to remain and are within the swing radius of the excavating machine bucket when fully extended shall be wrapped with burlap and 2 inch by 4 inch protective wood slats (8 inch spacing maximum) wired around the circumference of the trees to protect them from damage.

C. Tree limbs shall not be cut except upon written approval of the Owner and the Engineer. Tree limbs cut shall be painted with approved forestry paint manufactured specifically for that purpose.

D. Underground and Surface Structures

1. Sustain in their places and protect from direct or indirect injury underground and surface structures designated to remain within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, satisfy the Engineer that the methods and procedures to be used have been approved by the party owning same.

2. Pay utility service company charges related to the temporary support of utility poles if required to complete the Work.

3. Assume risks associated with the presence of underground and surface structures within or adjacent to the limits of the Work. The Contractor shall be responsible for damage and expense for direct or indirect injury caused by his Work to any structure. Immediately repair damage caused by the Work to the satisfaction of the owner of the damaged structure.

END OF SECTION

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SECTION 01770
CLOSEOUT PROCEDURES

PART 1 GENERAL
1.1 SUMMARY
A. Section Includes
   1. Documentation required for the transfer of the completed Work to the Owner
   2. Final Cleaning

1.2 SUBMITTALS
A. Closeout Submittals
   1. As-built drawings
   2. Evidence of payment and release of liens
   3. List of Subcontractors, service organizations, and principal vendors

1.3 SUBSTANTIAL COMPLETION
A. Refer to Article 15.03 in 00700, General Conditions, for procedures relating to obtaining Substantial Completion. Refer to 00520, Agreement, for Contract Times.

1.4 PROJECT CLOSEOUT DOCUMENTS
A. As-Built Drawings - Submit as-built drawings for review, approval, or comment. The as-built drawings shall show the completed work, including all deviations from the original Drawings. As-built drawings shall depict the location of all piping and valves installed under this Contract, as well as field changes. Take swing ties to all underground work from a minimum of two horizontal locations. Vertical dimensions to all below grade work shall also be obtained. All fittings, bends, valves and other appurtenances shall be shown. At a minimum, the following information shall be shown on the as-built drawings.
   1. Ties to all buried fittings (including tees, crosses, bends, reducers, wyes, offsets, adapters, sleeves, caps, plugs), valves, services and structures from two horizontal measurements to permanent surface reference points, and depth below permanent grade. Permanent surface reference points are manholes, catch basins, power poles, and above-grade structures.
   2. Ties to all surface structures (including manholes, catch basins, vaults, valve boxes, hydrants, curb stops, cleanouts, wet wells, outlets, etc.) from two horizontal measurements to permanent surface reference points. Re-station surface structures if stationed on Drawings.
   3. Ties to other utility crossings, abandoned pipelines, and sewer service stubs, from two horizontal measurements to permanent surface reference points include depth below permanent grade and spacing between crossing utilities.
   4. Invert and rim elevation of all gravity pipelines and structures including manholes, catch basins, below-grade structures, wet wells, septic tanks and distribution boxes as appropriate.
5. Depth of ledge at changes in profile but not more than 25-foot intervals.

6. Changes to pipe size and materials.

B. Provide warranties and bonds for items so listed in pertinent sections of the Project Manual.

C. Provide evidence of compliance with requirements of governmental agencies having jurisdiction.

D. As specified in Article 15.06.A of Section 00700, provide evidence that all Work, materials and equipment will pass to Owner free and clear of any Liens or other title defects upon final payment. Such evidence may take the form of receipts or releases from all Subcontractors and Suppliers and an affidavit from Contractor as to the completeness of the receipts and releases as described in Section 00700 Article 15.06.A.3.

E. Provide list of Subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.

1.5 FINAL PAYMENT

A. Refer to Article 15.05 and 15.06 in 00700, General Conditions, for procedures relating to final inspection and payment.

B. The Contract shall be considered complete and final payment made, only when:
   1. All provisions of the Contract Documents have been strictly adhered to.
   2. The project and premises have been left in good order, including removal of all temporary construction, Contractor-owned and extraneous materials.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 CLEANING

A. Remove and entirely dispose of material or debris that has washed, flowed or has been placed in existing watercourses, ditches, gutters, drains, pipe, or structures, for work done under the Contract work limits. Leave ditches, channels, drains, pipes, structures, and watercourses in a clean and neat condition upon completion of the Work.

B. Restore or replace any public or private property damaged or removed during the course of the Work. Property shall be returned to a condition at least equal to that existing immediately prior to the beginning of operations. Complete all highway or driveway, walk, and landscaping work using suitable materials, equipment and methods. Perform restoration of existing property, signs or structures promptly as work progresses; do not leave restoration work until the end of the Contract Time.

END OF SECTION
DIVISION 2
SECTION 02210

SUBSURFACE INVESTIGATIONS

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes

1.  Soils subsurface investigation at the site, the use of data resulting from the investigation, and conditions warranting additional soils investigation.

2.  Pipe and utility subsurface investigations that are required in order to properly locate, plan for and/or connect to or abandon the various existing pipelines.

B.  Related Sections

1.  Section 02920 - Lawns and Grasses

2.  Section 02315 - Excavation, Backfill, Compaction, and Dewatering

3.  Section 02740 - Bituminous Concrete Pavement

1.2  REFERENCES

A.  29 CFR Part 1926 Subpart P - OSHA Excavation Regulations 1926.560 through 1926.562 including Appendices A through F

B.  MGL Chapter 82 Section 40

1.3  QUALITY ASSURANCE

A.  The entire test pit excavation must be observed by the Engineer.

1.4  SITE CONDITIONS

A.  Soils Investigation

1.  Use of the Data

a.  The Drawings indicate conditions as they are believed to exist based upon limited subsurface explorations. Investigations and field tests must be conducted to verify the conditions that exist which may affect the Work. All investigations must be conducted under the Engineer’s observation.

B.  Pipeline and Utility Investigations

1.  The Drawings show available data relative to existing underground pipe and utilities.

PART 2  PRODUCTS - NOT USED

PART 3  EXECUTION

3.1  PREPARATION
A. Obtain all available information on buried structures and utilities in the vicinity of the investigation.

B. Coordinate Work such that all affected property, structure, and utility owners are aware of the Work prior to its commencement.

C. Schedule subsurface investigations such that they do not interfere with other Work or traffic and in advance of other Work in that location.

D. Provide the Engineer with 24-hour notice prior to commencement of subsurface investigations.

3.2 SUBSURFACE INVESTIGATIONS

A. Prior to test pitting operations, delineate the general scope of the excavation or boring on the paved surface of the ground using white paint, or stakes or other suitable white markings on non-paved surfaces and coordinate with the appropriate agencies in accordance MGL Chapter 82 Section 40. Pre-marking will not be acceptable if such marks can interfere with traffic or pedestrian control or are misleading to the general public. Pre-marking will not be required of any continuous excavation that is over 500 feet in length.

B. Excavate up to 5 test pits to locate the existing utilities to be abandoned, or as requested by the Owner. Expose the top of the pipeline, and adjacent utilities, at each test pit location.

C. Contactor may, at his expense and with permission by the Owner, perform additional explorations not ordered by the Engineer.

D. Perform test pits in accordance with the requirements of Section 02315. Excavate the bottom 2 feet of the test pit (or in close proximity to known or anticipated utilities) by hand. Excavate to top of pipelines by hand. Test pits shall be braced, sheeted and dewatered or as otherwise required for safe excavation and examination of the structure or utility to be exposed.

E. Measure the depth to the top of the pipeline, as well as to adjacent utilities, from the ground surface, at each test pit location. Record location, depth and size of pipelines and utilities uncovered during the test pits. Record any other pertinent information which is learned as a result of excavating the test pit.

F. Excavate test pits of an appropriate size with equipment suitable for the location and character of the pit to be excavated.

G. All subsurface investigations shall be conducted in accordance 29 CFR Part 1926 Subpart P - OSHA Excavation Regulations 1926.650 through 1926.652 including Appendices A through F.

H. After observation by the Engineer, backfill and compact the test pits in accordance with Section 02315.

I. Borings or other drilled probes shall be filled in their entirety with grout upon completion.

J. Repair damage to any structure, utility, or private or public property or Site feature damaged during the Work to the satisfaction of the Engineer.
K. Repair paved surfaces in accordance with Section 02740.

L. Repair lawn areas or grass surfaces in accordance with 02920.

END OF SECTION
SECTION 02220
DEMOLITION

PART 1  GENERAL

1.1  SUMMARY

A.  Section Includes

1. Demolition of building and structures indicated on the contract drawings.

2. Demolition of ancillary structures and items within the Limit of Work indicated on the Drawings, but not specifically shown.

3. Removal and lawful disposal of miscellaneous debris and solid waste located within the Limit of Work.

4. LEED documentation requirements

B.  Related Sections

1. Section 01350, Health & Safety Plan

2. Section 02280, Utility Abandonment

3. Section 02315, Excavation, Backfill and Compaction

4. Section 13281, Asbestos Abatement

5. Section 13283, Hazardous Materials

1.2  DEFINITIONS

A.  Demolish – To tear down, segregate waste streams and lawfully recycle or dispose of all debris generated in the process including structure contents.

B.  Limit of Work – Area delineated on Drawings that defines the extent of demolition work under the Contract.

1.3  SUBMITTALS

A.  Quality Control Submittals prior to commencement of on-site demolition:

1. Methods of demolition and equipment proposed to demolish structures. This submittal should be sufficient to demonstrate a thorough understanding of the Work to be completed and the means that will be implemented to safely complete the demolition within the Contract Time without damage to surrounding structures or resources. The Engineer will review the submittal for completeness, but will not approve the means and methods.

2. Copies of any authorizations and permits required to perform the work, including disposal/recycling facility permits.

3. A Waste Management Plan indicating the types of wastes to be generated and the proposed disposal or recycling locations. Include back-up disposal and recycling facilities.
B. The following records and disposal documentation must be maintained and kept current throughout the project. These documents will be maintained in chronological order in a 3-ring notebook with appropriate tabbed dividers. The notebook will be reviewed for completeness at each progress meeting. Monthly pay requisitions may be rejected, in whole or in part, if documentation is not current.

1. Records of the amounts of waste generated, by waste type
2. Evidence of lawful disposal or recycling of all wastes generated including weights
3. Documentation of underground structures and utilities as identified in Part 3 of this Section
4. Copies of any analytical results generated as a result of waste stream characterization

C. A final report shall be prepared detailing the major waste streams resulting from demolition, the facilities to which the materials were taken for recycling or disposal, and the weight of materials taken to each recycling or disposal facility.

1.4 REGULATORY REQUIREMENTS

A. Contractor is solely responsible for obtaining permits or approvals which may be required to perform the work of this section such as the MassDEP AQ06 Renovation / demolition permit which includes all costs, fees and taxes required or levied.

B. Notify and obtain such permits or approvals from agencies having jurisdiction over demolition prior to starting work.

C. Comply with all applicable federal, state, and local environmental, safety and health requirements regarding the demolition of structures and other site features and recycling or disposal of demolition debris, as applicable.

D. Conform to procedures identified in Section 01350 – Health and Safety Plan if hazardous or contaminated materials are discovered.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 PROJECT MANAGEMENT

A. Provide a full-time Project Superintendent, fluent in English, who shall serve as a direct communication among the Contractor, Subcontractors, and the Owner.

B. Require all subcontractors to provide a foreman or superintendent who is fluent in English. That individual must be on site at all times that the subcontractor is working.

3.2 GENERAL REQUIREMENTS

A. Verify site conditions before proceeding with demolition work. Field check the accuracy of the Drawings and inspect structures and utilities prior to start of work and notify the Engineer in writing, of any hazardous conditions and/or
primary structures and other site features are shown on the Drawings; other smaller structures, including, but not limited to, concrete walks and pads, miscellaneous signs, lamp posts, railings, and fencing may not be shown on the Drawings, but may exist within the Limit of Work and shall be demolished.

1. Unknown Site Conditions - The information provided on the Drawings and in the Specifications is believed to be accurate. Field verify all information. Bear full responsibility for obtaining all locations of underground structures, utilities and their connections. Maintain services to buildings outside the limits of work, at no additional cost to the Owner.

B. Demolish the buildings, underground utilities and related appurtenances by methods that will not cause damage to surrounding structures, underground and overhead utilities, or other existing items and structures that are to remain in place.

C. Promptly and properly manage all debris as the demolition progresses. Construct and/or prepare material staging/stockpile areas at locations approved by the Engineer.

3.3 SITE PREPARATION

A. Remove and/or stabilize all overhead hazards, prior to commencing work near any building. Where hazards can not be stabilized, mark and control areas below hazards to prohibit access below the hazards. This shall be performed with caution tape, saw horses, safety fence or other types of barricades as determined by applicable safety codes. Similarly, all holes through the floors or weak sections of the floor shall either be covered or clearly marked to prohibit entry. Floor coverings shall be capable of supporting heavy equipment use.

B. Terminate and discontinue utilities serving the individual structures to be demolished, prior to demolition in accordance with the plans and Section 02280.

C. Remove all water/sewer lines as indicated in the Contract Documents before any plumbing fixtures or traps are removed from buildings.

3.4 HAZARDOUS MATERIALS

A. Lead Paint

1. Results of paint analysis indicated that samples collected were below the laboratory reporting limits or were well below the regulatory threshold of 0.5% lead by weight as established by EPA regulations and Massachusetts Department of Public Health. Painted surfaces containing any level of lead shall not be subjected to demolition activities as this could present a hazard to workers and requires regulatory compliance with 29 CFR 1926.62 "Lead in Construction." Provide workers with proper PPE (e.g. respirators and protective suits) until such time a negative exposure assessment is completed if airborne paint dust will be generated during demolition activities.

2. Of specific concern is the cutting of steel components using torch methods. If the Contractor intends to torch cut painted steel, lead paint must be removed from the area to be cut with a chemical stripper or other means prior to cutting. Sufficient paint must be removed from the area to prevent
volatilization of lead during the heating of the steel. Other means of controlling worker exposure to lead will be acceptable provided that they meet the requirements of 29 CFR 1926.62.

3. Where activities may generate leaded dust or impact a leaded surface, regulate work area so that dust migration is contained properly within the regulated area. Once the work is complete, properly clean up and dispose of leaded dust and materials.

B. Oil and Hazardous Material Contamination

1. Contractor personnel working in areas of potential contamination shall be appropriately trained, as required under Section 01350, Article 1.5.

3.5 DEMOLITION

A. Buildings

1. Demolish buildings and structures as indicated on the Drawings. Equipment, piping, conduit, wiring, and interior facilities are not shown on the Drawings but shall be demolished.

2. Segregate various building materials to facilitate recycling of salvageable materials. All construction and demolition debris to be disposed off-site.

3. Uncoated brick, uncoated concrete and asphalt can not be reused on-site and shall be recycled off-site.

4. Barricade work area as necessary to protect workers and general public from falling debris.

5. Do not leave unstable structures unattended. Plan the workday so that all structures are stable at the end of each work day.

B. Building Foundations, Slabs and Concrete

1. Demolish and remove all below grade foundation walls and floor slabs, unless noted otherwise on the contract documents. The sections of the foundation walls are coated with asbestos-containing waterproofing. Refer to Section 13281 – Asbestos Abatement for proper removal procedures.

C. Miscellaneous Site Structures and Features

1. **Concrete Slabs and Stone/Brick Patios and Walls** – Demolish all concrete/stone/brick slabs and walls including any patios, aprons, steps, and parking pads and associated foundation walls (if any) within the Limit of Work and as shown on the Drawings.

2. **Paved Areas** – With the exception of areas required to be removed for demolition of site features and utilities, all paved surfaces shall remain within the indicated work limits.

