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
PROJECT MANUAL
Bid FY 19 Water Mains
Contract 2

City of Quincy, MA
February 2019

TETRA TECH
100 Nickerson Road, Marlborough, MA 01752
508.786.2200
tetratech.com
SECTION 00 01 07

SEALS PAGE

The engineering material and data contained in these Contract Documents were prepared under the supervision and direction of the undersigned, whose seal as a registered professional engineer is affixed below.

Project Manager
Tetra Tech, Inc. (Engineer)

2-11-19
Date of Issue
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SECTION 00 01 10

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INVITATION TO BID

City of Quincy, MA (Owner) invites Bidders to submit sealed Bids for Bid FY19 Water Mains Replacement Contract 2, which includes but is not limited to, the removal of 6-inch to 20-inch unlined cast iron water main, installation of 6-inch, to 20-inch cement lined ductile iron water mains, furnishing and installing related gate valves, hydrants, and appurtenances ranging in size from 6-inch to 20-inch, and all materials, equipment, services and construction inherent to the Work.

The Work shall be substantially complete by November 1, 2019. All Work shall be ready for final payment by November 15, 2019.

The Project being bid is subject to Massachusetts General Laws, Chapter 30, Section 39M

A pre-Bid conference will be held at 10:00 a.m. local time on February 20, 2019 at the Department of Public Works, 55 Sea Street, Quincy, Massachusetts 02169. Bidders are encouraged to attend and participate in the conference.

Bids will be received until 11:30 a.m. local time on February 28, 2019 at the offices of the Purchasing Agent, City Hall, 1305 Hancock Street, Quincy, Massachusetts 02169. Bids will then and there be publicly opened and read aloud. Bids received after the time of announced opening will not be accepted. Clearly label bids, “BID FY19 WATER MAINS CONTRACT 2.”

Sets of Bidding Documents may be examined at the Issuing Office beginning on or after February 13, 2019 from 8:30 a.m. to 4:30 p.m., Monday through Friday.

Issuing Office:
Office of the Purchasing Agent Quincy City Hall
1305 Hancock Street
Quincy, MA 02169

Sets of Bidding Documents may be obtained:

electronically at no cost by registering at:
https://www.quincyma.gov/govt/depts/purchasing/current_bids.htm

Bidders shall send a confirming email to “purchasing@quincyma.gov” to allow Owner to maintain a plan holders list. If Bidding Documents are downloaded and/or printed from Owner’s website, it is Bidder’s responsibility to check the website for any addenda before submitting a Bid. The Owner will not be responsible for any Bid that omits addenda acknowledgement. Note: the “Standard General Conditions of the Construction Contract (CH.30-39m)” on the Owner’s website are superseded by the General Conditions included in these Bidding Documents.
and

in hardcopy from Issuing Office, beginning on February 13, 2019, 8:30 a.m. to 4:30 p.m. Mondays through Friday for a refundable deposit for each set of Bidding Documents of $100 payable by check or money order to City of Quincy, which deposit will be refunded to each document holder of record who returns a complete set of Bidding Documents in unused condition within 10 days after opening of Bids.

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 the incomplete sets of Bidding Documents or for modifications to the Bidding Documents including electronic conversion.

Bid security in the amount of 5 percent of the Bid must accompany the Bid in accordance with the Instructions to Bidders.

Minimum wage rates as issued by the Director of the Executive Office of Labor and Workforce Development, Department of Labor Standards under the provisions of Massachusetts General Laws, Chapter 149, Sections 26 to 27D inclusive, as amended, apply to this Project. It is the responsibility of the Bidders, before Bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed Work under the resulting Contract.

Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsive or responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project or the public to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

END OF SECTION
SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

ARTICLE 1 – DEFINED TERMS

1.1 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions, if any. Additional terms used in these Instructions to Bidders have the meanings indicated below and as may be included in the Supplementary Instructions to Bidders.

A. Issuing Office – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered identified in the Invitation to Bid.

B. Supplements – Those portions of the Bidding Requirements to be submitted with and made a condition of a Bid including required submittals.

C. Notice of Intent to Award – The written notice to the Successful Bidder indicating, conditions precedent to receiving a Notice of Award and Agreement for execution.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.1 Sets of Bidding Documents may be examined and obtained as stated in the Invitation to Bid.

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, Bidding Documents provided by third parties, or for modifications to the Bidding Documents not made by official Addenda, including electronic conversion.

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 authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.1 To demonstrate Bidder’s qualifications to perform the Work, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data requested in the Bidding Documents, and within the time frames stipulated upon Owner's request.

3.2 Bidders shall meet minimum criteria regarding experience and qualifications set forth in the General Requirements and the Specifications.
ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.1 Subsurface and Physical Conditions

A. Section 00 73 10 of the Supplementary Conditions identifies:

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

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

B. Copies of reports and drawings referenced in Section 00 73 10, if any, are included in the Bidding Documents as indicated in Section 00 31 00, if included. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions, has been identified and established in Section 00 73 10 of the Supplementary Conditions.

C. 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.

4.2 Underground Facilities

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.3 Hazardous Environmental Condition

A. 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.

4.4 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 subsurface or physical conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions and Section 00 73 10 of the Supplementary 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 4.06 of the General Conditions and Section 00 73 10 of
the Supplementary Conditions.

4.5 Upon request, Owner may provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall be responsible for obtaining permission and necessary permits and insurance for access to the Site. Bidder shall clean up and restore the Site to its former condition upon completion of any such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

4.6 Reference is made to Article 7 of the General Conditions and Section 00 73 10 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.

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

A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Section 00 73 10, as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Section 00 73 10, as containing reliable "technical data";

E. consider the information known to Bidder; 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, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder’s safety precautions and programs;

F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. 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; and

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

4.8 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 – PRE-BID CONFERENCE

5.1 A pre-bid conference will be held at the time, date and location as indicated in the Invitation to Bid. Bidders are encouraged to attend and participate in the conference.

5.2 Addenda will be issued to all prospective Bidders of record considered necessary in response to questions arising at the conference by posting on the Owner’s website only. Oral statements may not be relied upon and will not be binding or legally effective. It is each Bidder’s responsibility to check the Owner’s website for Addenda per Paragraph 7.03.

ARTICLE 6 – SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.
ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.1 All questions about the meaning or intent of the Bidding Documents are to be submitted to the Issuing Office, attention Kathryn R. Logan, Purchasing Agent, Purchasing@Quincyma.gov.

7.2 The deadline for questions is 12:00 p.m. on February 22, 2019. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Interpretations or clarifications considered necessary in response to such questions will be issued by Addenda.

7.3 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer, will be available for examination at the Issuing Office, will be posted on the Owner’s website as stated in the Invitation to Bid, and will not be mailed or faxed to registered Bidders. It is each Bidder’s responsibility to check the website for Addenda.

ARTICLE 8 – BID SECURITY

8.1 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder’s maximum Bid price and in the form of a certified check, treasurer's or cashier's check, or money order, or a Bid bond on or consistent with the form included in the Bidding Documents in Section 00 43 13 issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General and Supplementary Conditions, if any.

8.2 The Bid security of the Successful Bidder will be retained until such Bidder has furnished the required contract security, met the conditions of the Notice of Intent to Award (if any) and Notice of Award, and executed the Agreement, whereupon the Bid security will be returned. If the Successful Bidder fails to comply with the conditions set forth in the Notice of Intent to Award (if any) and Notice of Award within the time specified therein, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner’s exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Agreement or 91 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. See Supplementary Instructions to Bidders (if any) for additional information.

8.3 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within 5 days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.
ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment and construction methods or procedures specified or described in the Bidding Documents, without consideration of possible substitute or “or-equal” items. Whenever it is specified or described in the Bidding Documents that a substitute or “or-equal” item of material or equipment and construction methods or procedures may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

12.1 The Bidding Documents may require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner with the Bid.

12.2 As required in the Bidding Documents, or within 5 days after Bid opening if requested by Owner, Bidder shall submit a listing and experience statement with pertinent information regarding similar projects and other evidence of qualification for each Subcontractor, Supplier, individual, or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute without an increase in the Bid.

12.3 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest responsible Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General and Supplementary Conditions, if any.

12.4 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 – PREPARATION OF BID

13.1 The Bid Form and Supplements are included with the Bidding Documents.

13.2 Bids are to be submitted as indicated in the Bid Form. All blanks on the Bid Form shall be completed in ink or typewritten and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form.

INSTRUCTIONS TO BIDDERS

00 21 13-6

Based on EJCDC C-200. Revised on behalf of and as approved by Owner Copyright © 2007 National Society of Professional Engineers for EJCDC. All rights reserved.
13.3 A Bid by a corporation shall be executed in the corporate name by the president or a vice-
president or other corporate officer accompanied by evidence of authority to sign. The 
corporate seal shall be affixed and attested by the secretary or an assistant secretary. The 
corporate address and state of incorporation shall be shown.

13.4 A Bid by a partnership shall 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.

13.5 A Bid by a limited liability company shall be executed in the name of the firm by a member 
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.

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

13.7 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated 
on the Bid Form. The official address of the joint venture shall be shown.

13.8 All names shall be printed in ink below the signatures.

13.9 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which 
shall be filled in on the Bid Form.

13.10 Postal and e-mail addresses and telephone numbers for communications regarding the Bid 
shall be shown.

13.11 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. 
See Supplementary Instructions to Bidders for additional requirements, if any.

13.12 Bidders are advised to carefully review those portions of the Bid Form and Supplements 
requiring Bidder’s representations and certifications that are to be submitted with a Bid or 
subsequent to the Bid opening, and made a condition of the Bid.

ARTICLE 14 – BASIS OF BID; COMPARISON OF BIDS

14.1 Bid Pricing

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid Form. 
Bid prices shall be stated in both words and figures.

B. The total of all estimated prices will be the sum of the products of the estimated quantity of 
each item and the corresponding unit price included in the Bid Form. The final quantities and 
Contract Price will be determined in accordance with Paragraph 
11.03 of the General and Supplementary Conditions, if any.
INSTRUCTIONS TO BIDDERS

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between prices written in words and prices written in figures will be resolved in favor of prices written in words.

14.2 Alternates (if any)

A. Bidders shall include a separate price for each alternate described in the Bidding Documents as provided for in the Bid Form and Supplements, if any. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate and will be applied in the same order as listed in the Bid form.

14.3 Completion Time Comparisons

A. Bid prices will be compared after adjusting for exceptions taken by Bidders for the number of days or dates set for Substantial Completion per Article 9 above. The adjusting amount will be determined at the rate set forth in the Agreement for liquidated damages for failing to achieve Substantial Completion.

ARTICLE 15 – SUBMITTAL OF BID

15.1 With each copy of the Bidding Documents, a Bidder is furnished a copy of the Bid Form, the Bid Security Form and Supplements. An original signed hard copy of the Bid Form, the original of the Bid security, Supplements (as listed in the Bid Submittal Checklist), and the Bid Submittal Checklist are to be completed and submitted to the Issuing Office.

15.2 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Invitation to Bid and shall be enclosed in a plainly marked package with the Project title, the name and address of Bidder, and shall be accompanied by the Bid security and other required documents.

15.3 If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation “BID ENCLOSED.” A Bid sent by mail or courier shall be addressed to the Issuing Office.

15.4 Bidders shall be responsible to confirm the ability of overnight mailing or courier services to deliver to the Issuing Office.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

16.1 A Bid may be modified or 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.

16.2 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that
there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is re-Bid, that Bidder will be disqualified from submitting a Bid on the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the Invitation to Bid and, unless obviously non-responsive, read aloud publicly.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.1 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsive or responsible or does not meet the specified qualification or quality requirements, based on poor references or otherwise. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project or public to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate Contract terms with the Successful Bidder.

19.2 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest 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 has an interest.

19.3 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.

19.4 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities are submitted.

A. Owner may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

19.5 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance

INSTRUCTIONS TO BIDDERS
00 21 13-9
with the Contract Documents.

A. Owner may conduct reference checks for the projects listed by the Bidder. Poor references may be a basis for deeming Bidder as not responsible. Reference questions will include, but are not limited to, product quality and durability, overall work quality, performance, timely delivery/completion, customer service, and general customer satisfaction.

19.6 If the Contract is to be awarded, Owner may award the Contract to the responsive and responsible Bidder, offering the lowest price for the Bid and whose Bid is in the best interests of the Project or public.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions and Supplementary Conditions, if any, set forth Owner’s requirements as to performance and payment bonds and insurance. The Successful Bidder shall deliver such bonds and evidence of insurance coverage within 10 days of receipt of the Notice of Award.

ARTICLE 21 – SIGNING OF AGREEMENT

21.1 The Owner will issue a Notice Award to the Successful Bidder in the form included in Bidding Documents. Within 10 days of receipt of the Notice of Award, the Successful Bidder shall comply with the conditions set forth therein and provide requested information.

21.2 Based on required reviews and approvals, Owner will thereafter provide the required number of counterparts of the Agreement and other Contract Documents which are identified in the Agreement. The Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and other Contract Documents to Owner within the time specified by the Owner. After obtaining required reviews and approvals for Contract execution, Owner shall return one fully signed counterpart the Agreement and other Contract Documents.

ARTICLE 22 – RETAINAGE

22.01 Provisions concerning retainage are set forth in the Agreement.

ARTICLE 23 – CONTRACTOR’S WARRANTY AND GUARANTEES; CORRECTION PERIOD

23.01 Provisions concerning Contractor’s general warranty and guarantees and correction period are set forth in Articles 6.19, 13.06, 13.07, 13.09 and 14.03 of the General and Supplementary Conditions, if any.

ARTICLE 24 – EQUAL EMPLOYMENT OPPORTUNITY, ANTI-DISCRIMINATION, AND AFFIRMATIVE ACTION

24.01 Provisions regarding the requirements for equal employment opportunity, anti-
discrimination, and affirmative action programs, if any, are set forth in the Supplementary Conditions.

ARTICLE 25 – SAFETY AND HEALTH REGULATIONS

25.01 This Project is subject to the Safety and Health Regulations of the U.S. Department of Labor set forth in Title 29 CFR, Part 1926 and to all subsequent amendments and other requirements identified in Section 00 73 19 of the Supplementary Conditions.

ARTICLE 26 – SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

26.01 Supplementary Instructions to Bidders, if any, are included in Section 00 22 13 and may include certain provisions required by Laws and Regulations and funding agencies. Bidders are solely responsible to determine, obtain, review and interpret the full text of applicable Laws and Regulations.

END OF SECTION
SECTION 00 22 13

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

The following supplement or modify the Instructions to Bidders pursuant to Article 26 therein. This section does not represent or reflect all applicable Laws and Regulations and may only include excerpts, portions, and para-phrasing of certain Laws and Regulations. Bidders are solely responsible to determine, obtain, review and interpret the full text of applicable Laws and Regulations.