3. **Trees** – Trees are an important resource and shall be treated as such. Unless specifically noted to be demolished, protect all trees adjacent to the City right
of way and obtain approval of the Engineer prior to removing or pruning any other trees.

3.6 DISPOSAL

A. Legally dispose of or recycle all materials from demolition as well as equipment and other materials that are within the buildings. The disposal site shall be permitted to accept the waste stream by the applicable State Agency. Perform the loading of demolition materials in a manner that prevents materials and activities from generating excessive dust and ensures minimum interference with roads, sidewalks and streets both onsite and offsite.

B. Provide evidence that the demolition materials have been received at a legal disposal, recycle, reuse or salvage location. Such proof may include truck weight slips from an approved disposal facility or documentation of transfer of title. Transport of all materials off site shall be in accordance with applicable Department of Transportation Regulations. All materials leaving the site shall become the property of the Contractor.

3.7 SITE RESTORATION

A. No demolition debris shall remain on-site at project completion. Contractor shall take extreme care related to site control and maintaining a clean and orderly site. Engineer may collect soil samples at project completion to document that residual impacts to soil as a result of the building demolition have not contaminated area soils.

B. Prior to any backfilling, document the location of any structures that remain in place through construction photographs and by obtaining swing ties to and elevations of any structures to be buried if applicable. Progress payments may be withheld if current documentation is not maintained.

C. Backfill foundation areas and areas from which structures were removed to match the surrounding grade. Backfilling shall be conducted in accordance with Section 02315. Import off-site backfill as necessary for backfill to achieve site grades.

D. Restore damaged areas of the site or neighboring properties.

END OF SECTION
SECTION 02280

UTILITY ABANDONMENT

PART 1  GENERAL

1.1  SUMMARY

A. The determination of the location of existing utilities located above and below ground servicing the site and the buildings to be demolished.

B. The capping/plugging, termination and discontinuance of the utilities serving the buildings and site features to be demolished. Caps/plugs, termination and discontinuance are to be permanent unless otherwise noted on the Drawings.

C. There will be no separate measurement for all utility abandonment. Water lines to be removed require coordination with the City of Quincy’s Water, Sewer and Drain Division.

D. All water and sewer locations shown on drawings are approximate.

1.2  SUBMITTALS

A. Submit to Engineer, as provided in the submittal requirements Section, material specifications and shop drawings for all materials and equipment furnished under this section, prior to utility termination/protection work.

B. Submit to Engineer as-built Drawings showing location of all utility abandonments or relocations. Location shall be by survey location or a minimum of three swing ties to fixed structures to remain.

PART 2  PRODUCTS

2.1  CAPPING MATERIALS

A. Not used.

2.2  PLUGGING MATERIALS

A. Plugging materials shall consist of mortar and brick for pipe systems of varying diameters. Refer to drawings details.

PART 3  EXECUTION

3.1  INSTALLATION

A. Location - determine from the Drawings, field investigations, electronic utility detectors and test pits the location of utilities to be abandoned.

B. Utilities shall be terminated at the pole, main or manhole located within the City right of way, unless noted otherwise.

C. All utility shut offs and related inspections shall be coordinated with Owner and the affected utility. Contractor shall pay any fees associated with utility terminations. No shut off is to occur without authorization.
D. Water – remove water services back to the water main. Water services larger than 2” will require physically cutting the water main and removing the tee and valve and replacing the section with a ductile iron spool piece and two solid sleeves.

E. Electrical, Telephone and Cable – Coordinate with appropriate utility and remove service from each of the structures to be demolished. All wiring shall be removed to the nearest pole or manhole that is designated to remain. Provide early coordination with electrical and telephone companies to prevent any delays associated with building demolition.

F. Sanitary and/or Storm Drains – Remove sewer and drainage piping back to the nearest manhole designated to remain. Plug openings in manholes created by removal with brick and mortar. Coordinate with the City of Quincy’s Water, Sewer and Drain Division to determine the location of sanitary sewer and drain line plugs.

G. Facilitate access to all of the utility terminations for inspection by the Owner's representative before covering terminations. If the area is covered prior to inspection, the work must be uncovered for inspection. Any and all costs associated with uncovering the work and damages resulting from such uncovering are the sole responsibility of the Contractor.

H. Maintain all utilities to existing structures outside the limits of work. Notify Owner in writing prior to shut off of existing utilities.

I. Photograph all utility terminations prior to backfilling and provide an as-built with swing ties as to the location of any capped utilities.

END OF SECTION
SECTION 02315

EXCAVATION, BACKFILL, COMPACTION, AND DEWATERING

PART 1       GENERAL

1.1 SUMMARY

A. Section Includes
   1. Excavation, backfill and compaction for sidewalks and seawalls

B. Related Sections
   1. Section 01570 - Temporary Controls
   2. Section 02210 - Subsurface Investigations
   3. Section 02320 - Borrow Materials
   4. Section 02740 – Bituminous Concrete Pavement
   5. Section 04400 – Revetment

1.2 REFERENCES

A. ASTM D1557-07 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))

B. ASTM D1556-07 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

C. ASTM D2487-06e1 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D. ASTM D6938-08a - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

E. 29 CFR Part 1926 Subpart P - OSHA Excavation Regulations 1926.650 through 1926.652 including Appendices A through F

F. 520 CMR 14.00 Excavation and Trench Safety

G. 780 CMR 1705.0 Requirements for Structural Tests and Inspections

1.3 DEFINITIONS

A. Benching - A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

B. Earth Retention Systems - Any structural system, such as sheeting and bracing or cofferdams, designed to retain in-situ soils in place and prevent the collapse of the sides of an excavation in order to protect employees and adjacent structures.

C. Excavation - Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.
D. Protective System - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include earth retention systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

E. Registered Professional Engineer - A person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

F. Shield System - A structure that is designed to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with 29 CFR 1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

G. Sloping - A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

H. Temporary Dewatering System – A system to lower and control water to maintain stable, undisturbed subgrades at the lowest excavation levels. Dewatering shall be provided for all pipelines, structures and for all other miscellaneous excavations.

I. Trench - A narrow excavation (in relation to its length) made below the surface of the ground, of at least three feet in depth. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m).

1.4 SUBMITTALS

A. Modified Proctor Test (ASTM D1557) results and soil classification (ASTM D2487) for all proposed backfill materials at the frequency specified below:

1. For suitable soil materials removed during Excavation, perform one test for every 1,000 cubic yards of similar soil type. Similarity of soil types will be as determined by the Engineer.

2. For borrow materials; perform tests at frequency specified in Section 02320, Borrow Materials.

B. Compaction test results (i.e. ASTM D6938 or ASTM D1556) at a frequency of one test for every 100 cubic yards of material backfilled or at a minimum of one test per lift. The Engineer will determine the locations and lifts to be tested.

1. Additional compaction testing may be required when there is evidence of a change in the quality of moisture control or the effectiveness of compaction.
2. If all compaction test results within the initial 25% of the total anticipated number of tests indicate compacted field densities equal to or greater than the project requirements, the Engineer may reduce frequency of compaction testing. In no case will the frequency be reduced to less than one test for every 500 cubic yards of material backfilled.

3. The Contractor is cautioned that compaction testing by nuclear methods may not be effective where trenches are so narrow that trench walls impact the attenuation of the gamma radiation, when adjacent to concrete that impacts the accuracy of determining moisture content, or where oversize particles (i.e. large cobbles or coarse gravels) are present. In these cases, other field density testing methods may be required.

C. Dewatering plan for the excavation locations.

1.5 QUALITY ASSURANCE

A. The following test procedures will be performed by the Owner’s inspection agency. Results will be submitted to the Engineer for review.

1. Modified Proctor Test (ASTM D1557) results and soil classification (ASTM D2487) for all proposed backfill materials at the frequency specified below:
   a. For suitable soil materials removed during excavation, perform one test for every 1,000 cubic yards of similar soil type. Similarity of soil types will be as determined by the Engineer.
   b. For borrow materials; perform tests at frequency specified in Section 02320 - Borrow Materials.

2. Compaction test results (i.e. ASTM D6938 or ASTM D1556) at a frequency of one test for every 100 cubic yards of material backfilled. The Engineer will determine the locations and lifts to be tested.
   a. The Engineer may specify additional compaction testing when there is evidence of a change in the quality of moisture control or the effectiveness of compaction.
   b. If all compaction test results within the initial 25% of the total anticipated number of tests indicate compacted field densities equal to or greater than 95% of maximum dry density at optimum moisture content, the Engineer may reduce frequency of compaction testing. In no case will the frequency be reduced to less than one test for every 500 cubic yards of material backfilled.
   c. The Contractor is cautioned that compaction testing by nuclear methods may not be effective where excavation sidewalls impact the attenuation of the gamma radiation or where oversize particles (i.e. large cobbles or coarse gravels) are present. In these cases, other field density testing methods may be required.
1.6 PROJECT CONDITIONS

A. Notify Dig Safe and obtain Dig Safe identification numbers.
B. Notify utility owners in reasonable advance of the work and request the utility owner to stake out on the ground surface the underground facilities and structures. Notify the Engineer in writing of any refusal or failure to stake out such underground utilities after reasonable notice.
C. In accordance with 520 CMR 14.00, no person shall, except in an emergency, make an excavation in any public way, public property, or privately owned land until a permit is obtained from the appropriate designated permitting authority.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

A. Rock and fill material is subject to the approval of the Engineer and may be either material removed from excavations or borrow from off site. Fill material, whether from the excavations or from borrow, shall be of such nature that after it has been placed and properly compacted, it will make a dense, stable fill.
B. Satisfactory fill materials shall include materials classified by ASTM D 2487 as GW, GP, GM, GP-GM, GW-GM, GC, GP-GC, SW, and SP.
C. Satisfactory fill materials shall not contain trash, refuse, vegetation, masses of roots, individual roots more than 18 inches long or more than 1/2 inch in diameter, or stones over 6 inches in diameter. Unless otherwise stated in the Contract Documents, organic matter shall not exceed minor quantities and shall be well distributed.
D. Satisfactory fill materials shall not contain frozen materials nor shall backfill be placed on frozen material.
E. Excavated surface and/or pavement materials such as gravel or trap rock that are salvaged may be used as a sub-grade material, if processed to the required gradation and compacted to the required degree of compaction. In no case shall salvaged materials be substituted for the required gravel base.

2.2 GEOTEXTILE

A. Geotextile shall be a black non-woven geotextile having a minimum weight of 16 oz per sq. yard (ASTM D5261), such as PROPEX GEOTEX 1601 or equal meeting the following GAI-LAP MARV at a 97% confidence level:

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>UNITS</th>
<th>ACCEPTABLE VALUES</th>
<th>TEST METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAB STRENGTH</td>
<td>LBS</td>
<td>380</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>ELONGATION</td>
<td>%</td>
<td>50%</td>
<td>ASTM D 4632</td>
</tr>
</tbody>
</table>

Q0044-4/12/31/2019 02315-4 Excavation, Backfill, Compaction, and Dewatering
B. Geotextile shall be a black non-woven geotextile having a minimum weight of 8 oz per sq. yard (ASTM D5261), such as PROPEX GEOTEX 801 or equal meeting the following GAI-LAP MARV at a 97% confidence level:

### MINIMUM PHYSICAL REQUIREMENTS FOR BACKFILL GEOTEXTILE

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>UNITS</th>
<th>ACCEPTABLE VALUES</th>
<th>TEST METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAB STRENGTH</td>
<td>LBS</td>
<td>200</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>ELONGATION</td>
<td>%</td>
<td>50%</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>SEAM STRENGTH</td>
<td>LBS</td>
<td>380</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>CBR PUNCTURE</td>
<td>LBS</td>
<td>528</td>
<td>ASTM D 6241</td>
</tr>
<tr>
<td>TRAPEZOIDAL TEAR</td>
<td>LBS</td>
<td>80</td>
<td>ASTM D 4533</td>
</tr>
<tr>
<td>APPARENT OPENING SIZE</td>
<td>U.S. SIEVE</td>
<td>80</td>
<td>ASTM D 4751</td>
</tr>
<tr>
<td>PERMITTIVITY</td>
<td>GAL/MIN/SF</td>
<td>110</td>
<td>ASTM D 4491</td>
</tr>
<tr>
<td>UV RESISTANCE</td>
<td>%</td>
<td>70%</td>
<td>ASTM D 4355</td>
</tr>
</tbody>
</table>

2.3 DEWATERING MATERIALS

A. Provide haybales and silt fence in accordance with Section 01570.

PART 3 EXECUTION

3.1 PREPARATION

A. Public Safety and Convenience

1. Adhere to the requirements of 520 CMR 14.00 for all excavation work.
2. Take precautions for preventing injuries to persons or damage to property in or about the Work.

3. Provide safe access for the Owner’s and Engineer’s representatives at site during construction.

4. Do not obstruct site drainage, natural watercourses or other provisions made for drainage.

3.2 CONSTRUCTION

A. Earth Retention Systems

1. Provide Earth Retention Systems necessary for safety of personnel and protection of the Work, adjacent work, utilities, and structures.


3. Systems shall be constructed using interlocking corner pieces at the four corners. Running sheet piles by at the corners, in lieu of fabricated corner pieces, will not be allowed.

4. Drive sheeting ahead of and below the advancing excavation to avoid loss of materials from below and from in front of the sheeting.

5. Sheet ing is to be driven to at least the depth specified by the designer of the earth retention system, but no less than 2 feet below the bottom of the Excavation.

6. Remove sheeting, unless designated to be left in place, in a manner that will not endanger the construction or other structures. Backfill and properly compact all voids left or caused by the withdrawal of sheeting.

7. Remove earth retention systems, which have been designated by the Engineer to be left in place, to a depth of 3 feet below the established grade.

B. Excavation

1. Perform excavation to the lines and grades indicated on the Drawings. Backfill unauthorized over-excavation in accordance with the provisions of this Section, at no additional cost to the Owner.

2. Excavate with equipment selected to minimize damage to existing utilities or other facilities. Hand excavate as necessary to locate utilities or avoid damage.

3. Sawcut the existing pavement in the vicinity of the excavation prior to the start of excavation in paved areas, so as to prevent damage to the paving outside the requirements of construction.

4. During excavation, material satisfactory for backfill shall be stockpiled in an orderly manner at a distance from the sides of the excavation equal to at least one half the depth of the excavation, but in no case closer than 2 feet.

   a. Excavated material not required or not suitable for backfill shall be removed from the site.
b. Perform grading to prevent surface water from flowing into the excavation.

c. Pile excavated material in a manner that will endanger neither the safety of personnel in the excavation nor the Work itself. Avoid obstructing sidewalks and driveways.

d. Hydrants under pressure, valve pit covers, valve boxes, manholes, curb stop boxes, fire and police call boxes, or other utility controls shall be left unobstructed and accessible until the Work is completed.

5. If satisfactory materials are not encountered at the design subgrade level, excavate unsatisfactory materials to the depth directed by the Engineer and properly dispose of the material. Backfill the resulting extra depth of excavation with satisfactory fill materials and compact in accordance with the provisions of this Section.

C. Placing Geotextile

1. Place geotextile as indicated and over soil subgrades, extending 12 inch minimum beyond joints/openings/edges. Spread and compact the material promptly after it has been deposited. When, in the Engineer’s judgment, equipment is inadequate to spread and compact the material properly, reduce the rate of placing of the fill or employ additional equipment.

2. Geotextile seams shall consist of 24 inch overlaps or full strength continuous sewn seams. Provide adequate ballast on generally horizontal geotextile and proper fastening on vertical geotextile to secure it in the intended locations until the stone work is complete. Provide crushed stone bedding over geotextile (minimum necessary) if sharp pointed or sharp edge armor or underlayer stone is being placed with a sharp edge/point toward the geotextile.