1.1 Applicable Laws for Bid and Award; General

A. This Contract is being bid under the provisions of Massachusetts General Law (MGL) Chapter 30, Section 39M, *Contracts for construction and materials; manner of awarding.*

1.2 Additional Defined Terms

A. *Bid security* – per the Instructions to Bidders. Also “bid deposit” as used in MGL Chapter 30, Section 39M.

B. *Lowest Responsive and Responsible Bidder* – Also the Successful Bidder. As defined in MGL Chapter 30, Section 39M,

“The term “lowest responsive and responsible bidder” shall mean the bidder: (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who shall certify 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; (4) who, where the provisions of section 8B of chapter 29 apply, shall have been determined to be qualified thereunder; and (5) who obtains within 10 days of the notification of contract award the security by bond required under section 29 of chapter 149; provided that for the purposes of this section the term “security by bond” shall mean the bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority; provided further, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.”
1.3 Other Requirements of the MGL

A. Foreign Corporations: The provisions of MGL Chapter 30, Section 39L, Public construction work by foreign corporations; restrictions and reports, requires that if a Bidder is a foreign corporation, it shall provide with its Bid, a certificate from the Commonwealth of Massachusetts Secretary of State stating that the corporation has complied with requirements of Section 15.03 of subdivision A of Part 15 of MGL Chapter 156D and the date of compliance, and further has filed all annual reports required by Section 16.22 of subdivision B of Part 16 of said Chapter 156D, and further, will provide such certificate for each Subcontractor that is a foreign corporation if it receives a Notice of Award. Also see Section 00 45 05 of the Bidding Requirements.

B. Taxes: Bidder shall submit with its Bid, a “Certificate of Good Standing” with respect to all returns due and taxes from the Commonwealth of Massachusetts Department of Revenue certifying Bidder has complied with all laws relating to taxes, reporting of employees and contractors, and withholding and remitting of child support. Bidder will provide such certificate for each Subcontractor if it receives a Notice of Award. Bidders are encouraged to obtain such Certificate of Good Standing online at http://www.mass.gov/dor/businesses/programs-and-services/certificate-of-good-standing.html. See explanation and instructions at the end of this Section.

C. Debarment: A Bidder is ineligible to bid or enter into a public contract in the Commonwealth of Massachusetts if it has been debarred from bidding on or entering into a public contract under the provisions of MGL Chapter 29, Section 29F, Debarment from bidding; definitions; lists; notice; affiliates; mitigating circumstances, or any other applicable debarment provisions of any other chapter of the MGL or any rule or regulations promulgated thereunder.

D. Financial Statements: The following shall be submitted prior to execution of the Agreement in accordance with MGL Chapter 30, Section 39R Definitions; contract provisions; management and financial statements; enforcement as requested in the Notice of Award issued to the Successful Bidder.

- To Owner - A statement by management on internal accounting control and a statement prepared by an independent certified public accountant regarding management’s statement; and
- To DCAMM - An audited financial statement for the most recent completed fiscal year.
E. Labor Preferences and Work Hours

1. The provisions of MGL Chapter 149, Section 26, Public works; preference to veterans and citizens; wages, requires that employment in the construction of public works be subject to preference being given to citizens of the Commonwealth of Massachusetts, citizens of the town or city where the Project is located, veterans and service-disabled veterans, and citizens of the United States. The provisions of MGL Chapter 149, Section 179A, Preference to citizens in awarding public work contracts, violations, requires that award of contracts for public work be subject to preference being given to persons who are citizens of the United States.

2. The provisions of MGL Chapter 149, Sections 26, 27, and 27A through 27D, as amended, set forth requirements for minimum wage rates as issued by the Executive Office of Labor and Workforce Development, Department of Labor Standards. It is the responsibility of the Bidders, before Bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed Work under the resulting Contract. Also see Sections 00 73 43 and 00 73 46 of the Supplementary Conditions.

3. The provisions of MGL Chapter 149, Section 30, Eight hour day and six day week; emergencies; work on highways, and Section 34, Public contracts; stipulation as to hours and days of work; void contracts, apply to this Project.

F. Sales Tax Exemption: MGL Chapter 64H, Section 6, Exemptions, subsection (f), exempts building materials and supplies to be used in the Project from Commonwealth of Massachusetts sales tax and Bidder shall not include any amount therefor. The words “building materials and supplies” shall include all materials and supplies consumed, employed or expended in the construction, reconstruction, alteration, remodeling or repair of any building, structure, public highway, bridge, or other such public work, as well as such materials and supplies physically incorporated therein. Said words shall also include rental charges for construction vehicles, equipment and machinery rented specifically for use on the Project Site, or while being used exclusively for the transportation of materials for the Project.

G. Safety and Health: This Project is subject to Massachusetts Department of Labor and Industries, Division of Occupational Safety 454 CMR 10.00 et seq. “Construction Industry Rules and Regulations”; Massachusetts Department of Public Safety 520 CMR 14.00 et seq. “Excavation and Trench Safety”; MGL Chapter 82, The Laying Out, Alteration, Relocation and Discontinuance Of Public Ways and Specific Repairs Thereon; MGL Chapter 82A, Excavation and Trench Safety, and MGL Chapter 149 Section 129A, Shoring Trenches for local governments. Also see Section 00 73 19 of the Supplementary Conditions.
H. **Special Licensing**

1. Work involving the removal, containment, or encapsulation of asbestos or material containing asbestos must be performed by a contractor licensed in accordance with MGL Chapter 149, Section 6B.

2. Sheet metal work must be performed by a contractor licensed in accordance with 271 CMR 1.00, et seq. governing licensing, permitting, and sheet metal work in Massachusetts.

I. **Price Adjustments for Certain Materials**: As required by Chapter 150 of the Acts of 2013, the provisions of MGL Chapter 30, Section 38A, *Price adjustment clause in contracts for road, bridge, water and sewer projects awarded under Sec. 39M*, adjustments for fuel (both diesel and gasoline), liquid asphalt and Portland cement shall be made as set forth in Section 00 73 73, SC-12.01.

1.4 **Requirements of the City of Quincy**

A. Bidders shall submit information per Section 00 45 13 regarding any labor disputes during the past 5 years.
Certificate of Good Standing/Tax Compliance

Corporations and other organizations often need proof that they are in good standing with the Commonwealth, i.e., that all tax liabilities have been met in order to obtain financing, sell their business, renew liquor licenses or enter into other business transactions.

Individuals may need proof that they are in good standing with the Commonwealth, i.e., that all their income tax returns and liabilities have been met, in order to obtain financing, renew a professional license or obtain employment. Individuals that have had a hold placed on their professional license can use this site if they have filed and paid all their income tax returns.

The fastest and easiest way to obtain a Certificate is online through MassTaxConnect. Through MassTaxConnect, both taxpayers and authorized practitioners can obtain a Certificate within a couple days. Before beginning this process, make sure that you have the entity’s id number and a list of tax types filed with DOR readily available.

Once the applicant has been authenticated, a search will be made of our databases to identify any returns that need to be filed or bills that remain unpaid. You’ll be asked to check back for the results, and at that time, fully compliant taxpayers will be able to print a Certificate or request that it be mailed to the address of record (or both). If bills are identified, an opportunity will be given to pay the amount owed via Electronic Funds Withdrawal or credit card. A Certificate will then be issued. Taxpayers can file and pay most nonfiled tax returns within the application and obtain their Certificate. Taxpayers with nonfiled corporate or individual income tax returns will be given instructions on how to file and obtain a Certificate.

Please note:
Processing of Paper applications can take 4 to 6 weeks. We strongly recommend filing your request online if that option is available to you.
SECTION 00 41 01

BID FORM

ARTICLE 1 – DEFINED TERMS

1.1 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions and Supplementary Conditions, if any.

ARTICLE 2 – BID RECIPIENT

2.1 This Bid is submitted to:

City of Quincy Massachusetts
Purchasing Department Quincy City Hall
1305 Hancock Street
Quincy, MA 02169

2.2 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 3 – BIDDER’S ACKNOWLEDGEMENTS

3.1 Bidder accepts all of the terms and conditions of the Bidding Documents including, without limitation:

A. those dealing with disposition of Bid security;
B. those included in the Supplementary Instructions to Bidders;
C. insurance and bonding requirements (Payment Bond and Performance Bond each equal to 100% of the total Contract Price) set forth in the General Conditions and Supplementary Conditions, if any;
D. Contract Times as set forth in the Agreement; and
E. provisions for liquidated damages as set forth in the Agreement.