3. Once geotextile has been place, backfill the seawall excavation with as shown on the Drawings.

D. Backfill and Compaction

1. Unless otherwise specified or indicated on the Drawings, use satisfactory material removed during excavation for backfilling trenches. The Engineer may require stockpiling, drying, blending and reuse of materials from sources on the Project.

2. Spread and compact the material promptly after it has been deposited. When, in the Engineer’s judgment, equipment is inadequate to spread and compact the material properly, reduce the rate of placing of the fill or employ additional equipment.

3. When excavated material is specified for backfill and there is an insufficient amount of this material at a particular location on the Project due to rejection of a portion thereof, consideration will be given to the use of excess material from one portion of the Project to make up the deficiency existing on other portions of the Project.
a. Use borrow material if there is no excess of excavated material available at other portions of the Project.

4. Backfilling and compaction methods on land side of seawall shall attain 95% of maximum dry density at optimum moisture content as determined in accordance with ASTM D1557.

5. Do not place stone or rock fragment larger than six inches in greatest dimension in the backfill.

6. Maximum loose lift height for backfilling existing or borrow material shall be 12 inches, unless satisfactory compaction is demonstrated otherwise to the Engineer through field-testing. In no case shall loose lift height for backfilling exceed 3 feet.

E. Dewatering

1. Provide, operate, and maintain adequate pumping, diversion and drainage facilities in accordance with the approved dewatering plan to maintain the excavated area sufficiently dry from groundwater and/or surface runoff so as not to adversely affect construction procedures nor cause excessive disturbance of underlying natural ground. Locate dewatering system components so that they do not interfere with construction under this or other contracts.

2. Take actions necessary to ensure that dewatering discharges comply with permits applicable to the Project. Dispose of water from the trenches and excavations in such a manner as to avoid public nuisance, injury to public health or the environment, damage to public or private property, or damage to the work completed or in progress.

3. Repair any damage resulting from the failure of the dewatering operations and any damage resulting from the failure to maintain all the areas of work in a suitable dry condition, at no additional cost to the Owner.

4. Take precautions to protect new work from flooding during storms or from other causes. Control the grading in the areas surrounding all excavations so that the surface of the ground will be properly sloped to prevent water from running into the excavated area. Where required, provide temporary ditches for drainage. Upon completion of the work, all areas shall be restored to original condition.

5. Brace or otherwise protect pipelines and structures not stable against uplift during construction.

6. Do not excavate until the dewatering system is operational and the excavation may proceed without disturbance to the final subgrade.

7. Unless otherwise specified, continue dewatering uninterrupted installation has been completed such that they will not float or be otherwise damaged by an increase in groundwater elevation.

8. If open pumping from sumps and ditches results in “boils”, loss of fines, or softening of the ground, submit a modified dewatering plan to the Engineer.
within 48 hours. Implement the approved modified plan and repair any damage incurred at no additional cost to the Owner.

9. Where subgrade materials are unable to meet the subgrade density requirements due to improper dewatering techniques, remove and replace the materials in accordance with Section 02320 at no additional cost to the Owner.

10. Notify the Engineer immediately if any settlement or movement is detected of survey points adjacent to excavations being dewatered. If settlement is deemed by the Engineer to be related to the dewatering, submit a modified dewatering plan to the Engineer within 24 hours. Implement the approved modified plan and repair any damage incurred to the adjacent structure at no additional cost to the Owner.

11. Dewatering discharge:
   a. Install sand and gravel, or crushed stone, filters in conjunction with sumps, well points, and/or deep wells to prevent the migration of fines from the existing soil during the dewatering operation.
   b. Do not discharge water into any sanitary sewer system.
   c. Provide separately controllable pumping lines.
   d. The Engineer reserves the right to sample discharge water at any time.

12. Removal
   a. Do not remove dewatering system without written approval from the Engineer.
   b. Backfill and compact sumps or ditches with screened gravel or crushed rock in accordance with Section 02320.

END OF SECTION
SECTION 02320
BORROW MATERIALS

PART 1 GENERAL
1.1 SUMMARY
A. Section Includes
   1. Standard Gravel Borrow
   2. Processed Gravel Borrow for Pavement Sub-base
   3. Sand Borrow
   4. Stone Borrow
B. Related Sections
   1. Section 02210
   2. Section 02315
   3. Section 02740
   4. Section 04400

1.2 REFERENCES
B. ASTM C117 - Standard Test Method for Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing
C. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
D. ASTM D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb./ft3)
E. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head)
F. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
G. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.3 SUBMITTALS
A. Representative Samples of borrow materials taken from the source. Tag, label, and package the Samples as requested by Engineer. Provide access to the borrow site for field evaluation and inspection.

B. Provide sieve analysis (ASTM C136) and permeability analysis (ASTM D2434) from certified soils testing laboratory for all borrow materials. Take and test a sample, at no additional cost to the Owner for each 1,500 c.y. of borrow material placed.

C. Provide modified proctor analysis (ASTM D1557) from certified soils testing laboratory for all borrow materials.

D. The Engineer reserves the right to require more frequent testing than that which is specified above should the borrow characteristics change.

1.4 QUALITY ASSURANCE
A. No borrow shall be placed prior to the approval of Samples by the Engineer.

1.5 PROJECT/SITE CONDITIONS
A. Existing Conditions

1. Comply with any environmental requirements and restrictions.

2. Keep all public and private roadway surfaces clean during hauling operations and promptly and thoroughly remove any borrow or other debris that may be brought upon the surface before it becomes compacted by traffic. Frequently clean and keep clean the wheels of all vehicles used for hauling to avoid bringing any dirt upon the paved surfaces.

PART 2 PRODUCTS

2.1 STANDARD GRAVEL BORROW
A. Gravel borrow shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings, and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50.

Gradation requirements for gravel shall be determined by AASHTO-T11 and T27 and shall conform to the following:

<table>
<thead>
<tr>
<th>Sieve</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ inch</td>
<td>50 – 85</td>
</tr>
<tr>
<td>No. 4</td>
<td>40 – 75</td>
</tr>
<tr>
<td>No. 50</td>
<td>8 – 28</td>
</tr>
<tr>
<td>No. 200</td>
<td>0 - 10</td>
</tr>
</tbody>
</table>

Maximum size of stone in gravel shall be 2 inches.

2.2 PROCESSED GRAVEL BORROW FOR PAVEMENT SUBBASE
A. The compacted processed gravel borrow to be used for sidewalk base or other area where a firm, free-draining subgrade is needed shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50.

B. Gradation requirements shall conform to the following:

<table>
<thead>
<tr>
<th>Sieve</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3&quot;</td>
<td>100</td>
</tr>
<tr>
<td>1 ½&quot;</td>
<td>70 – 100</td>
</tr>
<tr>
<td>¾&quot;</td>
<td>50 – 85</td>
</tr>
<tr>
<td>No. 4</td>
<td>30 – 60</td>
</tr>
<tr>
<td>No. 200</td>
<td>0 - 10</td>
</tr>
</tbody>
</table>

C. Stockpile the processed materials in such a manner to minimize segregation of particle sizes. All processed gravel shall come from approved stockpiles.

2.3 SAND BORROW

A. Sand borrow shall be used to fill voids under slab. Sand borrow material shall be supplied from an off-site borrow area approved by the Engineer. Testing of the off-site sand borrow shall be at the Contractor’s expense.

B. Sand borrow shall consist of clean, inert, hard, durable grains of quartz or other hard, durable, rock, free from loam or clay, surface coatings and deleterious materials. The allowable amount of material passing a No. 200 sieve as determined by ASTM-C117 shall not exceed 10% by weight.

C. Material shall consist of a clean, non-plastic, granular material conforming to the requirements of a SW, SP or SM under the Unified Soil Classification System (USCS) (ASTM D2487).

D. The material shall be used to fill voids in rip rap under concrete slabs and shall have the characteristics that when placed and compacted, the soil particles will bind together so as to form a flat, smooth, solid, stable surface capable of supporting concrete slabs. The borrow material shall not contain fines to the extent that the surface layer becomes “greasy” when wet.

E. The material shall not contain stones larger than 3/8 inch in diameter.

F. Material consisting of frozen clogs, ice, and snow will be rejected.

G. All sand borrow material to be used shall be subject to approval by Engineer, and Engineer reserves the right to reject any borrow material from the job that does not meet the above requirements.

2.4 STONE BORROW

A. Crushed Stone Borrow

1. Crushed stone borrow shall consist of one of the following materials:
a. Durable crushed rock consisting of the angular fragments obtained by breaking and crushing solid or shattered natural rock, and free from a detrimental quantity of thin, flat, elongated or other objectionable pieces. A detrimental quantity will be considered as any amount in excess of 15% of the total weight. Thin stones shall be considered to be such stones whose average width exceeds 4 times their average thickness. Elongated stones shall be considered to be stones whose average length exceeds 4 times their average width.

b. Durable crushed gravel stone obtained by artificial crushing of gravel boulders or fieldstone with a minimum diameter before crushing of 8 inches.

2. The crushed stone shall be free from clay, loam or deleterious material and not more than 1.0% of satisfactory material passing a No. 200 sieve will be allowed to adhere to the crushed stone.

3. The crushed stone shall have a maximum percentage of wear as determined by the Los Angeles Abrasion Test (AASHTO-T-96) as follows:
   a. For Class 1 Bit. Conc. 30%**
   b. For Cement Concrete Aggregate 45%***
   c. Crushed Stone for Subbase 45%

   **Crushed stone for this use shall consist of crushed or shattered natural rock only. Crushed gravel stone will not be permitted.

   ***Except for 5000 psi or greater cement concrete and prestressed concrete which shall be 30%.

4. The crushed stone shall conform to the grading requirements shown in the following grading Table.

<table>
<thead>
<tr>
<th>1 ½” Crushed Stone</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>100</td>
</tr>
<tr>
<td>1 ½”</td>
<td>95</td>
</tr>
<tr>
<td>1”</td>
<td>35</td>
</tr>
<tr>
<td>¾”</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>¾” Crushed Stone</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1”</td>
<td>100</td>
</tr>
<tr>
<td>¾”</td>
<td>90</td>
</tr>
<tr>
<td>½”</td>
<td>10</td>
</tr>
<tr>
<td>3/8”</td>
<td>0</td>
</tr>
<tr>
<td>No. 4</td>
<td>0</td>
</tr>
</tbody>
</table>
5. Stone gradations shall vary depending on field use and shall be determined by Engineer.

6. Stone shall be used as bedding material and as stabilizing layer for walking surfaces and saturated areas at or below the water table

PART 3 EXECUTION

3.1 INSTALLATION

A. Prior to the placement of borrow material, site preparation shall be completed as required by the Contract Documents, and approved by the Engineer.

B. Ensure that all materials are properly stockpiled on site to prevent contamination by other materials.

C. Place borrow material over the entire area in uniform lifts and compact in accordance with Section 02315.

D. Utilize on-site soils prior to using off-site borrow provided on-site soils meet the requirements of the specifications.

E. Utilize gravel borrow in all locations where a surface treatment has not been specified but requires a firm finish surface.

F. Processed gravel for pavement subbase is intended to provide a stable foundation for driveways, sidewalk and roadway repair where a gravel base has been specified.

G. Borrow shall be used as a replacement for unsuitable materials where poor soil conditions are encountered during the progress of the work, where approved by the Engineer. Borrow type will be determined by the Engineer. Borrow material used as a replacement for unsuitable soil is not intended to be an aid to dewatering.

H. Place all borrow to keep it free of other materials and to prevent segregation.

END OF SECTION
SECTION 02398
TIMBERWORK

PART 1- GENERAL

1.1 REFERENCES

A. Refer to other divisions of these specifications, other sections in this division, and drawings for related work, which may affect the work of this section.

B. The Contract Drawings indicate and show limits of construction for this project. These specifications specify material and work requirements for this project. Both are complementary to each other, and both shall be followed to properly complete the work.

1.2 DESCRIPTION OF WORK

A. Work Included: The Contractor shall provide the labor, materials and equipment necessary to complete the Work of this Section, including but not limited to the following:
   1. Timber pier construction
   2. Incidental timberwork and steel work
   3. Timber boat ramp rails

1.3 SUBMITTALS

A. Certificates: Certificates of conformance of timber, including grade certificates shall be submitted to the Engineer.

B. Manufacturer’s Catalog Data including installation instructions if appropriate
   1. FRP angles
   2. Screws
   3. Timber bolts
   4. Membrane
   5. Adhesive
   6. Copper Napthenate
   7. Connections details shop drawings
   8. Shims

C. References

   1. Submit 2 reference letters from prior governmental owners indicating successful completion of marine timberwork projects of similar nature and complexity, which did require tidal work and good fit and finish.

1.4 QUALITY ASSURANCE

A. Treated timber shall be grade stamped and tagged with treatment information. The supplier’s certificate of specification conformance shall be submitted and additional producer data and material testing may be required at Contractor cost if the material delivered does not have adequate certificates or does not appear to meet the specifications.
1.5 REFERENCE STANDARDS

A. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)
   AITC 117 Standard Specifications for Structural Glued Laminated Timber of Softwood Species, Design and Manufacturing Requirements

B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
   ASTM A 36 Carbon Structural Steel
   ASTM A 123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
   ASTM A 153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware
   ASTM A 307 Carbon Steel Bolts and Studs. 60,000 psi Tensile Strength
   ASTM D 638 Standard Test Method for Tensile Properties of Plastics
   ASTM D 2344 Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates

C. AMERICAN WOOD-PRESERVERS’ ASSOCIATION (AWPA)
   AWPA M4 Care of Preservative-Treated Wood Products
   AWPA P5 Standard for Waterborne Preservatives
   AWPA U1 Use Category System: User Specification for Treated Wood

PART 2 - PRODUCTS

2.1 MATERIALS

A. Timber
   
   1. All timber (except Ipe) shall be preservative treated Southern Yellow Pine (SYP) unless otherwise specified.
   
   2. All timber below deck level is for salt water marine use in tidal and splash zones shall be pressure treated with chromated copper arsenate (CCA) conforming to AWPA Standard P5. The treatment shall be by the full cell process in accordance with AWPA Standards. All CCA timber shall be treated to 2.5 pounds per cubic foot minimum retention, except above deck timbers which shall be 0.6 pcf ACQ or Ipe.

   a. Stringers, Posts, Rangers, Fascia: SYP No. 1, S4S
   b. Pile Caps: SYP No. 2, S4S
   c. Decking: Ipe
   d. Railing Top Rail: Ipe
Decking shall be nominal 5/4x6 Ipe, toe board 2x4 Ipe, FEQ grade with first quality one face and better, S4S, E4E 1/8” radius. All lumber is to be supplied with the ends sealed with “Anchorseal”, Paraffin or approved wax end sealer. All lumber must be resealed after cutting to reduce end splits. The exposed face and edge corners shall have good appearance and physical characteristics with clear all heart wood, no unsound defects, no warping, no twisting, no sap wood, no checks and no milling defects. Top rails (2x6) shall also be Ipe sized, shaped and fastened in accordance with the drawings and specifications.

<table>
<thead>
<tr>
<th>Appearance Characteristics</th>
<th>Physical Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Color variation</td>
<td>1) Bow</td>
</tr>
<tr>
<td>2) Mixed grain</td>
<td>2) Crook</td>
</tr>
<tr>
<td>3) Drying checks</td>
<td>3) Cup</td>
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<tr>
<td>4) Reverse/Roey Grain</td>
<td>4) Twist</td>
</tr>
<tr>
<td>5) Birdseye</td>
<td>5) Raised grain</td>
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<td>6) Pin knots</td>
<td></td>
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<td>7) Maculas (Birds Eye)</td>
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<td>8) Water stain</td>
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<td>9) Discoloration</td>
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<tr>
<td>10) Sticker marks</td>
<td></td>
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<tr>
<td>11) Molder knife marks</td>
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</table>

<table>
<thead>
<tr>
<th>Milling Defects</th>
<th>Sound Defects</th>
<th>Unsound Defects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Skip</td>
<td>1) Pin holes</td>
<td>1) Large borer holes</td>
</tr>
<tr>
<td>2) Torn grain</td>
<td>2) Sound knots</td>
<td>2) Splits</td>
</tr>
<tr>
<td>3) Chipped grain</td>
<td></td>
<td>3) Unsound knots</td>
</tr>
<tr>
<td>4) Non compliant profiling</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ipe must be verified of legal origin and compliance as being, legally harvested, transported, exported, imported and documented in compliance with all country of origin, international and domestic laws, rules, regulations and treaties pertaining to the fair and legal trade of forest products including the U.S. Department of Agriculture Lacey Act, ITTA (International Tropical Timber Trade Agreement).

Lumber supplied shall meet or exceed International Building Code/International Residential Code requirements for “Naturally Durable Wood” being durability rated by the U.S Forest Products Laboratory or the Forest Research Laboratory Oregon State University as Class 2 or better.

Ipe (Tabebuia spp, Lapacho Group) – Class 1

B. Galvanized Hardware

All timber hardware, including bolts, nuts, washers, straps, plates, spikes and drift pins shall be hot-dip galvanized steel, or stainless steel, conforming to the respective ASTM Standards and other requirements specified below:

1. Bolts, Threaded Rod and Nuts: matching, to ASTM A 307 or A 193 B7 or F 1554.
2. Washers, straps, plates and miscellaneous items shall be A 36, A 572 or A 992 steel. Round washers shall be used where countersunk. Plates and clip angles shall be fully fabricated, including welding, drilling, punching and bending, before hot dip galvanizing.
3. Galvanizing shall be in accordance with ASTM A 123, A 153, or A 767 as applicable.
4. Structural screws: GRK RSS Rugged Structural Screw, size as indicated, with corrosion resistant coating rated for pressure treated timber use, or approved equal.

C. Miscellaneous

1. Field touch up coating (except Ipe) shall be copper napthenate (1% min. metallic copper).
2. Membrane shall be a rubberized asphalt self-adhering membrane such as WR Grace, Ice & Water Shield or approved equal.
3. Adhesive shall be PL400 by Loctite, or approved equal.
4. FRP shapes:
   Fiberglass Reinforced Plastic (FRP) manufacturer is required to have a minimum of 10 years experience in manufacturing FRP products. Fiberglass reinforcement is to be a combination of continuous roving, continuous strand mat, bi-directional roving mat and surfacing veil in sufficient quantities as required by the application and/or physical properties. Make all finished surfaces of FRP items smooth, resin-rich, free of voids and dry spots, cracks, crazes or unreinforced areas. Provide system which is completely covered with resin protection against exposure due to wear, weathering, and ultraviolet light damage. All FRP products shall be manufactured using a pultruded process utilizing polyester or vinyl ester resin with ultraviolet (UV) inhibitor additives. A synthetic surface veil fabric shall encase the glass reinforcement.

Fiberglass Pultruded Material Properties
Minimum Ultimate Coupon Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>ASTM</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Stress, LW</td>
<td>D 638</td>
<td>30,000 psi</td>
</tr>
<tr>
<td>Tensile Stress, CW</td>
<td>D 638</td>
<td>7,000 psi</td>
</tr>
<tr>
<td>Compressive Stress, LW</td>
<td>D 695</td>
<td>30,000 psi</td>
</tr>
<tr>
<td>Compressive Stress, CW</td>
<td>D 695</td>
<td>15,000 psi</td>
</tr>
<tr>
<td>Short Beam Shear, LW</td>
<td>D 2344</td>
<td>4,500 psi</td>
</tr>
<tr>
<td>LW = Lengthwise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CW = Crosswise</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PART 3 - EXECUTION

A. Timber shall be carefully handled without sudden dropping, breaking of outer fibers, bruising or penetrating the surface with tools. It shall be handled with rope slings. Cant hooks, peaveys, pikes or hooks shall not be used. If visible, install timber with the best side showing.

B. Timber shall be closely fitted, accurately set to required lines, pitch and levels, and rigidly secured in place, as shown on the drawings. Cut and frame lumber and timber so that joints will fit over contact surface. Secure timbers and piles in alignment. Open joints are unacceptable. If pile head, pile cap and stinger bearing surfaces are not fully bearing, these bearing surfaces shall be shimmed with plastic flat and tapered shims to create full bearing – secure all shims.

The following requirements shall be met:
1. Holes for through bolts/threaded rod shall be 1/32” over actual bolt diameter, and no more than 1/16” larger than bolt diameter and correctly aligned. The pilot hole for the threaded portion of the lag bolts shall have a diameter of 60% to 75% of the lag diameter to a depth corresponding to the installed thread depths. Prior to production pilot hole drilling, provide a sample lag installation with selected shank hole and thread pilot hole size into a sample piece of matching SYP timber, perpendicular to grain, with a standard washer, to demonstrate torque development sufficient to crush into timber under washer without damage to lag or pullout from pilot hole. Lags shall be lubricated with Vaseline or similar lubricant to reduce installation friction.

2. Timber dock washers shall be placed under both bolt heads (except timber bolt heads) and nuts.

3. Where damaged or cut for fitting, or during handling, treated timber shall be given two brush coats (at least 15 minutes apart) of copper napthenate solution (min. 1% metallic copper) at the time of cutoff or drilling; before the cut surface is submerged by the tide.

4. Exposed edges of timber pile cap ends (excluding splices) shall be finished with a 1” chamfer all around unless otherwise noted.

5. Built-up timbers, such as pile caps and rangers shall be adhesive bonded using PL400 by Loctite, or approved equal, in dry conditions and with dry lumber, using bolts, assembly screws and/or clamps to pull the timbers together.

6. Stringers: Place crown up and, if possible, the better edge of deck stringers down. Tops of stringers shall not vary from a plane more than will permit bearing of the decking on all stringers.

7. Membrane shall be used to cover piles, pile caps, stingers, rangers, fascia and the seawall seat in a continuous water tight manner. Where uniform bearing is necessary, such as on stringer and fascia tops, tight butt joint pieces of membrane, rather than overlap. The membrane shall hang over the timber edges 3/4” in a straight and uniform manner.

8. Decking shall be installed in accordance with the supplier’s recommendations, full length. All decking/stringer intersections, shall have 2 equally spaced screws installed, with plugs. Ipe decking shall be installed in accordance with the suppliers recommendations, including plank end wax treatments, screw end/edge and countersink distances.

9. FRP: all field cut edges and abrasions shall be sealed with a catalyzed resin compatible with the original resin as recommended by the manufacturer.

- End of Section -
SECTION 02456

STEEL PIPE PILES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes
   1. Steel Pipe Piles

1.2 REFERENCES

A. AMERICAN WELDING SOCIETY (AWS)
B. AWS D1.1 Structural Welding Code – Steel
C. ASTM INTERNATIONAL (ASTM)
D. ASTM A 27 Standard Specification for Steel Castings, Carbon, for General Application
E. ASTM A53, Specification for Steel Pipe
F. ASTM A 252 Specification for Welded and Seamless Steel Pipe Piles.
G. ASTM A 572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel

1.3 BASIS FOR CAPACITY

A. Pier Piles
   1. \( R_u = 1.75 \sqrt{E} \log(10N) - 100 \)
      \( R_u \) = ultimate pile resistance (kips)
      \( E \) = rated hammer energy (ft-lb) based on ram stroke observed
      \( N \) = number hammer blows at final penetration (blows per inch)
   2. Allowable pile capacity shall be at least 10 tons. If ultimate capacity is determined by this equation alone, the ultimate capacity shall be at least 35 tons; if the contractor also performs a satisfactory WEAP analysis, the ultimate capacity can be reduced to 27.5 tons minimum; Select and operate the pile hammer such that the acceptance blow criterion is between 5 and 20 blows per inch with a preferred target of 8 to 12 blows per inch. Minimum embedment depth of 24’ below sea bed.
   3. Include all costs incidental to providing steel pipe piles in the lump sum contract price bid, including furnishing and driving piles, mobilization, cutting off piles at cutoff elevation, splices, retapping of piles to confirm pile capacity, redriving of heaved piles to the required capacity, replacement or additional piles as need to provide the specified capacities/spacings, and providing driving records.

B. Guide Piles
   1. Piles shall be field tested against each other for a lateral capacity min of 1,500 lbs at EL 16’ NAVD88.
1.4 SUBMITTALS

A. Pile steel certificate, including showing 50 ksi yield or higher
B. Pile steel points, including attachment details
C. Submit descriptions of pile driving equipment at least 5 days prior to commencement of work.
D. Pile splices details if proposed or required
E. Pile driving records
   1. Submit complete and accurate job pile driving records as specified in paragraph entitled "Records" of this section, within 30 calendar days after completion of driving.

PART 2 PRODUCTS

2.1 MATERIALS

A. Pipe Piles
   1. 12.75" OD, ½" wall, ASTM A252 Grade 3 Mod (50 ksi yield minimum); A 572, Grade 50; A 709, Grade 50 (50 ksi yield minimum); API 5L (50 ksi yield minimum). Welding to AWS D1.1. Spiral welded pile is not acceptable.

B. Pipe Splices
   1. Full strength splices, E70XX low hydrogen electrodes. ASTM A 572, Grade 50. Submit proposed method and procedure, including alignment procedure, welder name and qualifications.

C. Pipe Points/ Pile Shoes
   1. ASTM A 27; A 148 for cast steel points. ASTM A 36, ASTM A 572, Grade 50 for pile tip reinforcements. Pile points suitable for end bearing on hard bedrock must be provided on all piles. Provide conical cast steel points (bullet points not acceptable) and top cover plates on all piles.

D. Guide Pile Sleeves
   1. Guide piles shall be sleeved with high polyethylene (HDPE) pipes. Sleeves shall conform to ASTM F714 and formulated for ultraviolet stabilization.

PART 3 EXECUTION

3.1 EQUIPMENT

A. General
   1. Select the proposed pile driving equipment, including hammers and other required items, and submit complete descriptions of the proposed equipment in accordance with paragraph “Submittals.” Final approval of the proposed equipment is subject to the satisfactory completion and approval of pile tests. Changes in the selected pile driving equipment will not be allowed after the
equipment has been approved except as specified and directed. No additional contract time will be allowed for Contractor proposed changes in the equipment.

B. Pile Driving Hammers
1. Provide impact or vibratory type pile driving hammers.

C. Impact Hammers
1. Provide impact pile hammers of the single-acting, double-acting, or differential-acting type. The size or capacity of hammers must be as recommended by the hammer manufacturer for the total pile weight and the character of the soil formation to be penetrated. Hammers must be capable of, and so demonstrated during the development of refusal criteria, hard driving in excess of 20 blows per inch. Obtain driving energy by use of a heavy ram and a short stroke with low impact velocity, rather than a light ram and a long stroke with high impact velocity. The ram or drop hammer weight shall be at least 1300 pounds. Position a pile cap or drive cap between the pile and hammer. Place hammer cushion or cap block between ram and the pile cap or drive cap. Hammer cushion or cap block must have consistent elastic properties, minimize energy absorption, and transmit hammer energy uniformly and consistently during the entire driving period. In accordance with paragraph "Submittals," submit the following information for each impact hammer proposed:
   a. Make and model
   b. Ram weight (pounds).
   c. Anvil weight (pounds).
   d. Rated stroke (inches).
   e. Rated energy range (foot-pounds).
   f. Rated speed (blows per minute).

D. Vibratory Hammers
1. The use of vibratory hammers is permitted for initial pile installation, however use of an impact hammer is required to establish load bearing capacity. For each vibratory hammer proposed:
   a. Make and model
   b. Eccentric moment (inch-pounds).
   c. Dynamic force (tons).
   d. Steady state frequency or frequency range (cycles per minute).
   e. Vibrating weight (pounds).
   f. Amplitude (inches).
   g. Maximum pull capacity (tons)
   h. Non-vibrating weight (pounds).
E. Pile Driving Leads
   1. Support and guide hammers with suspended leads, fixed extended leads or fixed underhung leads. Operate vibratory hammers free hanging without leads.

3.2 INSTALLATION

A. General
   1. Inspect piles when delivered and when in the leads immediately before driving. Cut piles at cutoff grade by an approved method. Where cutoff is below existing surface, ground or mudline elevation, complete excavation, sheeting, before driving pile to cutoff elevation. Drive vertical pile plumb.

B. Pile Driving Records
   1. Use the preprinted forms attached at the end of this section, or equivalent, for recording pile driving data.
   2. Compile and submit accurate records of the pile driving operations on the approved form in accordance with paragraph "Submittals." Include in driving records for each pile date driven, pile identification number, cross section shape and pile dimensions, location, deviations from design location, original length, ground elevation, top elevation, tip elevation, batter alignment, description of hammer used, number of blows required for each foot of penetration throughout the entire length of the pile and for each inch of penetration in the last foot of penetration, total driving time in minutes and seconds, and any other pertinent information as required or requested such as unusual driving conditions, interruptions or delays during driving, damage to pile resulting from driving, heave in adjacent piles, redriving, weaving, obstructions, predrilling, and depth and description of voids formed adjacent to the pile.
   3. Additional data required to be recorded for impact hammers includes the rate of hammer operation, make, and size. Additional data required to be recorded for vibratory hammers includes hammer power pack description, make, size, horsepower applied to pile, and hammer operating frequency.

C. Pile Placement and Tolerances in Driving
   1. Develop and submit a pile placement plan which shows the installation sequence and the methods proposed for controlling the location and alignment of piles. Accurately place piles in the correct location and alignments, both laterally and longitudinally, and to the vertical or batter lines indicated. Establish a permanent base line to provide for inspection of pile placement by the Engineer during pile driving operations prior to driving job piles and maintain during the installation of the job piles.
   2. A final lateral deviation from the correct location at the cutoff elevation of not more than 6 inches will be permitted for vertical piles. Manipulation of piles will not be permitted. A variation of not more than +/- 0.25 per foot for vertical piles. A vertical deviation of not more than 1/2 inches from the correct cutoff elevations shown is permitted. Inspect piles for heave. Redrive heaved piles to capacity. Maintain the correct relative position of all piles by the use of
templates or by other approved means. Piles damaged or not located properly or exceeding the maximum limits for lateral and vertical deviation, or variation in alignment must be pulled and new piles redriven, or provide additional piles, at a location directed at no additional cost to the owner. The contractor shall have the equipment necessary (such as a vibratory hammer) on site to drive the piles correctly as indicated and to be able to pull piles for redriving as necessary to meet the requirements. Guide piles deviating from the straight alignment for the floating dock shall have shims on float wear blocks adjusted to correct floating dock to straight alignment.

D. Pile Driving

1. Notify the Engineer 2 days prior to the date pile driving is to begin. Pile hammers shall not induce a stress of greater than 90% of yield in the pipe pile. Drive piles with hammers of the same model and manufacturer, same energy and efficiency, and using the same driving system. Operate hammers at all times at the speed and under the conditions recommended by the manufacturer. Where heave is anticipated, the sequence of installation must be such that pile heave is minimized by starting pile driving at the center of the group and proceeding outward and by driving vertical piles where practicable. Prior to driving and with the pile head seated in the hammer, check each pile to ensure that it has been aligned correctly and that the orientation of the web about the centerline is as shown. Once pile driving has begun, keep conditions such as alignment and batter constant. A pile that can not be driven to the required depth because of an obstruction, as indicated by a sudden unexplained change in blow count and drifting, must be pulled and redriven or cut off and abandoned, whichever is directed. After piles are driven, cutoff square as required at the indicated cutoff elevation. Backfill any voids around piles or abandoned holes for pulled piles with sand or crushed stone/riprap and compact to the same density as the surrounding soil.