3.2 This Bid will remain subject to acceptance for 90 days (Saturdays, Sundays, and legal holidays excluded) after the Bid opening or for such longer period of time that Bidder may agree to in writing upon request of Owner.
3.3 Bidder acknowledges receipt of the following Addenda.

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<thead>
<tr>
<th>Addendum No.</th>
<th>Addendum Date</th>
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</tbody>
</table>

3.4 Bidder acknowledges the representations and certifications included in Section 00 45 05 are made a condition of the Bid.

**ARTICLE 4 – BASIS OF BID**

4.1 Bidder will complete the Work in accordance with the Contract Documents for the following price(s) based on unit prices included in Section 00 43 22. **Bidder must complete all items.**

**BID PRICES SHALL EXCLUDE SALES AND USE TAX.**

**TOTAL BASE BID PRICE (based on Unit Prices Form):**

$\text{______________Dollars and ________Cents}$

*(Use words)*

$\text{___________}$

*(Use figures)*

4.2 Unit Prices have been computed in accordance with Paragraph 11.03.A of the General Conditions and Supplementary Conditions, if any.

4.3 Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for unit price items will be based on actual quantities determined and based on the unit prices included in Section 00 43 22, as provided in the General Conditions and Supplementary Conditions, if any.
ARTICLE 5 – TIME OF COMPLETION

5.1 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions and Supplementary Conditions, if any, on or before the dates or within the number of calendar days indicated in the Agreement.

5.2 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 6 – ATTACHMENTS TO THIS BID

6.01 The following documents are submitted with and made a condition of this Bid:

00 43 13 Bid Bond – Penal Sum Form

OR

Required Bid security in the form of ________________________________

Supplements:

00 43 22 Unit Prices Form

00 43 40 Information, Schedules and Data

00 43 93 Bid Submittal Checklist

00 45 05 Bidder’s Representations and Certifications including required submittals

00 45 13 Bidder's Qualifications

00 45 19 Non-collusion Affidavit
ARTICLE 7 – BID SUBMITTAL

7.01 This Bid is submitted by:

A Corporation

Corporation Name: ___________________________

State of incorporation: _________________________

Type: ____________________________

(General Business, Professional, Service, other)

By: ____________________________

(Signature – attach evidence of authority to sign)

Name (typed or printed): ____________________________

Title: ____________________________

(CORPORATE SEAL)

Attest: ____________________________

(Signature of Corporate Secretary)

Business Address: ____________________________

Phone & Facsimile Nos: ____________________________

Email address: ____________________________

Date of qualification to do business as out-of-state corporation: ____________________________

A Limited Liability Company (LLC)

LLC Name: ____________________________

State in which organized: ____________________________

By: ____________________________

(Signature – attach evidence of authority to sign)

Name (typed or printed): ____________________________

Title: ____________________________

Business Address: ____________________________

Phone & Facsimile Nos: ____________________________

Email address: ____________________________
A Joint Venture

First Joint Venturer Name: ________________________________

By: __________________________________________________
(Signature – attach evidence of authority to sign)
Name (typed or printed): ________________________________
Title: ________________________________________________
Business Address: ______________________________________
Phone & Facsimile Nos: ________________________________

Email address: ______________________________

Second Joint Venturer Name: ________________________________

By: __________________________________________________
(Signature – attach evidence of authority to sign)
Name (typed or printed): ________________________________
Title: ________________________________________________
Business Address: ______________________________________
Phone & Facsimile Nos: ________________________________

Email address: ______________________________

(Each joint venturer must sign. The manner of signing for each individual, partnership, corporation and limited liability company that is a party to the joint venture should be in the manner indicated above.)
Partnership

Name: ________________________________ (SEAL)

By: ________________________________

(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): ________________________________

Business Address: ________________________________

Phone & Facsimile Nos: ________________________________

Email address: ________________________________

An Individual

Name (typed or printed): ________________________________

By: ________________________________

(Individual’s signature)

Doing business as: ________________________________

Business Address: ________________________________

Phone & Facsimile Nos: ________________________________

Email address: ________________________________
Communications concerning this Bid shall be addressed to:

Name: ________________________________________________

Title: ________________________________________________

Business Address: ______________________________________

_____________________________________________________

Phone & Facsimile Nos: _________________________________

Email address: ________________________________________

END OF SECTION
BID BOND

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

BIDDER (Name and Address):

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

OWNER (Name and Address):

BID DUE DATE:

DESCRIPTION (Project Name and Include Location):

BOND

Bond Number:

Date (Not earlier than Bid due date):

Penal sum (Words) $ (Figures)

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

BIDDER

Bidder’s Name and Corporate Seal

Surety’s Name and Corporate Seal

By: ___________________________ By: ___________________________

Signature

Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: ___________________________ Attest: ___________________________

Signature

Signature

Title

Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.
1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder’s and Surety’s liability. Recovery of such penal sum under the terms of this Bond shall be Owner’s sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1 Owner accepts Bidder’s Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2 All Bids are rejected by Owner, or

3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety’s written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term “Bid” as used herein includes a Bid, offer, or proposal as applicable
SECTION 00 43 22

UNIT PRICES FORM

Provide unit pricing for each Bid item in both words and figures. Provide Bid item totals in figures only. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between prices written in words and prices written in figures will be resolved in favor of prices written in words.

Unit Prices have been computed in accordance with Paragraph 11.03.A of the General Conditions and Supplementary Conditions, if any. Estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for unit price items will be based on actual quantities determined and based on the unit prices included below as provided in the General Conditions and Supplementary Conditions, if any.

BID PRICES SHALL EXCLUDE SALES AND USE TAX

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item Description with Unit or Lump Sum Price in Written Words</th>
<th>Estimated Quantity &amp; Unit</th>
<th>Unit Bid Price (Figures)</th>
<th>Total Bid Item Price (Figures)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.a.</td>
<td>Furnish and Install 20-inch Cement Lined Ductile Iron Water Main @</td>
<td>60 LF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.b.</td>
<td>Furnish and Install 16-inch Cement Lined Ductile Iron Water Main @</td>
<td>90 LF</td>
<td></td>
<td></td>
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<tr>
<td>1.c.</td>
<td>Furnish and Install 12-inch Cement Lined Ductile Iron Water Main @</td>
<td>170 LF</td>
<td></td>
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<tr>
<td>1.d.</td>
<td>Furnish and Install 10-inch Cement Lined Ductile Iron Water Main @</td>
<td>80 LF</td>
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</table>
### UNIT PRICES FORM