E. Splicing Piles

1. When approved, provide splices of the full penetration butt weld type. Use only one splice per length of pile. Construct splices to maintain the true alignment and position of the pile sections. Splices must develop the full strength of the pile in both bearing and bending. Non-destructive testing of pile splices by the Contractor will not be required unless visual inspection by the Engineer indicates significant anomalies.

F. Jetting

1. Jetting of piles is not to be permitted

G. Predrilling

1. Predrilling or spudding is permitted if obstruction are encountered. Drive pile the final 5 feet of penetration. Predrilling/spudding equipment and method must be approved by the Engineer prior to commencing predrilling/spudding operation.

H. Heaved Piles
1. When driving piles in conditions of relatively close spacing, perform observations to detect heave of adjacent piles. Backdrive heaved piles to original refusal blow count without additional cost to the Owner.

I. Pulled Piles

1. Pull and replace piles damaged or impaired for use during driving with new piles, or cut off and abandon and drive new piles as directed without additional cost to the Owner. The Engineer may require that any pile be pulled for inspection. Replace piles pulled as directed and found to be damaged with new piles at the Contractor’s expense.

J. Welding

1. AWS D1.1. Pile points shall be welded to the piles as recommended by the manufacturer, but no less than a continuous 5/16” fillet weld. Pile splices shall be correctly aligned and full penetration welded.

K. Guide Piles

1. HDPE sleeves shall be installed continuously from the seabed to a distance not more than 6” from the termination of the pile. Sleeves on guide piles supporting the gangway end shall terminate 3” below welded brackets. Sleeves to be installed to resisted floating and shall fit snug around the steel pile, adhesive bond or grout as necessary.

2. Pipes to be capped per the contract drawings and field coated to match the color of the HDPE sleeves.

END OF SECTION
PART 1  GENERAL

1.1  SUMMARY

A. Section Includes
   1. Bituminous concrete paving

B. Related Sections
   1. Section 02315
   2. Section 02320
   3. Section 02220

1.2  REFERENCES


C. ASTM D446 – Standard Specifications and Operating Instructions for Glass Capillary Kinematic Viscometers.


E. AASHTO M 226.

F. AASHTO T 96 – L.A. Abrasion Test.

G. AASHTO T 195 (Ross Count).

H. TAI - (The Asphalt Institute) - MS-3 Asphalt Plant Manual.


1.3  SUBMITTALS

A. Product information and mix design for each mix specified under this Section.

B. Product data sheets for all additives proposed in the mix design.

C. Certificate indicating the mixes specified meet or exceed the requirements specified herein.

D. Certificate indicating the mix plant conforms to, Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges".

1.4  QUALITY ASSURANCE
A. Perform Work in accordance with Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges".

B. Mixing Plant: Conform to Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges".

C. Obtain materials from same source throughout.

PART 2 PRODUCTS

2.1 MATERIALS

A. General

1. Bituminous materials shall conform to the requirements of these Specifications.

2. Bitumen delivered to a project or to a mix plant must be accompanied by a proper certificate signed by the producer’s authorized representative. Shipments of material not accompanied by a certificate will not be accepted for use in the work.

B. Bituminous Concrete Paving shall be Class I, Type I-1, as specified in Sections 460 and M3.11.0 of the above referenced Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges", 1988 edition, as amended.

PART 3 EXECUTION

3.1 PAVING – GENERAL

A. Install bituminous concrete pavement in accordance with Section 460 of the Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges", 1988 edition, as amended.

B. Place binder course as soon as possible after the gravel base has been prepared, shaped and compacted for Town streets and driveway/sidewalk repair.

C. Place and compact binder course by steel-wheeled rollers of sufficient weight to thoroughly compact the bituminous concrete.

D. Maintain pavement under this Contract during the guarantee period of one year and promptly (within 3 days of notice given by the Engineer) refill and repave areas which have settled or are otherwise unsatisfactory for traffic.

E. All pavement thicknesses referred to herein are compacted thicknesses. Place sufficient mix to ensure that the specified thickness of pavement occurs wherever called for.

F. In no case will pavement be placed until the gravel base is dry and compacted to at least 95% maximum density at optimum moisture content.

G. No mix shall be placed on wet or damp surfaces. When surface and ambient temperatures are 15°C and rising, use mix prepared and placed in accordance with the specified requirements of the mix hereinbefore designated as OGFC.
H. Regardless of any temperature requirements, no mix conforming to the requirements of these specifications shall be placed after October 31 or before May 1 of any year.

I. Furnish and spread calcium chloride on disturbed surfaces to control dust conditions.

J. The contact surfaces of curbings, castings, and other structures shall be painted with a tack coat prior to placement of paving.

K. Along curbs, structures and all other places not accessible with a roller, the paving mixture shall be thoroughly compacted with tampers. Such tampers shall not weigh less than 25 pounds and shall have a tamping face no more than 50 square inches in size. The surface of the mixture after compaction shall be smooth and true to the established line and grade.

L. When the air temperature falls below 50ºF, extra precautions shall be taken in drying the aggregates, controlling the temperatures of the materials and placing and compacting the mixtures.

M. No mixtures shall be placed when the air temperature is below 40ºF, or when the material on which the mixtures are to be placed contains frost or has a surface temperature Engineer considers too low.

N. No vehicular traffic or loads shall be permitted on the newly completed pavement until adequate stability has been attained and the material has cooled sufficiently to prevent distortion or loss of fines. If the climatic or other conditions warrant it, the period of time before opening to traffic may be extended at the discretion of the Engineer.

O. Existing drainage patterns shall not be altered by the new pavement construction unless otherwise shown on the Drawings.

P. Maintain binder course in a condition suitable for traffic throughout the construction period. Defects shall be repaired within 3 days of notification.

Q. Following preparation of the binder course, apply the tack coat at 0.10 gallons per square yard and place the top course.

R. Apply joint adhesive to all longitudinal joints for proper adhesion of the new bituminous concrete pavement to the existing.

S. Following all paving, the area along the edge of all pavement, sidewalks, berms, waterways, etc. shall be backed up with gravel, or loam and seed as required, so that it is flush with the adjacent paving. Whenever possible, the final surface of the backup material shall slope away from the surface edge to allow proper sheeting of runoff.

END OF SECTION
SECTION 02920
LAWNS AND GRASSES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Restoration of all vegetated areas disturbed during construction including:
   a. Lawn areas
   b. Grass surfaces

2. New loam and seed areas

3. Loam, starter fertilizer, lime, lawn seed, and hydric seed

1.2 SUBMITTALS

A. Lawn seed mixture including percent by weight of each seed type, and manufacturer/Supplier name.

B. Suitable laboratory analysis of the topsoil to determine the quantity of fertilizer and lime to be applied.

C. Lime and starter fertilizer application rates based on laboratory soil tests.

D. A sworn certificate indicating each variety of seed, weed content, germination of seed, net weight, date of shipment and manufacturer’s name shall accompany each seed shipment.

1.3 QUALITY ASSURANCE

A. Place seed only between the periods from April 15th to June 1st, and from August 15th to October 1st, unless otherwise approved by the Engineer.

PART 2 PRODUCTS

2.1 MATERIALS

A. Loam

1. Loam from offsite, as required for Work, shall be taken from a well-drained, arable site, and shall be free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Loam shall also be free of quack-grass rhizomes, Agropyron Repens, and the nut-like tubers of nutgrass, Cyperus Esculentus, and all other primary noxious weeds. Loam shall not be delivered or used for planting while in a frozen or muddy condition. Topsoil as delivered to the Site or stockpiled shall have pH between 6.0 and 7.0 and shall contain not less than 5 percent or more than 8 percent organic matter as determined by loss of ignition of moisture-free Samples dried at 100 degrees Celsius.
2. Onsite loam may be available from stripping of onsite topsoil. Onsite topsoil shall be tested as specified below and shall be amended as necessary to meet Specification requirements for loam.

3. Soil Analysis: The Contractor shall submit representative Samples of loam, which he intends to bring onto the Site, and Samples of loam from onsite sources, to a Soil and Plant Testing Laboratory acceptable to the Engineer. All reports shall be sent to the Engineer for approval. Samples of loam to be brought to the Site must be approved prior to delivery of soil. Deficiencies in the loam shall be corrected by the Contractor, as directed by the Engineer after review of the testing agency report by a soils consultant. Testing reports shall include the following tests and recommendations.

   a. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System.

   b. The silt clay content shall be determined by a Hydrometer Test.

   c. Percent of organics shall be determined by an Ash Burn Test or Walkley/Black Test.

   d. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Soluble Salts, and acidity (pH).

   e. Soil analysis tests shall show recommendations for soil additives to correct soils deficiencies as necessary, and for additives necessary to accomplish particular lawn and planting objectives noted.

   f. All tests shall be performed in accordance with the current standards of the Association of Official Agriculture Chemists.

4. Loam for General Lawn and Site Restoration Areas: Loam shall conform to the following grain size distribution for material passing the #10 sieve:

<table>
<thead>
<tr>
<th>U.S. Sieve Size Number</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>100</td>
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<tr>
<td>18</td>
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<td>35</td>
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<td>140</td>
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<td>40</td>
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<tr>
<td>270</td>
<td>22</td>
<td>34</td>
</tr>
<tr>
<td>0.002 mm</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

1The ratio of the particle size for 80% passing (D₈₀) to the particle size for 30% passing (D₃₀) shall be 6 or less (D₈₀/D₃₀ < 6).

2Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
3Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.

4The organic content shall be between 4.0 and 6.0 percent.

5. Place a minimum of 6 inches of loam.

B. Typical Sand Amendment

1. Sand to be mixed with topsoil shall meet the following requirements. The material shall be uniformly graded coarse sand consisting of clean, inert, rounded grains of quartz or other durable rock and free from loam or clay, surface coatings, mica, other deleterious materials with the following gradation.

<table>
<thead>
<tr>
<th>U.S. Sieve Size Number</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>100</td>
<td>----</td>
</tr>
<tr>
<td>18</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>35</td>
<td>35</td>
<td>55</td>
</tr>
<tr>
<td>60</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>140</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>270</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>0.002 mm</td>
<td>0</td>
<td>0.3</td>
</tr>
</tbody>
</table>

1Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 10% by weight of the total sample.

2The ratio of the particle size for 70% passing (D70) to the particle size for 20% passing (D30) shall be 3.0 or less (D70/D30 < 3.0).

3Tests shall be combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.

C. Starter Fertilizer

1. Starter fertilizer shall bear the manufacturer’s name and guaranteed statement of analysis, and shall be applied in accordance with the manufacturer’s directions.

2. Starter fertilizer shall be Scott’s Starter Fertilizer, or equal, with timed nitrogen release to prevent burning.

D. Lime

1. Lime shall be an agricultural type ground limestone.

2. Lime shall be pelletized type for prolonged time release to soil.

3. Lime shall be applied at the rates recommended in the soil analysis.

E. Seed

1. Seed shall be of the previous year’s crop.
2. Required properties:
   a. Purity > 90%
   b. Germination > 80%
   c. Crop < 0.5%
   d. Weed < 0.3%
   e. Noxious Weed – 0%
   f. Inert < 8%

3. Grass seed shall conform to the following mixtures in proportion by weight and weed content and shall pass the minimum percentages of purity and germination as indicated for same.

<table>
<thead>
<tr>
<th>Lawn Area Seed Mix</th>
<th>% Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Rebel II” Tall Fescue</td>
<td>70%</td>
</tr>
<tr>
<td>“Baron” Kentucky Bluegrass</td>
<td>10%</td>
</tr>
<tr>
<td>“Palmer” Perennial Ryegrass</td>
<td>20%</td>
</tr>
</tbody>
</table>

4. All seed shall comply with State and Federal seed Laws and Regulations.

PART 3 EXECUTION

3.1 RESTORATION

A. In locations where the Work passes through existing grass, weed brush or tree-surfaced areas that are not covered by a specific lawn repair item, surface restoration shall be as follows:

1. After completion of backfilling, the existing loam and organic ground cover materials that were salvaged during excavation shall be returned to the top of the trench.

2. After natural settlement and compaction has taken place, the trench surface shall be harrowed, dragged and raked as necessary to produce a smooth and level surface.

3. The area is then to be sowed with “orchard grass” or “rye grass” or other such materials to hold the soil and produce a growth similar to that existing prior to construction.

3.2 PREPARATION

A. After rough grading of the subgrade has been completed and approved, the subgrade surface shall be scarified to a depth of four (4) inches. Then furnish and install a layer of loam providing a rolled four (4) inch thickness. Any depressions which may occur during rolling shall be filled with additional loam, regraded and rerolled until the surface is true to the finished lines and grades. All loam necessary to complete the Work under this section shall be supplied by the Contractor.
B. The ground surface shall be fine graded and raked to prepare the surface of the loam for lime, fertilizer and seed.

C. The loam shall be prepared to receive seed by removing stones and grading to eliminate water pockets and irregularities prior to placing seed. Finish grading shall result in straight uniform grades and smooth, even surfaces without irregularities to low points.

D. All stones over one-half (½) inch in diameter remaining on the surface after raking shall be removed.

E. Shape the areas to the lines and grades required. The Contractor’s attention is directed to the scheduling of Loaming and Seeding of graded areas to permit sufficient time for the stabilization of these areas.

F. All areas disturbed by construction within the property lines and not covered by structures, pavement, or bark mulch shall be loamed and seeded.

G. Limestone shall be thoroughly incorporated into the loam layer at a minimum rate of 3 ton per acre or more as recommended by the loam analysis in order to provide a pH value of 5.5 to 6.5.

H. Fertilizer shall be spread on the top layer of loam at the minimum rate of 500 pounds per acre or more as recommended by the loam analysis and worked into the surface.

3.3 LOAM AND SEED AREAS

A. For temporary protection of disturbed areas, seed shall be applied at the following rates:

   Winter Rye (fall seeding)    2.5 pounds per 1,000 square feet
   Oats (spring seeding)        2.5 pounds per 1,000 square feet
   Mulch                       1.5 tons per acre

B. The seed mixtures shall be applied at a minimum rate of 200 pounds per acre, or 4.5 pounds per 1,000 square feet.

C. Athletic field seed application rates:
   1. Kentucky Bluegrass – 130 pounds per acre
   2. Perennial Ryegrass – 70 pounds per acre

D. Seed shall be sown at the rates indicated above by rotary or drop spreader. Sowing shall be done on a calm, dry day. Immediately before seeding, the soil shall be lightly raked. One half the seed shall be sown in one direction and the other half at right angles to the original direction. It shall be lightly raked into the soil to a depth not over 1/4 inch and rolled with a hand roller weighing not over 100 pounds per linear foot of width.

   1. Straw mulch shall be applied immediately after seeding at a rate of 1.5 to 2 tons per acre. Mulch that blows or washes away shall be replaced immediately and anchored using appropriate techniques.
2. The surface shall be watered and kept moist with a fine spray as required, without eroding the soil, until the grass is well established. Any areas, which are not satisfactorily covered with grass, shall be reseeded, and all noxious weeds shall be removed.

E. Unless otherwise approved, seeding shall be done between the periods from April 15th to June 1st, and August 15th to October 1st, when soil conditions and weather are suitable for such Work.

3.4 MAINTENANCE

A. Maintenance shall include watering, weeding, removal of stones and other foreign objects over one half (½) inch in diameter, cutting the grass until final acceptance. Mow at least weekly, removing no more than 30-40 percent of the leaf tissue using well sharpened blades. Mow grass between one (1) and two (2) inches high in the spring and fall. Mowing heights shall be an additional one-half to an inch in the summer to reduce temperature stress. Leave the clippings in place to help recycle essential plant nutrients needed for growth. All bare or dead spots which become apparent shall be properly prepared, re-loamed, limed, aerated, fertilized, and reseeded as many times as necessary to secure a good growth. The entire area shall be maintained, watered and cut until final acceptance of the lawn installation.

B. The dressed and seeded areas shall be sprinkled with water as necessary from time to time. Signs and barricades should be placed to protect the seeded areas.

C. To be acceptable, seeded areas shall consist of a uniform stand without bare or dead spots of at least 90 percent established permanent grass species, with uniform count of at least 200 plants per square foot.

D. The Engineer shall determine whether maintenance shall continue in any part.

E. After all necessary corrective Work and clean-up has been completed, and maintenance instructions have been received by the Owner, the Engineer will certify in writing the acceptance of the lawns.

END OF SECTION
SECTION 03300

CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes Cast in Place and Precast Concrete
   1. Concrete Materials
   2. Admixtures
   3. Concrete Mix
   4. Miscellaneous Concrete Materials
   5. Concrete Forms
   6. Fiberglass & Steel Reinforcement

1.2 REFERENCES

A. ACI 301 Structural Concrete
B. ACI 304R Measuring, Mixing, Transporting, and Placing Concrete
C. ACI 304.2R Placing Concrete by Pumping Methods
D. ACI 305R Hot Weather Concreting
E. ACI 306.1 Cold Weather Concreting
F. ACI 308 Curing Concrete
G. ACI 309R Consolidation of Concrete
H. ACI 315 Details and Detailing of Concrete Reinforcement
I. ACI SP-2 ACI Manual of Concrete Inspection
J. ASTM A 615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
K. ASTM A 706 Low-Alloy Steel Deformed Bars for Concrete Reinforcement
L. ASTM C 31 Making and Curing Concrete Test Specimens in the Field
M. ASTM C 33 Concrete Aggregates
N. ASTM C 39 Compressive Strength of Cylindrical Concrete Specimens
O. ASTM C 94 Ready-Mixed Concrete
P. ASTM C 150 Portland Cement
Q. ASTM C 260 Air-Entraining Admixtures for Concrete
R. ASTM C 920 Elastomeric Joint Sealants  
S. ASTM C 989 Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars  
T. ASTM C 1107 Packaged Dry, Hydraulic-Cement Grout (Nonshrink)  
U. ASTM C 1240 Silica Fume for Use in Hydraulic-Cement Concrete and Mortar  
V. Mass Highway Standard Specifications: Current standards including updates & supplements  

1.3 DEFINITIONS  
A. "Blending size" is an aggregate that complies with the quality requirements in ASTM C 33 and paragraph entitled "Aggregates" and as modified herein and can be blended with coarse and fine aggregate to produce a well graded combined grading.  
B. "Cementitious material" as used herein shall include portland cement, pozzolan, fly ash, ground granulated blast-furnace slag, and silica fume.  
C. "Design strength" (f'c) is the specified compressive strength of concrete to meet structural design criteria.  
D. "Mixture proportioning" is a description of the proportions of a concrete mixture that were selected to enable it to meet the performance durability requirements, constructability requirements, and the initial and life-cycle cost goals.  
E. "Mixture proportions" is the concrete supplier's by-mass proportions to replicate the mixture design.  
F. "Pozzolan" is a silicious or silicious and aluminous material, which in itself possesses little or no cementitious value but will, in finely divided form and in the presence of moisture, chemically react with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties.  
G. "Field test strength" (fcr) is the required compressive strength of concrete to meet structural and durability criteria. Determine (fcr) during mixture proportioning process.  

1.4 SUBMITTALS  
A. Design Data:  
Mixture design – structural concrete, including current Mass Highway approvals from Research & Materials Division, include all backup and materials certificates  
Reinforcement- Calculation package shall be submitted to prove glass fiber reinforced polymer (GFRP) matches or exceeds steel reinforcing requirements.  
B. QA/QC:  
Quality assurance/quality control plan to ensure the approved mix design meets the specifications and is delivered to site per those requirements.  

1.5 MODIFICATION OF REFERENCES  
Q0044-4/12/31/2019 03300-2 Cast-in-Place Concrete
A. Accomplish work in accordance with ACI publications except as modified herein. Consider the advisory or recommended provisions to be mandatory, as though the word "shall" had been substituted for the words "should" or "could" or "may," wherever they appear. Interpret reference to the "Building Official," the "Structural Engineer," and the "Architect/Engineer" to mean the Engineer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver concrete until, forms, reinforcement, embedded items, and reinforcement connections are in place and ready for concrete placement. ACI 301 and ASTM A 934 for job site storage of materials. Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground. Protect materials from contaminants such as grease, oil, and dirt. Ensure materials can be accurately identified after bundles are broken and tags removed.

B. Placing Concrete

1. Concrete shall be deposited by chute, bucket, or concrete pump so not to cause segregation. The methods and equipment used shall be subject to approval.

1.7 QUALITY ASSURANCE

A. Concrete Mix Design

1. At least 4 days prior to concrete placement, submit proportions for a concrete mixture for each strength and type of concrete, including current Mass Highway approvals. Submit a complete list of materials proposed including type; brand; source and amount of cement, aggregate, fly ash, (or slag pozzolans), silica fume, ground slag; and applicable reference specifications. Submit additional data regarding concrete aggregates if the source of aggregate changes. Submittal shall clearly indicate where each mixture will be used when more than one mix design is submitted.

PART 2 PRODUCTS

2.1 CONCRETE

A. Structural Concrete: Durability and Strength

1. Provide a Mass Highway standard HP concrete mix item M4.06.1 with a maximum water/cement ratio of 0.40 and 5 to 8% air content, and 28-day design strength to produce concrete of minimum design strength (f’c) of 5000 psi. This concrete shall be used for all project concrete, including cast in place and precast.

2.2 MATERIALS

A. Cement

1. ASTM C 150  Anast 359
   Portland        Blended
   Type II        Type IP(MS) or For general use in construction
Type IS(MS) where concrete is exposed to moderate sulfate or alkali action or where moderate heat of hydration is required. ASTM C 595 (blended hydraulic cements): add the suffix MS or MH where either moderate sulfate resistance or moderate heat of hydration, respectively, is required.

2. ASTM C 150, Type II and/or ASTM C 595, Type IP(MS) or IS(MS) and ASTM C 1157, Type MS blended cement except as modified herein. The tricalcium aluminate (C3A) content shall not be less than 4 percent to provide protection for the reinforcement and shall not be more than 10 percent to obtain concrete that is resistant to sulfate attack. Blended cements shall consist of a mixture of ASTM C 150 cement and one of the following materials: ASTM C 618 pozzolan or fly ash, or ASTM C 989 ground granulated blast-furnace slag. Use one manufacturer for each type of cement, ground slag, fly ash, and pozzolan.

B. Fly Ash and Pozzolan
   1. ASTM C 618, Type F, except that the maximum allowable loss on ignition shall be 6 percent for Types F. Add with cement.

C. Ground Iron Blast – Furnace Slag
   1. ASTM C 989, Grade 120

D. Silica Fume
   1. ASTM C 1240. Precast planks shall contain at least 6% silica fume, may be blended cement.

E. Water
   1. Water shall comply with the requirements and Table 2 optional requirements of ASTM C 94 and the chloride and sulfate limits in accordance with ASTM D 512 and ASTM D 516. Mixing water shall not contain more than 500 parts per million of chlorides as Cl and not more than 100 parts per million of sulfates as SO4. Water shall be free from injurious amounts of oils, acids, alkalies, salts, and organic materials.

F. Aggregates
   1. The combined aggregates in the mixture (coarse, fine, and blending sizes) shall be well graded from the coarsest to the finest with not more than 18 percent nor less than 8 percent, unless otherwise permitted, of the combined aggregate retained on any individual sieve with the exceptions that the No. 50 may have less than 8 percent retained, sieves finer than No. 50 shall have less than 8 percent retained, and the coarsest sieve may have less than 8 percent retained. Use blending sizes where necessary, to provide a well...
graded combined aggregate. Reports of individual aggregates shall include standard concrete aggregate sieve sizes including 1 1/2 inches, one inch, 3/4 inch, 1/2 inch, 3/8 inch, No. 4, No. 8, No. 16, No. 30, No. 50, and No. 100.

2. Provide aggregates for exposed concrete from a consistent source, ASTM C 227. Do not provide aggregates that react deleteriously with alkalies in cement. Refer to appendix, paragraph entitled "Test Method C227" of ASTM C 33 for expansion limits. Provide aggregate containing no deleterious material properties as identified by ASTM C 295.

3. Where a size designation is indicated, that designation indicates the nominal maximum size of the coarse aggregate. The largest feasible nominal maximum size aggregate specified in ASTM C 33, Class 4S shall be used. However, nominal maximum size of aggregate shall not exceed any of the following: three-fourths of the minimum cover for reinforcing bars, three-fourths of the minimum clear spacing between reinforcing bars, one-fifth of the narrowest dimension between sides of forms, or one-third of the thickness of slabs or toppings.

4. Aggregate may contain materials deleteriously reactive with alkalies in the cement, if cement contains less than 0.60 percent alkalies (percent Na₂O plus 0.658 percent K₂O). Provide a material such as fly ash, slag, or silica fume as specified to be effective in preventing harmful expansion due to alkali-aggregate reaction by ASTM C 441.

5. Where historical data is used, provide aggregates from the same sources having the same size ranges as those used in the concrete represented by historical data.

6. Marine aggregate may be used when conforming to ASTM C 33 and if it originates from the up-current side of the land mass and it has been washed by the fresh water so that the total chloride and sulfate content of the concrete mixture does not exceed the limits defined herein.

G. Non-shrink Grout

A non-metallic non-shrink (no volume decrease) grout obtaining a minimum 7 day compression strength of 5,000 psi, conforming to ASTM C 1107. The grout shall be formulated consistent with the surface orientation and application.

H. Admixtures

1. Provide chemical admixtures that comply with the requirements shown below and in accordance with manufacturer’s recommendations, and appropriate for the climatic conditions and the construction needs. Do not use calcium chloride or admixtures containing chlorides from other than impurities from admixture ingredients.

2. Provide minimal concentrations of corrosion-inducing chemicals as shown in Table 2 below. For concrete that may be in contact with prestressing steel tendons, the concentration shall not exceed 60 percent of the limits given in Table 2. For the concentration in grout for prestressing ducts, do not exceed 25 percent of the limits in Table 2.
Table 2 - Limits on Corrosion-Inducing Chemicals

<table>
<thead>
<tr>
<th>Chemical*</th>
<th>Limits, Max. Percent**</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorides</td>
<td>0.10</td>
<td>ASTM D 512</td>
</tr>
<tr>
<td>Fluorides</td>
<td>0.10</td>
<td>ASTM D 1179</td>
</tr>
<tr>
<td>Sulphites</td>
<td>0.13</td>
<td>ASTM D 1339</td>
</tr>
<tr>
<td>Nitrates</td>
<td>0.17</td>
<td>ASTM D 3867</td>
</tr>
</tbody>
</table>

* Limits refer to water-soluble chemicals

** Limits are expressed as a percentage of the mass of the total cementitious materials.

3. The total alkali content shall not increase the total sodium-oxide equivalent alkali content of the concrete by more than 0.5 lb/yd3.

I. Air Entraining Admixture
   1. Provide air entraining admixtures conforming to ASTM C 260.

J. Accelerating
   1. ASTM C 494, Type C, if selected

K. Retarding
   1. ASTM C 494, Type B, D, or G, if selected.

L. Water Reducing
   1. ASTM C 494, Type A, E, or F.

M. High Range Water Reducer (HRWR)
   1. ASTM C 494, Type F and ASTM C 1017.

N. Materials for Forms
   1. Provide wood, plywood, plastic lumber, or steel. Use plywood or steel forms where a smooth form finish is required. Form material shall be sufficiently flat and rigid to meet specified construction tolerances.

O. Reinforcement
   1. Reinforcing Bars
      a. VROD60 Glass fiber reinforced polymer (GFRP) Rebar shall be used in place of ASTM A 615 Grade 60 Steel in all locations except for the Anchor Trench and concrete abutment slab as shown on the drawings.
      b. ACI 301 unless otherwise specified. ASTM A 706 for bars to be welded. All thread rebar shall also conform to ASTM A 615, grade 60 and shall have a maximum yield strength less than 120 ksi.

2. Welded & Mechanical Reinforcing Bar Connections
a. ACI 301. Provide 125 percent minimum yield strength of the reinforcement bar.

P. Materials for Curing Concrete
   1. Impervious Sheeting
      a. ASTM C 171; waterproof paper, clear or white polyethylene sheeting, or polyethylene-coated burlap non-woven geotextile.
   2. Pervious Sheeting
      a. AASHTO M182.

Q. Adhesive Anchors:
   1. Threaded Rod:
      a. ASTM F1554, Grade 36 or better hot-dip galvanized steel threaded rod, diameter as shown on Drawings.
      b. Length as required, to provide minimum depth of embedment to develop the full strength of the rod with the anchor resin system selected.
      c. Clean and free of grease, oil, or other deleterious material.
   2. Adhesive:
      a. Disposable, self-contained cartridge system capable of dispensing both components in the proper mixing ratio and fitting into a manually or pneumatically operated caulking gun.
      b. Two-component, salt-water-resistant, designed to be used in adverse freeze/thaw environments and to cure in wet concrete, with gray color after mixing.
      c. Cure Temperature, Pot Life, and Workability: Compatible for intended use and environmental conditions.
      d. Nonsag, with selected viscosity base on installation temperature and overhead application where applicable.

PART 3 EXECUTION

3.1 PREPARATION FOR PLACING
   A. Surfaces to receive concrete or repair grout shall be clean and free from frost, ice, mud, aquatic growth, and water.
   B. Existing concrete surfaces to receive repair grout shall be prepared in accordance with grout manufacturer’s recommendations and at a minimum include pressure washing (min. 5000 psi), mechanical preparation, and fresh water wash-down with a fully saturated surface.
   C. Remove all deteriorated concrete, dirt, oil, grease, and all bond-inhibiting materials from surface.
D. Be sure repair area is not less than 1/8 inch in depth.

E. Preparation work should be done by high pressure water blast, scabbler, or other appropriate mechanical means to obtain an exposed aggregate surface with a minimum surface profile of ±1/16 in. (CSP-5)

F. Saturate surface with clean fresh water.

G. Substrate should be saturated surface dry (SSD) with no standing water during application.

H. Preparation for cold joint surfaces shall receive a brush scrub prime coat of Type II Portland cement slurry no more than 60 minutes prior to placement.

I. Plank joint grout shall be finished 1” below top of plank.

J. Transporting and conveying equipment shall be in-place, ready for use, clean, and free of hardened concrete and foreign material.

K. Equipment for consolidating concrete shall be at the placing site and in proper working order.

L. Equipment and material for curing and for protecting concrete from weather or mechanical damage shall be at the placing site, in proper working condition and in sufficient amount for the entire placement.

M. When hot, windy conditions during concreting appear probably, equipment and material shall be at the placing site to provide windbreaks, shading fogging, or other action to prevent plastic shrinkage cracking or other damaging drying of the concrete.

N. Foundations

1. Concrete on Earth Foundations
   a. Earth (subgrade, base, or subbase courses) surfaces upon which concrete is to be placed shall be clean, damp, and free from debris, frost, ice, mud, aquatic growth and standing or running water.
   b. Prior to placement of concrete, the foundation shall be well drained and shall be satisfactorily graded and uniformly compacted.
   c. Dewater as necessary.