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item Description with Unit or Lump Sum Price in Written Words</th>
<th>Estimated Quantity &amp; Unit</th>
<th>Unit Bid Price (Figures)</th>
<th>Total Bid Item Price (Figures)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.e.</td>
<td>Furnish and Install 8-inch Cement Lined Ductile Iron Water Main @</td>
<td>11,200 LF</td>
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</tr>
<tr>
<td>1.f.</td>
<td>Furnish and Install 6-inch Cement Lined Ductile Iron Water Main @</td>
<td>650 LF</td>
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<tr>
<td>2.a.</td>
<td>Furnish and Install 20-inch Gate Valve &amp; Box @</td>
<td>3 EA</td>
<td></td>
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<tr>
<td>2.b.</td>
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<td>7 EA</td>
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<tr>
<td>2.c.</td>
<td>Furnish and Install 12-inch Gate Valve &amp; Box @</td>
<td>11 EA</td>
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<tr>
<td>2.d.</td>
<td>Furnish and Install 10-inch Gate Valve &amp; Box @</td>
<td>6 EA</td>
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<tr>
<td>Item No.</td>
<td>Item Description with Unit or Lump Sum Price in Written Words</td>
<td>Estimated Quantity &amp; Unit</td>
<td>Unit Bid Price (Figures)</td>
<td>Total Bid Item Price (Figures)</td>
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<tr>
<td>2.e.</td>
<td>Furnish and Install 8-inch Gate Valve &amp; Box @</td>
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<td></td>
<td>Dollars and ______ Cents PER EACH</td>
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<td>2.f.</td>
<td>Furnish and Install 6-inch Gate Valve &amp; Box @</td>
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<td>Dollars and ______ Cents PER EACH</td>
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<td>2.g.</td>
<td>Furnish and Install 16” x 6” Tapping Sleeve, Gate Valve &amp; Box</td>
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<td>Dollars and ______ Cents PER EACH</td>
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<tr>
<td>2.h.</td>
<td>Furnish and Install 12” x 6” Tapping Sleeve, Gate Valve &amp; Box</td>
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<td>Dollars and ______ Cents PER EACH</td>
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<td>2.i.</td>
<td>Furnish and Install 8” x 6” Tapping Sleeve, Gate Valve &amp; Box</td>
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<td>Dollars and ______ Cents PER EACH</td>
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<td>2.j.</td>
<td>Furnish and Install 6” x 6” Tapping Sleeve, Gate Valve &amp; Box</td>
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<td>3.a.</td>
<td>Furnish and Install 16-inch Insertion Valve @</td>
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<td>3.b.</td>
<td>Furnish and Install 12-inch Insertion Valve @</td>
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<td>3.c.</td>
<td>Furnish and Install 10-inch Insertion Valve @</td>
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<td>Dollars and_____ Cents PER EACH</td>
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<td>3.d.</td>
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<td>3.e.</td>
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<td>Furnish and Install 12-inch Line Stops @</td>
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<td>Dollars and_____ Cents PER EACH</td>
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<td>4.c.</td>
<td>Furnish and Install 10-inch Line Stops @</td>
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<td>4.d.</td>
<td>Furnish and Install 8-inch Line Stops @</td>
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<td>4.e.</td>
<td>Furnish and Install 6-inch Line Stops @</td>
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<td>Furnish and Install Hydrant @</td>
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<td>6.a.</td>
<td>Furnish and Install 1-inch Type K Copper Tubing @</td>
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<td>3,500</td>
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<td>Dollars and_____ Cents PER LINEAR FOOT</td>
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<td>6.b.</td>
<td>Furnish and Install 2-inch Type K Copper Tubing @</td>
<td>100 LF</td>
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<td>7.a.</td>
<td>Furnish and Install 1-inch Corporation Stop @</td>
<td>210 EA</td>
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<td>7.b.</td>
<td>Furnish and Install 2-inch Corporation Stop @</td>
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<td>7.c.</td>
<td>Furnish and Install 1-inch Curb Stop and Box @</td>
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<td>7.d.</td>
<td>Furnish and Install 2-inch Curb Stop and Box @</td>
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<td>8.a.</td>
<td>Furnish and Install 2-inch Temporary Bypass Piping @</td>
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<td>8.b.</td>
<td>Furnish and Install 4-inch Temporary Bypass Piping @</td>
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<td>11,000 LF</td>
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<td>Dollars and _____ Cents PER LINEAR FOOT</td>
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<td>9.a.</td>
<td>Excavation of Unsuitable Materials Below Normal Grade @</td>
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<td>40 CY</td>
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<td>Dollars and _____ Cents PER CUBIC YARD</td>
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<td>9.b.</td>
<td>Excavation of Unsuitable Materials Above Normal Grade @</td>
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<td>400 CY</td>
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<td>Dollars and _____ Cents PER CUBIC YARD</td>
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<td>9.c.</td>
<td>Rock and Boulder Excavation @</td>
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<td>200 CY</td>
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<td>Dollars and _____ Cents PER CUBIC YARD</td>
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<td>Test Pits @</td>
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<td>100 CY</td>
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<td>Dollars and _____ Cents PER CUBIC YARD</td>
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<td>11.a.</td>
<td>Gravel Subbase @</td>
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<td>4,500 CY</td>
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<td>Bituminous Binder</td>
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<td>11.c.</td>
<td>Bituminous Top</td>
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<td>100 TON</td>
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<td>Temporary Pavement</td>
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<td>1,200 TON</td>
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<td>12.a.</td>
<td>Concrete for Thrust Restraint</td>
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<td>40 CY</td>
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<td>Dollars and_____ Cents PER CUBIC YARD</td>
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<td>12.b.</td>
<td>Controlled Density Fill (CDF) – Type 2E</td>
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<td>Dollars and_____ Cents PER CUBIC YARD</td>
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<td>13.</td>
<td>Mobilization/Demobilization</td>
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<td>1 LS</td>
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<td>Dollars and_____ Cents LUMP SUM</td>
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<td>and Groundwater</td>
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<td>@ Fifty Thousand</td>
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<td>Dollars and Zero Cents NOT TO</td>
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<td>15.</td>
<td>ALLOWANCE for Police Details</td>
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<td>$250,000.00</td>
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<td>@ Two Hundred Fifty Thousand</td>
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<td>16.</td>
<td>ALLOWANCE for Private Property</td>
<td>1 NTE</td>
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<td>$25,000.00</td>
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<td>@ Twenty-Five Thousand</td>
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END OF SECTION
SECTION 00 43 40

INFORMATION, SCHEDULES AND DATA

SCHEDULE

Provide a proposed Project Schedule with the Bid based on a Notice to Proceed issuance date of April 1, 2019, and the following Substantial Completion and Final Completion dates.

The Work shall be substantially completed by November 1, 2019. All Work shall be ready for final payment by November 15, 2019.

The schedule shall be presented in sufficient detail for the Owner to evaluate the Bidder's ability to perform the Work within the Contract Times and, at a minimum, shall include:

- milestones related to product submittals, schedules, procurement, construction, and checkout & functional testing;
- sequencing to limit impacts from construction;
- Number of anticipated crews

WORK PLAN

Submit a narrative work plan describing the Bidder’s approach to the successful execution of the Work to accommodate the proposed Project Schedule and provide for special requirements. Allow for review of submittals, coordination, and development of detailed construction sequencing and coordination; and compliance with special requirements.

Describe:

- how schedule progress will be measured and tracked;
- how the Schedule of Values and cash flow will be determined and how progress for payment will be determined; and
- how documents will be controlled to assure that the appropriate revision is used in design, procurement, and construction/installation.

END OF SECTION
SECTION 00 43 93

BID SUBMITTAL CHECKLIST

Bidder confirms that the following documents are fully completed, included in and made part of its Bid.

☐ 00 41 01 Bid Form

☐ 00 43 13 Bid Bond – Penal Sum Form

Supplements

☐ 00 43 22 Unit Prices Form

☐ 00 43 40 Information, Schedules and Data

☐ 00 45 05 Bidder’s Representations and Certifications

☐ including required documents and submittals

☐ 00 45 13 Bidder's Qualifications

☐ 00 45 19 Non-collusion Affidavit

☐ One original signed hardcopy (with original Bid security) has been submitted to the Owner in accordance with Section 00 21 13.

Bidder further confirms that if it is deemed one of the lowest responsive and responsible Bidders, as notified by the Owner, it shall submit documents required by and in accordance with Section 00 45 57 by the close of business on the third business day after notification and the documents submitted shall also be in a condition of its Bid.

CONFIRMED BY BIDDER ON:

By:

Authorized person per Bid Form

END OF SECTION
SECTION 00 45 05

BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

The undersigned, under the penalties of perjury, represents and certifies the following which is made a condition of the Bid.

1.1 Bidder’s Representations

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

B. Bidder 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. Bidder is familiar with and is satisfied as to all 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 contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Section 00 73 10 of the Supplementary Conditions Paragraph 4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Section 00 73 10 of the Supplementary Conditions Paragraph 4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; 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, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder’s safety precautions and programs.

F. Based on the information and observations referred to in Paragraph E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of the Bid for performance of the Work at the price(s) 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 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 of the Work for which the Bid is submitted.