3.2 FORMS

A. ACI 301.

B. Set forms mortar-tight and true to line and grade.

C. Below grade plywood forms or shoring/sheeting used as forms may be left in place.

D. After placing concrete, forms shall remain in place for at least 4 days.

E. Prevent concrete damage during form removal.
F. Forms may be removed earlier than specified if high early strength concrete is used and that the concrete has reached sufficient strength to allow form removal without concrete damage.

3.3 PLACING REINFORCEMENT AND MISCELLANEOUS MATERIALS

A. ACI 301

B. Remove rust, scale, oil, grease, clay, or foreign substances from reinforcing that would reduce the bond.

C. Reinforcement Supports

1. Place reinforcement and secure with plastic chairs, spacers, or plastic hangers (no steel within 3 inches of any exposed surface). Support reinforcement chairs on the ground with plastic lumber, concrete block material below the bottom of concrete elevation.

D. Splicing

1. As indicated. For splices not indicated, ACI 301. Do not splice at points of maximum stress; stagger lap splices.

E. Cover

1. Concrete cover for steel reinforcement shall be 4 inches to main reinforcing bars; 3 inches to stirrups, unless otherwise noted. Placement tolerance shall be per ACI 347R and ACI 117.

F. Construction & Control Joints

1. Locate joints as approved by the Engineer to least impair strength. Continue reinforcement across joints unless otherwise indicated. Concrete surfaces at construction joints shall be rough (1/2” roughness) to enhance bond and shear friction.

3.4 BATCHING, MEASURING, MIXING, AND TRANSPORTING CONCRETE

A. ASTM C 94, ACI 301, and ACI 304R, except as modified herein.

B. Furnish mandatory batch tickets imprinted with mix identification, batch size, batch design and measured weights, moisture in the aggregates, and time batched for each load of ready mix concrete. If concrete is batched to maximum water to cement ratio, no field addition of water will be allowed.

C. Mixing

1. ASTM C 94 and ACI 301.


3. Begin mixing within 30 minutes after the cement has been added to the aggregates.

4. Place concrete within 90 minutes of either addition of mixing water to cement and aggregates or addition of cement to aggregates if the air temperature is less than 85 degrees F.
5. Reduce mixing time and place concrete within 60 minutes if the air temperature is greater than 85 degrees F except as follows: if set retarding admixture is used and slump requirements can be met, limit for placing concrete may remain at 90 minutes.

6. Additional water may be added, if both the specified maximum slump and water-cementitious material ratio are not exceeded.

7. Field addition of water must be allowed for in the mix design. Do not field add water unless withheld at the plant.

8. When water is added, an additional 30 revolutions of the mixer at mixing speed is required. If time of discharge exceeds time required by ASTM C 94 concrete shall be rejected.

9. If the entrained air content falls below the specified limit, the concrete shall be rejected or be brought into specification with addition of air entraining admixture.

10. Dissolve admixtures in the mixing water and mix in the drum to uniformly distribute the admixture throughout the batch.

D. Transporting

1. Transport concrete from the mixer to the forms as rapidly as practicable.

2. Prevent segregation or loss of ingredients.

3. Clean transporting equipment thoroughly before each batch.

4. Do not use aluminum pipe or chutes.

5. Remove concrete which has segregated in transporting and dispose of as directed

3.5 PLACING CONCRETE

A. Preparation

1. Place concrete as soon as practicable after the forms and the reinforcement have been inspected and approved.

2. Do not place concrete when weather conditions prevent proper placement and consolidation; in uncovered areas during periods of precipitation; or in standing water unless otherwise approved.

3. Prior to placing concrete, remove dirt, construction debris, water, snow, and ice from within the forms.

4. Deposit concrete as close as practicable to the final position in the forms.

5. Do not exceed a free vertical drop of 3 feet from the point of discharge.

6. Place concrete in one continuous operation from one end of the structure towards the other or lifts for vertical construction.

B. Vibration
1. Comply with the requirements of ACI 309R and ASTM A 934 using vibrators with a minimum frequency of 9000 vibrations per minute (VPM).
2. Use only high cycle or high frequency vibrators.
3. Motor-in-head 60 cycle vibrators may not be used.
4. Provide a spare vibrator at the casting site whenever concrete is placed.
5. Insert and withdraw vibrators approximately 18 inches apart.
6. Penetrate at least 8 inches into the previously placed lift with the vibrator when more than one lift is required.
7. Extract the vibrator using a series of up and down motions to drive the trapped air out of the concrete and from between the concrete and the forms.

C. Pumping
1. ACI 304R and ACI 304.2R.
2. Pumping shall not result in separation or loss of materials nor cause interruptions sufficient to permit loss of plasticity between successive increments.
3. Loss of slump in pumping equipment shall not exceed 2 inches.
4. Do not use pipe made of aluminum or aluminum alloy.
5. Avoid rapid changes in pipe sizes.
6. Limit maximum size of coarse aggregate to 33 percent of the diameter of the pipe.
7. Maximum size of well-rounded aggregate shall be limited to 40 percent of the pipe diameter.
8. Discharge horizontally from pump hoses to avoid segregations and loss of air content.
9. Take samples for testing at the discharge end.
10. Air content tested at the pump hose discharge shall be within the specified limits prior to placement in forms.

D. Cold Weather
1. ACI 306.1.
2. Do not allow concrete temperature to decrease below 50 degrees F.
3. Obtain approval prior to placing concrete when ambient temperature is below 40 degrees F or when concrete is likely to be subjected to freezing temperatures within 24 hours.
4. Cover and insulate concrete and provide sufficient heat to maintain 50 degrees F minimum adjacent to both the formwork and the structure while curing.
5. Limit the rate of cooling to 5 degrees F in any one hour and 50 degrees F per 24 hours after heat application.

6. Silica fume may be included in the mix design to allow faster strength gain in cold conditions.

3.6 SURFACE FINISHES

A. Defects

1. Repair formed surfaces by removing minor honeycombs, pits greater than three square inch surface area or 0.75 inch maximum depth, or otherwise defective areas. Repair any shrinkage crack in concrete, grout or repair mortar and investigate if excess water was used in batching.

2. Provide edges perpendicular to the surface and patch with nonshrink grout. Patch tie holes and defects when the forms are removed.

3. Concrete with extensive honeycomb including exposed steel reinforcement, cold joints, entrapped debris, separated aggregate, or other defects which affect the serviceability or structural strength will be rejected, unless correction of defects is approved.

4. Obtain approval of corrective action prior to repair. Report apparent causes of defects and describe how methods will be adjusted to avoid further defects.

B. Not Against Forms (Top Surfaces)

1. Finish surfaces not otherwise specified with a screed finish.

C. As-Cast Form

1. Provide form facing material producing a smooth, hard, uniform texture on the concrete. Support forms as necessary to meet required tolerances.

3.7 CURING AND PROTECTION

A. ACI 301 and ACI 308 unless otherwise specified.

B. Prevent concrete from drying by misting surface of concrete and/or sheeting. Ensure existing concrete has been fully saturated with fresh water prior to repair application.

C. Begin curing immediately following final set (typically within 1 hour).

D. Avoid damage to concrete from vibration created by pile driving, movement of equipment in the vicinity, disturbance of formwork or protruding reinforcement, by rain or running water, adverse weather conditions, and any other activity resulting in ground vibrations.

E. Protect concrete, grout and repair mortar from injurious action by sun, rain, flowing water, frost, mechanical injury, tire marks, and oil stains.

F. Do not allow concrete, grout and repair mortar to dry out from time of placement until the expiration of the specified curing period.
G. If forms are removed prior to the expiration of the curing period, provide another curing procedure specified herein for the remaining portion of the curing period.

H. Moist cure concrete using potable water for a minimum of 2 days.

I. Begin curing within one hour of finishing. Steam and high temperature curing is prohibited.

J. Protect concrete from premature drying, freezing, excessively hot temperatures, and mechanical injury; and maintain minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of the concrete.

K. The materials and methods of curing shall be subject to approval by the Engineer.

L. Concrete shall be cured for at least 2 days, or until it has reached 80% of the design strength, before transporting or applying loads.

3.8 FIELD QUALITY CONTROL

A. Evaluation of Mixture Designs (structural concrete)
   1. Test the fresh concrete as follows:
      a. For strength, cast 4 by 8 inch or 6 by 12 inch cylinders in accordance with ASTM C 31.

B. Sampling
   1. ASTM C 172. Collect samples of fresh concrete to perform tests specified. ASTM C 31 for making test specimens.
   2. Identify samples so taken in a manner that they can be segmented from other tests. Obtain at least one sample from each truck and perform one set of test samples.

C. Testing
   1. Compressive Strength Tests
      a. ACI 214 tests for strength - conduct strength tests of concrete during construction in accordance with the following procedures:
         1) Mold and cure six cylinders from each sample taken in accordance with ASTM C 31. Prevent evaporation and loss of water from the specimen.
         2) Test cylinders in accordance with ASTM C 39. Test one cylinder at 3 days, one cylinder at 7 days, one cylinder at 14 days, two cylinders at 28 days, and hold one cylinder in reserve. These time periods may be adjusted depending on the rate of strength gain of the concrete, as needed to confirm adequate strength for additional concrete loading. The compressive strength test results for acceptance shall be the average of the compressive strengths from the two specimens tested at 28 days. If one specimen in a test shows evidence of improper sampling,
molding or testing, discard the specimen and consider the strength of the remaining cylinder to be the test result. Loads shall not be applied concrete beam until it has reached 4000 psi compressive strength.

3) If the average of any three consecutive strength test results is less than the specified strength (f’c) or the minimum test strength (fcr) for durability, whichever is higher, by more than 500 psi, take a minimum of three core samples in accordance with ASTM C 42, from the in-place work represented by the low test results. Locations represented by erratic core strengths shall be retested. Remove concrete not meeting strength criteria and provide new acceptable concrete. Repair core holes with nonshrink grout.

4) Strength test reports shall include location in the work where the batch represented by a test was deposited, batch ticket number, time batched and sampled and water added on the job. Reports of strength tests shall include detailed information of storage and curing of specimens prior to testing.

5) Final reports shall be provided within 7 days of test completion.

D. Standard Molded and Cured Strength Specimens

1. When the averages of all sets of three consecutive compressive strength test results equal or exceed the design compressive strength (f’c) or the required field test strength (fcr) whichever is higher, and no individual strength test falls below the specified compressive strength (f’c) or the required field durability strength (fcr) by more than 500 psi, whichever is higher.

E. Non-Destructive Tests

1. Non-destructive tests may be used when permitted to evaluate concrete where standard molded and cured cylinders have yielded results not meeting the criteria.

F. Core Tests

1. When the average compressive strengths of the representative cores are equal to at least 85 percent of the design strength (f’c) or the required average test strength (fcr), whichever is higher, and if no single core is less than 75 percent of the specified strength (f’c) or the required average field test strength (fcr), whichever is higher, strength of concrete is satisfactory.
DIVISION 4
PART 1  GENERAL

1.1  SUMMARY
   A.  Section Includes
       1.  Rip rap for proposed stone revetment.

1.2  REFERENCES
   A.  Contract drawings

1.3  SUBMITTALS
   A.  Quarry stone source information.
   B.  Indicate type of stone and include current photographs and/or samples representative of the intended stone for this project with adequate scale to show the stone sizes.
   C.  Stone supply shall be subject to inspection and approval by the Engineer as meeting specification prior to utilization.
   D.  Geotextile data sheet showing specification conformance.

1.4  DELIVERY, STORAGE, AND HANDLING
   A.  Handle delivered stone materials carefully to avoid damage to the property, including seawall, railings and pavements.
   B.  Utilize an aggregate/sand bed to protect pavement during stone dumping and unloading, delivery, storage, and handling

1.5  QUALITY ASSURANCE
   A.  The Contractor is responsible to oversee all stone deliveries and placements to ensure all stone installed meets project specifications.

PART 2  PRODUCTS

2.1  STONE
   A.  The material used for the revetment shall be rough quarry stone free of cracks, joints, weak seams or other defects.
   B.  Stone shall be hard, durable, and of such quality that it will not disintegrate on exposure to ice, seawater, wave action or weathering.
   C.  It shall also be chemically stable, capable of withstanding freezing and thawing, and suitable in all other respects for the intended use.
   D.  A potential stone supply shall have stone with less than 30% loss in an LA Abrasion Test (ASTM C 535); however the stone source will also be subjected to
inspection by the Contractor and the Engineer to confirm the large stone is also free of weakness and defects.

E. Disputed quality stones will be subjected to a 10 foot stone on stone drop test with the disputed stone being dropped onto a similar size or larger stone, at no additional cost to the Owner.

F. See Contract Drawings for sizes and additional requirements.

G. Armor stone shall be roughly rectangular/block-like in shape. Outfall anti-scour stone may be large flat slab shaped.

H. Rounded stones are not acceptable and thin wedge like stones are only acceptable as chinking stones.

I. Potentially acceptable stone types include granite, diorite, basalt, quartzite, gneiss, syenite.

J. The following rock is unlikely to be approved; schist, gabbro, pegmatite, shale, slate, sandstone, limestone.

K. Armor Stone shall conform to the following gradation requirements (unless otherwise noted, some smaller stones may be required to meet existing seawalls or to meet dimensional constraints):
   
   Maximum Weight = 6 Tons
   Toe Stone Weight = 4.1 Tons
   Average Weight = 3.0 Tons
   Minimum Weight = 1.0 Tons
   Near Surface Chinking Stone Average = 0.7 Tons

L. Underlayer Stone shall conform to the following gradation requirements:
   
   Average Weight = 600 Pounds
   Minimum Weight = 200 Pounds
   Near Surface Chinking Stone Average = 70 Pounds

M. Bedding stone shall have a typical size of 6 inches (approx. 15 pounds). The smallest stone shall be 2.5 inches (1 pound) and the largest stone shall be 12 inches (100 pounds).

2.2 GEOTEXTILE

Geotextile shall be a black non-woven geotextile having a minimum weight of 16 oz per sq. yard (ASTM D5261), such as PROPEX GEOTEX 1601 or approved equal meeting the following GAI-LAP MARV at a 97% confidence level:
MINIMUM PHYSICAL REQUIREMENTS FOR REVETMENT GEOTEXTILE

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>UNITS</th>
<th>ACCEPTABLE VALUES</th>
<th>TEST METHOD</th>
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<tr>
<td>GRAB STRENGTH</td>
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<td>ASTM D 4632</td>
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<tr>
<td>ELONGATION</td>
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<td>50%</td>
<td>ASTM D 4632</td>
</tr>
<tr>
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<td>380</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>CBR PUNCTURE</td>
<td>LBS</td>
<td>1000</td>
<td>ASTM D 4561</td>
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<tr>
<td>TRAPEZOIDAL TEAR</td>
<td>LBS</td>
<td>150</td>
<td>ASTM D 4533</td>
</tr>
<tr>
<td>APPARENT OPENING SIZE</td>
<td>U.S. SIEVE</td>
<td>100</td>
<td>ASTM D 4751</td>
</tr>
<tr>
<td>PERMITTIVITY</td>
<td>GAL/MIN/SF</td>
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<td>ASTM D 4491</td>
</tr>
<tr>
<td>ULTRAVIOLET RESISTANCE</td>
<td>%</td>
<td>70%</td>
<td>ASTM D 4355</td>
</tr>
</tbody>
</table>

PART 3 EXECUTION

A. Before commencing stone placement, remove debris, including timbers, concrete and other materials which might damage the geotextile.