1.2 Bidder’s Certifications

A. The 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.

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid and has not solicited or induced any individual or entity to refrain from bidding.

C. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph:

   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;

   2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish Bid 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.

D. Bidder will comply with the requirements of the Safety and Health provisions in the Contract Documents, and if Bidder is awarded a Contract, it shall incorporate these provisions into all subcontracts and Purchase Orders so that such provisions will be binding upon each Subcontractor or Supplier.
E. Bidder will comply with the requirements of the Equal Employment Opportunity, Anti-discrimination, and Affirmative Action Program provisions in the Contract Documents, if any, and if Bidder is awarded a Contract, it shall incorporate these provisions into all subcontracts and Purchase Orders so that such provisions will be binding upon each Subcontractor or Supplier.

1.3 Bidder’s Certifications Required by Massachusetts General Law (MGL)

A. The 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.

B. Bidder has submitted a certificate from the Secretary of State of the Commonwealth of Massachusetts that the corporation has complied with requirements of Section 15.03 of subdivision A of Part 15 of MGL Chapter 156D and the date of compliance, and further has filed all annual reports required by Section 16.22 of subdivision B of Part 16 of said Chapter 156D if Bidder is a foreign corporation. Bidder certifies it will provide such certificate for each Subcontractor that is a foreign corporation if it receives a Notice of Award.

C. Bidder certifies, under the penalties of perjury, to the best of its knowledge and belief, that all state tax returns have been filed and all state taxes paid pursuant to MGL Chapter 62C, Section 49A, and has submitted a Certificate of Good Standing with respect to all returns due and taxes from the Commonwealth of Massachusetts Department of Revenue certifying Bidder has complied with all laws relating to taxes, reporting of employees and contractors, and withholding and remitting of child support. Bidder certifies it will provide such certificate for each Subcontractor if it receives a Notice of Award.

D. Bidder certifies that if awarded the Contract, the following will be submitted prior to execution of the Agreement in accordance with MGL Chapter 30, Section 39R Definitions; contract provisions; management and financial statements; enforcement.

- To Owner - A statement by management on internal accounting control and a statement prepared by an independent certified public accountant regarding management’s statement; and
- To DCAMM - An audited financial statement for the most recent completed fiscal year.

E. Bidder certifies that if awarded the Contract, any Work involving the removal, containment, or encapsulation of asbestos or material containing asbestos will only be performed by a licensed contractor in accordance with MGL Chapter 149, Section 6BA.
F. Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work and further certifies that all employees to be employed at the Work Site 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 if Bidder is awarded a Contract, shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

G. Bidder is not presently debarred from bidding on or entering into a public contract in the Commonwealth of Massachusetts under the provisions of MGL Chapter 29, Section 29F, or any other applicable debarment provisions of any other chapter of the MGL or any rule or regulations 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.

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<th>SUBMITTED ON:</th>
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<td>By:</td>
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Authorized person per Bid Form

END OF SECTION
SECTION 00 45 13

BIDDER’S QUALIFICATIONS

The following data, statements of experience, personnel, equipment and general qualifications of the Bidder are submitted as a part of the Bid and the Bidder represents and guarantees the truthfulness and accuracy thereof and its ability to meet the qualifications requirements specified forth in the General Requirements. Attach additional sheets as necessary properly cross referenced.

A. Bidder’s organization is a ___________________________ (entity type) and has been in business continuously from the year __________________.

B. Bidder’s organization has had experience in construction comparable to that required by the Contract Documents as a prime contractor for ____________ years and as a subcontractor for ____________ years.

C. Following is a list of at least 3 projects Bidder’s organization has completed in the state the Project is located, within the last 5 years which are similar in type, character and magnitude to that required by the Contract.

<table>
<thead>
<tr>
<th>Client/Owner Name/Address</th>
<th>Project Name/Location</th>
<th>CURRENT Contact Name, Phone, Email</th>
<th>Time Period</th>
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BIDDER'S QUALIFICATIONS
00 45 13-1
D. The following supervisory personnel are currently employed by the Bidder and available for assignment to the Project (project manager, superintendents, principal foremen and engineers).

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Years of Experience</th>
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Attach detailed resumes of qualifications, previous employers and experience for each.
E. Describe Bidder’s 24 hour/7 days per week emergency response and communication capabilities.

<table>
<thead>
<tr>
<th>Type of Equipment</th>
<th>Size or Capacity</th>
<th>Owned or Rented</th>
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G. The names and addresses of the members of the Board of Directors of corporation, or the names and addresses of all persons and parties interested in this Bid as partners of a partnership or as individuals, are as follows.

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Telephone</th>
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H. Following is a list of all projects Bidder has undertaken in the last 5 years which have resulted in partial or final settlement of the contract by arbitration or litigation.

<table>
<thead>
<tr>
<th>Name of Client and Project</th>
<th>Contact Name/Telephone No.</th>
<th>Original Contract Amount</th>
<th>Total Claims</th>
<th>Arbitrated or Litigated Amount of Settlement of Claims</th>
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</table>
I. Reference is hereby made to the following bank or banks as to the financial responsibility of the Bidder.

<table>
<thead>
<tr>
<th>Name of Bank</th>
<th>Address</th>
<th>Contact Name and Telephone No.</th>
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</table>

J. Following is a list of safety citations issued to the Bidder over the last 5 years.

<table>
<thead>
<tr>
<th>Name of Client and Project</th>
<th>Contact Name/Telephone No.</th>
<th>Type of Citation</th>
<th>Issued by</th>
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<tbody>
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BIDDER'S QUALIFICATIONS
00 45 13-5
K. Following is a list of labor disputes the Bidder has been the subject of, or otherwise been involved in, during the last 5 years. For these purposes, "labor disputes" shall include picketing or any other activity which disrupted or delayed the work. Attach additional sheets as necessary.

<table>
<thead>
<tr>
<th>Name and Location of the Project</th>
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<tbody>
<tr>
<td>Nature of the Dispute</td>
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<tr>
<td>Duration and dates during which the dispute took place</td>
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<tr>
<td>How the dispute was resolved</td>
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<td></td>
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<tr>
<td>How the dispute was resolved</td>
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END OF SECTION
SECTION 00 45 19

NON-COLLUSION AFFIDAVIT

I, being duly sworn, depose and, under the penalty of perjury, say that the following is true:

1. I am the person responsible within my firm for the final decision as to the price(s) and amount of this Bid or, if not, that I have written authorization, enclosed herewith, from that person to make the statements set out below on his or her behalf and on the behalf of my firm.

2. The price(s) and amount of this Bid have been arrived at independently, without collusion, consultation, communication, or agreement for the purpose of restricting competition with any other contractor, competitor, Bidder, or potential Bidder.

3. Unless otherwise required by law, neither the price(s) nor the amount of this Bid have been disclosed to any other firm or person who is a Bidder, competitor, or potential Bidder on the Project, and will not be so disclosed either directly or indirectly prior to Bid opening.

4. No attempt has been made or will be made to solicit, cause, or induce any firm, partnership, corporation, or person to submit or not submit a Bid on this Project, or to submit a Bid higher than the Bid of this firm, or submit an intentionally high or noncompetitive Bid or other form of complementary Bid, or for the purpose of restricting competition.

5. The Bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary Bid.

6. My firm has not offered or entered into a subcontracting agreement regarding the purchase of materials or services from any firm or person, or offered, promised, or paid cash or anything of value to any firm or person, whether in connection with this or any other Project, in consideration for an agreement or promise by any firm or person to refrain from proposing or to submit a complementary Bid on the Project.

7. My firm has not accepted nor been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting a complementary Bid or agreeing to do so, on the Project.
8. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval, or submission of my firm's Bid on the Project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, act, or other conduct inconsistent with any of the statements and representations made in this affidavit.

______________________________
Company Name

______________________________
Signature

______________________________
Company Position

______________________________
Date:

______________________________
Attest:

______________________________
Date:

END OF SECTION
SAMPLE NOTICE OF AWARD (C-00 51 00)

Date: __________

Project:

Owner: Owner's Contract No.:

Contract: Engineer's Project No.:

Bidder:

Bidder's Address:

You are notified that your Bid dated [_____] for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for [__________________________] subject to the following conditions being met and subject to required reviews and approvals.

The Total Contract Price of your Contract is Dollars ($ ).

You must comply with the following conditions precedent within 10 days of the date you receive this Notice of Award.

1. Deliver the Contract security (Bonds) as specified in the General Conditions and Supplementary Conditions (Articles 2 and 5);

2. Deliver the insurance certificates indicating coverages as specified in the General Conditions and Supplementary Conditions (Articles 2 and 5);

3. Deliver the following completed and executed certifications and documents:
   a. Per Section 00 22 13, pursuant to MGL Chapter 30, Section 39R Definitions; contract provisions; management and financial statements; enforcement:
      Provide a statement by management on internal accounting controls (Sample Letter 1 attached) and a statement prepared by an independent certified public accountant regarding management’s statement (Sample Letter 2 attached) to the Owner.
      Submit an audited financial statement for the most recent completed fiscal year to DCAMM.
   b. Items to be provided by Subcontractors:
      per Section 00 22 13 pursuant to Massachusetts General Law:
      Certificate of Good Standing from the Department of Revenue with respect to all returns due and taxes
      Certification from the Secretary of State for foreign corporations
Other conditions precedent:

None

Failure to comply with the above conditions within the time specified will entitle the Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

After confirming that you have complied with the above conditions and required approvals are obtained, Owner will deliver the conformed Contract Documents for execution.

Owner

By: Authorized Signature

Title

Copy to Engineer
DATE

INSERT Owner name and address

RE: [INSERT CONTRACT #/PROJECT # AND NAME]

Dear [_______]:

This letter is being submitted pursuant to MGL Chapter 30 §39R(c). Please be advised that our firm has a system of internal accounting controls which assure that:

(1) transactions are executed in accordance with management’s general and specific authorization;

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

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

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

Sincerely,

________________________________________
[Name and title of authorized representative of Contractor]
TO BE SUBMITTED ON CPA’S LETTERHEAD

DATE

INSERT Owner name and address

RE: [INSERT CONTRACT #/PROJECT # AND NAME]

Dear [_______]:

Please be advised that we have reviewed the Statement of Internal Accounting Controls prepared by [NAME OF CONTRACTOR], in connection with the above-captioned Project as required under MGL Chapter 30, § 39R. In our opinion, representations of management are consistent with our evaluations of the system of internal accounting controls and such representations are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to [NAME OF CONTRACTOR]’s financial statements.

Sincerely,

____________________, CPA

[Name]
AGREEMENT

Made in Quintuplicate this day ________________ between the City of Quincy, Massachusetts, Municipal Corporation, Within the County of Norfolk, party of the first part and:

party of the second part.

WITNESSETH: That for and in consideration of the following mutual covenants the parties agree with each other as follows:

ARTICLE I: The party of the second part agrees to sell and deliver to the party of the first part the following:

CONSTRUCTION SERVICES FOR
Click or tap here to enter text.

All in accordance with the detailed specifications and considerations attached to and made a part this contract.

TERMS: As per attached

SPECIFICATIONS ARE ATTACHED TO AND MADE A PART THEREOF

ORDERED BY: Click or tap here to enter text.

ARTICLE II: The party of the first part agrees to pay to the party of the second part upon satisfactory completion of the delivery of the above mentioned.

FOR THE SUM OF: $Click or tap here to enter text.

Click or tap here to enter text.

Sufficient funds are available to cover this contract in the account to be charged.

__________________________
MAYOR

__________________________
DIRECTOR OF MUNICIPAL FINANCE

__________________________
CITY SOLLICITOR

__________________________
CITY DEPARTMENT HEAD

__________________________
PURCHASING AGENT

__________________________
VENDORS SIGNATURE

__________________________
P.O. #: CODE #:

__________________________
CITY OF QUINCY

__________________________
PURCHASING DEPARTMENT
1305 HANCOCK STREET, QUINCY, MA
SECTION 00 52 10

AGREEMENT FORM

THIS AGREEMENT is by and between The City of Quincy, MA (“Owner”) __________________________ (“Contractor”). Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as the removal of 6-inch to 20-inch unlined cast iron water main, installation of 6-inch to 20-inch cement lined ductile iron water mains, furnishing and installing related gate valves, hydrants, and appurtenances ranging in size from 6-inch to 20-inch, and all materials, equipment, services and construction inherent to the Work.

ARTICLE 2 – THE PROJECT

2.01 The Project under the Contract Documents is generally described as Bid FY19 Water Mains Contract 2.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Tetra Tech, Inc. (Engineer), which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.1 Time of the Essence

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

4.2 Substantial Completion and Final Payment

A. The Work shall be substantially complete and completed and ready for final payment in accordance with Paragraph 14.07 of the Standard General Conditions as specified below for the portions of the Work indicated and defined in Section 01 11 00 and sequencing specified therein.
4.3 **Liquidated Damages**

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the Standard General Conditions and Supplementary Conditions, if any. 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 the amounts specified below for each day that expires after the time specified in Paragraph 4.02 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 the amounts specified below for each day that expires after the times specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

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<tr>
<th>Portion of the Work</th>
<th>Liquidated Damages for Failure to Meet Dates Specified in Paragraph 4.02</th>
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<td>For Substantial Completion</td>
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<tr>
<td>All work specified or indicated in the Contract Documents</td>
<td>$1,000</td>
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</table>
4.4 Actual Damages

A. The water system must continue to operate during the construction period. Contractor shall provide complete bypass, adequate resource area protection during the relevant work, and shall coordinate with the Owner, as needed, when Work may impact Owner infrastructure. Contractor shall pay actual damages incurred by Owner for 1) non-compliance with the permits included in Section 00 73 10; 2) failure to maintain operation of the water system; and 3) other damages directly related thereto.

ARTICLE 5 – CONTRACT PRICE

5.1 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraph 5.01.A below based on unit pricing stated in Contractor’s Bid attached hereto:

TOTAL PRICE [IN WORDS] Dollars and [# OF CENTS] Cents

$[DOLLAR AMOUNT]

A. Unit Prices have been computed in accordance with Paragraph 11.03.A of the Standard General Conditions and Supplementary Conditions, if any.

B. The prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the Standard General Conditions and Supplementary Conditions, if any, estimated quantities are not guaranteed (except for those that may be estimated by the Contractor), and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the Standard General Conditions and Supplementary Conditions, if any. Final payment for unit price items will be based on actual quantities determined and based on the unit prices in the Unit Prices Form included in Section 00 43 22.

C. When the accepted quantity of any item of Unit Price Work performed by the Contractor (as measured in accordance with 9.07 of the General and Supplementary Conditions, if any) differs from the estimated quantity indicated in the attachment(s) to this Agreement for an item of Unit Price Work, no adjustment or allowance will be made for any increased expenses, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly or indirectly from such increased or decreased quantities, or from
unbalanced allocation of overhead expense among the Unit Price Work items on the part of the Contractor, or subsequent loss of expected reimbursements therefor.

5.2 **Adjustments to the Contract Price**

A. Adjustments to the Contract Price for Allowances will be made in accordance with the General Conditions, Paragraph 11.02.C.

**ARTICLE 6 – PAYMENT PROCEDURES**

6.1 **Submittal and Processing of Payments**

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the Standard General Conditions and Supplementary Conditions, if any. Applications for Payment will be processed by Engineer as provided in the Standard General Conditions and Supplementary Conditions, if any, and the General Requirements.