B. Provide adequate ballast on generally horizontal geotextile and proper fastening on vertical geotextile to secure it in the intended locations until the stone work is complete. Lap un-sewn geotextile joints 24” minimum.

C. Provide crushed stone bedding over geotextile (minimum necessary) if sharp pointed or sharp edge armor or underlayer stone is being placed with a sharp edge/point toward the geotextile.

D. The rock riprap shall be placed by equipment on the surfaces and to the depths and dimensions specified.

E. The rock shall be delivered and placed in such a manner that will insure that the stone work in-place will be dense and compact mass with the largest armor stones uniformly distributed and firmly in contact with the smaller stones and chinking (quarry spalls) filling the voids between the larger rocks.

Q0044-4/06/25/19 04400-3 Stone Rip Rap
F. Hand placement of chinking stone shall be completed to insure a final surface which is tight and solid and with no voids greater than six inches (6”) across present between rocks.

G. Rock will be placed starting at the lowest elevation of a toe as shown on the drawings.

H. Each stone shall be carefully set on the stones below, following the slope lines and tolerances shown on the contract drawings.

I. The revetment surfaces shall be rough and irregular to best break wave run-up.

J. Armor stones shall not be set with flat surfaces parallel to the slope lines.

K. Adjacent stones shall be selected for size and shape and laid in contact and fit as close as possible so as to produce a reasonable minimum of voids.

L. Individual stones shall be placed in a manner to provide maximum interlocking.

M. Stones shall not rock or tip and shall have at least three points of bearing on stones below.

N. Stones shall be tested for rocking or tipping prior to placement of the next row of stones.

O. Placing small stones in joints from the top to prevent rocking or tipping (chinking) shall not be done.

P. See Contract Drawings for additional requirements.

END OF SECTION
DIVISION 5
SECTION 05140
ALUMINUM GANGWAY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Materials
   2. Accessories
   3. Design
   4. Fabrication
   5. Installation

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)
   5. B316, Standard Specification for Aluminum and Aluminum-Alloy Rivet and Cold Heading Wire and Rods

B. Occupational Safety and Health Administration (OSHA):

C. National Association of Architectural Metal Manufacturers (NAAMM):


E. Aluminum Construction Manual

F. Aluminum Association (AA)

G. American Welding Society (AWS)
   1. ASW D1.2/D1.2M, (2015; Errata 1 2015; Errata 2 2016) Structural Welding Code
1.3 SUBMITTALS

A. Shop Drawings:
   1. MA PE stamped shop drawings for gangway design including hinges, rollers, and transition plates.
   2. Detailed shop drawings, including erection drawings, for all metal fabrications, including welding and fastener information:
      a. Submit for approval before fabrication.
      b. Identify sizes of structural members, method of assembly, anchorage, and connection to other members.

B. Samples (when requested by the Engineer):
   1. Welded aluminum/ galvanized handrail post and rail assemblies, finished as specified.

C. Quality Control Submittals:
   1. Connection Design Calculations: stamped by a licensed professional structural engineer, registered in the State where the work will be performed, properly coordinated with Shop Drawings.
   2. Welding: In accordance with American Welding Society Structural Welding Code D1.2
   3. Provide Certificates of Compliance on other materials as requested by the Engineer.

1.4 QUALITY ASSURANCE

A. Shop Assembly: Pre-assemble items in shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

C. Qualifications for Welding Work: In accordance with American Welding Society Structural Welding Code D1.2.

D. All handrails, grating, etc. shall comply with OSHA, ADA, and Massachusetts State Building Code.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Handle and stack materials carefully to prevent deformation or damage.

B. Store materials carefully on substantial timbers and blocking, so arranged that materials will be free from earth and properly drained, preventing any splattering with dirt or accumulation of water or snow in or about materials.
C. Prevent accumulation of mud, dirt, or other foreign matter on materials. Any accumulation shall be completely removed prior to erection.

D. Protect painted, hot-dip galvanized, and other finishes from damage due to metal banding and rough handling. Use padded slings and straps.

PART 2 PRODUCTS

2.1 MATERIALS

A. Unless otherwise indicated, meet the following requirements:

<table>
<thead>
<tr>
<th>Item</th>
<th>ASTM Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extruded Shapes</td>
<td>B221, Alloy 6061, Temper T6</td>
</tr>
<tr>
<td>Pipe</td>
<td>B210, Alloy 6063, Temper T6</td>
</tr>
<tr>
<td>Aluminum Sheet</td>
<td>B209, Alloy 3003, Temper H14</td>
</tr>
</tbody>
</table>

2.2 ACCESSORIES


B. Aluminum decking shall be symmetrically extruded slats with integrated ribs and mechanical knurling to provide a non-skid surface. Decking to be aluminum alloy 6061-T6.

C. Rollers for either pile guides or gangways shall be UHMW polyethylene with black ultra-violet light inhibitor added.

D. Handrails on gangways and piers when specified shall be 6061-T6 aluminum alloy, minimum 1 ½” NPS. Grab rails, toe curbs, and fishing rails shall be in accordance with applicable sections of the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities.

2.3 DESIGN

A. Frame

1. The aluminum frame and decking shall be designed to withstand the full calculated dead load of all framing & accessories combined with a live load of 60 pounds per square foot and a snow load of 30 pounds per square foot. Allowable deflection shall be L/180 where "L" in inches is the free span between supports for fixed piers & gangways, or the free span between cross members for floating docks. Provide load limit plate near top of gangway, minimum ¼” text stamped into aluminum plate, visible to users.

B. Handrails shall be a minimum of 42 inches in height above the finished walking surface and shall withstand a uniform horizontal load of 20 pounds per linear foot applied at the top of the rail.

C. Gangway shall have a minimum clear walkway of 3.5 feet between grab rails, deck 4.0 feet. Length of gangways shall be as indicated on the drawings.

D. Walking surface shall be skid resistant.
E. Gangway pier end connections shall allow unrestricted vertical movement through tidal variation. Gangway bearing on floating piers shall be fitted with UHMW polyethylene rollers of adequate bearing area. Gangways shall be fitted with hinged apron plates to assure a safe uniform transition between gangway and deck surfaces. Apron plates will be designed so as to not damage or mar the floating pier surface.

F. Pad eyes for lifting and removal of the gangway shall be provided 3’-5’ feet from either end of the gangway for removal. Pad eyes shall be designed to have lifts points 15 degrees from vertical.

2.4 FABRICATION
A. All aluminum structural members shall be welded in accordance with the American Welding Society Structural Welding Code D1.2.
B. Aluminum decking shall be spaced with not more than 1/4 inch air space between the slats. Asymmetric/interlocking decking slats shall be prohibited to prevent water pooling on dock surface. The legs of each decking slat shall be welded to the side members and to any longitudinal with a minimum of 1-1/4 inches of weld per leg. The decking slats shall be placed transversely on the gangway, pier or dock.
C. Contact between aluminum and dissimilar metals or concrete shall be avoided, except for the use of compatible stainless steel pins. Where potential for galvanic corrosion exists, the aluminum shall be isolated from direct contact with other metals or concrete by use of suitable non-conducting insulators or bushings.

PART 3 EXECUTION
3.1 EXAMINATION
A. Verify that field conditions are acceptable and are ready to receive work.
B. Verify that anchor bolts, bearing plates, and other items furnished to be installed by others have been installed correctly.

3.2 INSTALLATION
A. Gangways shall be securely fastened to fixed structure as shown on plans. Utilities running on the gangway shall be installed so as not to interfere with the access area of the gangway or to be damaged during normal operation.

3.3 FASTENERS
A. Provide fasteners in accordance with Data Sheet – 05500 – A, following this section, unless otherwise noted on the drawings.

3.4 WARRANTY
A. The manufacturer of the gangway and its related components shall provide the Owner a written warranty that the gangway and its related components shall be free of defects in materials and workmanship for a period of two (2) years, unless the Contract require a more stringent or longer warranty.
B. The warranty period shall commence upon the complete installation and acceptance of the gangway by the owner.
END OF SECTION
SECTION 05500

STEEL

PART 1  GENERAL

1.1 SUMMARY

A. Section Includes

1. Steel for stairway railings, fasteners, bolts, plates, etc.

1.2 REFERENCES

A. AISC M013  Detailing for Steel Construction
B. AISC M016 ASD  Manual of Steel Construction
C. AISC M017  Connections
D. ASTM A36  Carbon Structural Steel
E. ASTM A123  Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
F. ASTM A153  Zinc Coating (Hot-Dip) on Iron and Steel Hardware
G. ASTM A193  Alloy-Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special Purpose Applications
H. ASTM A194  Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
I. ASTM F436  Hardened Steel Washers
J. AWS D1.1  Structural Welding Code – Steel

1.3 SUBMITTALS

A. Certificates
B. Steel
C. Bolts, threaded rod, nuts, and misc structural materials
D. Corrosion protection certificates
E. Stair and railing shop drawings for each location, including connections, elevations, and dimensions.
F. Stainless Steel Cable System

   a. Manufacturer’s product descriptions.
   b. System installation and assembly instructions.
PART 2 PRODUCTS

2.1 STEEL

A. High-Strength Structural Steel
B. Low-Alloy Steel
   ASTM A572 Grade 50; or A709 Grade 50, unless otherwise specified.
C. Plate for washers/bearing plates on anchors.
   ASTM A36 or A572 or equal
D. Rod
   ASTM A193 or equal
E. Pipe
   ASTM A53
F. Stainless Steel Cables
   1. 316 SS 5/32” Diameter
   2. SS Fitting 316 SS

2.2 STRUCTURAL STEEL ACCESSORIES

A. Welding Electrodes and Rods
   1. AWS D1.1 E70XX low hydrogen for all structural welds.
   2. E60XX electrodes are permitted for non-structural seal welds.
B. Threaded rod, anchor bolts, nuts, washers
   1. Fastener steel shall not exceed 135 ksi ultimate tensile strength (hydrogen embrittlement issue).
   2. Threaded rod, anchor bolts ASTM A193 B7 or equal, galvanized, coated or otherwise corrosion protected, unless otherwise shown on the drawings.
   3. Nuts ASTM A194 G2H or equal, galvanized or otherwise corrosion protected, unless otherwise shown on the drawings.
   4. Washers ASTM F436 or equal, galvanized; plate washers 4”X4”X3/8” min. galvanized, coated or otherwise corrosion protected, unless embedded in concrete.
C. Stainless Steel Cable System
   1. Cable system assemblies and attachments shall withstand a minimum concentrated load of 200 pounds applied horizontally or vertically down at any point on the top rail. Infill area of guardrail system capable of withstanding a horizontal concentrated load of 200 pounds applied to one square foot at any point in the system. Load not to act concurrently with loads on top rail of system in determining stress on guardrail. Handrail
assemblies and guards shall be designed to resist a load of 50 pounds per linear foot (pound per foot) (0.73 kN/m) applied in any direction at the top and to transfer this load through the supports to the structure. Make no openings without the specific written approval of the Engineer. All re-entrant corners shall be shaped notch-free to a radius of at least ½ inch at blocks, copes, cuts and openings.

2.3 GALVANIZING
   A. ASTM A123 or ASTM A153, as applicable, unless specified otherwise galvanize after fabrication where practicable. All hot dip galvanized metals shall be touched up after installation or welding with standard cold galvanizing zinc coating. For fabrications ASTM A384 and A385 also apply.

2.4 FABRICATION
   A. Coated Surfaces
      1. Surfaces to receive coatings shall be cleaned and prepared in accordance with the manufacturer’s recommendations.

PART 3 EXECUTION

3.1 ERECTION
   A. After final positioning of steel members, provide full bearing under base plates and bearing plates using corrosion resistant washers/shims tapered to fit.

3.2 CONNECTIONS
   A. Bolts, rods, nuts, and washers shall be clean of dirt and rust, and threads lubricated with anti-corrosion mastic coating at nut locations prior to installation.
   B. Any welded splices in steel members shall be full penetration groove welds.

3.3 WELDING
   A. AWS D1.1, except use only E70XX low hydrogen electrodes.
   B. Grind exposed welds smooth as indicated. Remove any weld spatter prior to galvanizing.
   C. E60XX electrodes are permitted only for non-structural seal welds.

3.4 FIELD QUALITY CONTROL
   A. Welds
      1. AWS D1.1.
   B. Visual Inspection
      1. All welds shall be subject to review by the Engineer and if any weld does not appear in compliance with AWS D1.1, the contractor may be required to furnish the services of AWS-certified welder and/or AWS-certified welding
inspector for inspection, testing, repair, and verification at the contractors expense.

C. Nondestructive Testing

1. AWS D1.1. If more than 20 percent of welds made by a welder contain defects identified by visual observation and/or testing, then all welds made by that welder shall be tested by radiographic or ultrasonic testing, as approved by the Engineer. Retest defective areas after repair.

END OF SECTION
DIVISION 9
SECTION 09900
COATING OF STEEL STRUCTURES

PART 1  GENERAL

1.1 SUMMARY

A. Section Includes

1. Hot dip galvanizing and touch up of all steel members/structures installed or provided, except for stainless steel.

2. Zinc-Rich Primer/ Epoxy or Urethane Intermediate Coat/ Aliphatic Polyurethane Topcoat

1.2 REFERENCES

A. ASTM A123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

B. ASTM A153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware

C. SSPC SP 1 Solvent Cleaning

D. SSPC SP 3 Power Tool Cleaning

E. SSPC SP 10 Near-White Blast Cleaning

F. SSPC SP Paint 22 Epoxy-Polyamide Paints

1.3 SUBMITTALS

A. Steel preparation and venting data, including galvanizer recommended surface preparation, including for field touch up.

1.4 ENVIRONMENTAL CONDITIONS

A. Field touch up only when ambient and curing temperatures are within limits of coating manufacturer’s recommendations and at least 5 degrees F above dew point temperature.

PART 2  PRODUCTS

2.1 COATING SYSTEMS

A. Hot Dip Galvanizing

1. ASTM A123/A123M or ASTM A153/A153M, as applicable, unless specified otherwise galvanize after fabrication where practicable.

B. Galvanizing Repair Coating

1. ASTM A780/A780M zinc rich paint

C. NEPCOAT QPL A or B or equal
PART 3 EXECUTION

3.1 CLEANING AND PREPARATION OF SURFACES

A. Solvent Cleaning
   1. SSPC SP 1.
   2. Remove visible oil, grease, and drawing and cutting compounds by solvent cleaning.

B. Cleaning and Profiling
   1. SSPC SP3 & SP 10. After solvent cleaning, complete surface preparation by near-white blast cleaning and power tool cleaning. Remove residual dust from blasted surface by blowing with dry, oil-free air, vacuuming, or sweeping. Provide surface profile of at least 2 1/2-MIL thickness. Ease sharp edges prior to coating.

C. Touch Up and Weld Cleaning
   1. SSPC SP1 solvent cleaning, plus mechanical surface grinding SSPC SP3 to remove sharp edges, oxidation/corrosion, welding slag and weld spatter.

3.2 GALVANIZING VENTING

A. Adequate vent holes shall be provided for hot dip venting, located to eliminate water traps. Hole size and location shall not affect the structural integrity.

3.3 GALVANIZING REPAIR

A. Preparation
   1. As specified by manufacturer's recommendations, but at least a power tool removal of all existing weld slag and corrosion.

B. Repair Coating
   1. Repair damage to galvanized coatings using ASTM A780/A780M zinc rich paint (cold galvanizing) for galvanizing damaged by handling, transporting, cutting, welding, or bolting. Do not heat surfaces to which repair paint has been applied. Cover existing concrete surfaces such that galvanizing repair coating does not coat concrete surfaces.

3.4 SURFACES TO BE COATED

A. All new steel (excludes stainless steel, temporary falsework/braces) and repair of existing steel pipe railings as indicated.