6.2 **Progress Payments; Retainage**

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor’s Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the Standard General Conditions and Supplementary Conditions, if any, (and in the case of Unit Price Work based on the number of units completed).

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the Standard General Conditions and Supplementary Conditions, if any, and additional retainage allowed by Laws and Regulations.

a. **Progress Payments of 95 percent for Work completed (with the balance of 5 percent being retainage).** If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there may be no additional retainage withheld at Owner’s discretion; and
b. **95 percent of cost of materials and equipment not incorporated in the Work** (with the balance of 5 percent being retainage).

2. **Upon Substantial Completion**, Owner shall pay an amount sufficient to increase total payments to Contractor to 99 percent of the Work completed (with the balance of 1 percent being retainage), less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General and Supplementary Conditions, if any, and less the Engineer’s estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected (Punch List) attached to the certificate of Substantial Completion and subject to Paragraph 14.04 of the General and Supplementary Conditions, if any.

However, retainage for items planted in the ground shall remain at 5 percent of the cost of such items until Final Payment per Massachusetts General Laws Chapter 30, Section 39G.

6.3 **Final Payment**

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General and Supplementary Conditions, if any, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

**ARTICLE 7 – INTEREST**

7.01 All moneys not paid when due as provided in Article 14 of the General and Supplementary Conditions, if any, shall bear interest at the rate 3 percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston per Massachusetts General Laws Chapter 30, Section 39G. Interest shall not be accrued on retainage.

**ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS AND CERTIFICATIONS**

8.1 In order to induce Owner to enter into this Agreement, 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 carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified...
in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."

E. 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; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, 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.

F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that 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.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

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

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

8.2 The Contractor certifies, under the penalties of perjury, that:

A. Contractor has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph:

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.

B. Contractor certifies no official or employee of the Owner has a financial interest in this Contract or in the expected profit to arise from the Contract, unless the Contractor and Owner, employee or official both have notified public authorities in writing, that the Contractor and the employee fully complied with the provisions of MGL Chapter 43, Section 27 Interest In Public Contracts By Public Employees Prohibited; Penalty and provisions of MGL Chapter 268A, Section 20 Municipal Employees; Financial Interest In Contracts; Holding One Or More Elected Positions.

C. Contractor has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting of child support and, has provided for itself and each Subcontractor, a Certificate of Good Standing from the Department of Revenue with respect to all returns due and taxes and further, certifies that, to the best of its knowledge and belief, all state tax returns have been filed and all state taxes have been paid as required by Law pursuant to Massachusetts General Laws Chapter 62C, Section 49A;

D. If a foreign corporation, Contractor has provided for itself and each Subcontractor that is a foreign corporation, a certificate of the state secretary stating that the corporation has complied with requirements of Massachusetts General Laws Chapter 156D, Part 15, Section 15.03 of subdivision A and the date of compliance, and further has filed all annual reports required by Section 16.22 of subdivision B of Part 16 of said Chapter 156D, pursuant to Massachusetts General Laws Chapter 30, Section 39L;

E. Contractor is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work and further certifies that all employees to be employed at the Work Site 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 shall furnish documentation of successful completion of said course with the first certified payroll report for each employee, all as required by Massachusetts General Laws Chapter 30, Section 39S;

F. Contractor is not presently debarred from entering into a public contract Commonwealth of Massachusetts under the provisions of Massachusetts General Laws Chapter 29, Section 29F, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulations 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; and
G. Pursuant to Massachusetts General Laws Chapter 30, Section 39R, Contractor has provided a statement by management on internal accounting controls, a statement prepared by an independent certified public accountant regarding management’s statement, and an audited financial statement to DCAMM for the most recent completed fiscal year.

H. The Contractor shall not participate in or cooperate with an international boycott, as defined in Section 999 (b)(3) and (4) of the Internal Revenue code 1986, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

I. Contractor will incorporate the applicable provisions of the Contract Documents into all subcontracts and Purchase Orders so that such provisions will be binding upon each Subcontractor or Supplier.

ARTICLE 9 – CONTRACT DOCUMENTS

9.1 Contents

A. The Contract Documents consist of the following:

1. This Agreement

2. Items listed in Section 00 5400

3. Forms listed in 00 60 00

4. Standard General Conditions in Section 00 72 05

5. Supplementary Conditions listed in Section 00 73 05

6. General Requirements, Specifications and Drawings as listed in the table of contents of the Contract Documents

7. 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. Work Change Directives

   c. Change Orders

B. The documents listed in Paragraph 9.01.A are attached to this Agreement and made a part hereof.
C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the Standard General Conditions and Supplementary Conditions, if any.

ARTICLE 10 – MISCELLANEOUS

10.1 Terms

A. Terms used in this Agreement will have the meanings stated in the Standard General Conditions and Supplementary Conditions, if any.

10.2 Assignment of Contract

A. 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, moneys that may become due and moneys that are 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.

10.3 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.

10.4 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.

10.5 Contract is Public Record

A. The Contract is subject to MGL Chapter 66 et seq, Public Records, and as such, related submittals, purchase orders, related pricing documents, and invoices will be public documents, and may be available for public and private distribution, except as specifically excluded. The Contractor agrees to provide the Owner copies of any documents requested under this law at no charge to the Owner or the requestor.
SECTION 00 54 00

AGREEMENT FORM SUPPLEMENTS

The following items included in this Section are attached to and are incorporated into the Agreement and made a part thereof.

TO BE COMPLETED AFTER AWARD LISTING ITEMS FROM SUCCESSFUL BIDDER

- Performance Bond
- Payment Bond
- Insurance certificates
- Certifications

END OF SECTION
PERFORMANCE BOND (Form C-00 611 3.13)

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

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 (Form C-00 61 13.16)

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

OWNER (name and address):

CONSTRUCTION CONTRACT
Effective Date of the Agreement: Amount: Description (name and location):

BOND
Bond Number: Date (not earlier than the Effective Date of the Agreement of the Construction Contract):
Amount: Modifications to this Bond Form[ ] None [ ] See Paragraph 18

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

CONTRACTOR AS PRINCIPAL SURETY

(seal) (seal)
Contractor’s Name and Corporate Seal Surety’s Name and Corporate Seal

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

Print Name Print Name

Title Title

Attest: Attest:
Signature Signature

Title Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.
1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety’s obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner’s property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety’s expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety’s obligations to a Claimant under this Bond shall arise after the following:

5.1 Claimants who do not have a direct contract with the Contractor,

5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).

5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant’s obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety’s expense take the following actions:

7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

7.2 Pay or arrange for payment of any undisputed amounts.

7.3 The Surety’s failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney’s fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety’s total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney’s fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner’s priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

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

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or
(2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

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

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 Claim: A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
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:
Date: _____________

Project:

Owner: ___________________________ Owner's Contract No.: ___________________________

Contract: ___________________________ Engineer's Project No.: ___________________________

Contractor: ___________________________

Contractor's Address: [send Certified Mail, Return Receipt Requested]

NOTICE TO PROCEED

You are notified that the Contract Times under the above Contract will commence to run on ______. On or before that date, you are to start performing your obligations under the Contract Documents for the following portion(s) of the Work:

In accordance with Article 4 of the Agreement, the date of Substantial Completion is ______, and the date of readiness for final payment is ______ [OR the number of days to achieve Substantial Completion is ______, and the number of days to achieve readiness for final payment is ______].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions, and Supplementary Conditions if any, provide that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.
Also, before you may start any Work at the Site, you must:
Comply with Articles 2.05 and 2.06 of the General and Supplementary Conditions and the following additional requirement(s) (if any):

Owner Given by:

Authorized Signature

Title

Date

Copy to Engineer
SECTION 00 60 00

PROJECT FORMS

The following forms are included in this Section and shall be used for the Project as specified in the General Conditions and Supplementary Conditions if any, and the General Requirements. Completed and execution versions of these forms used during the Project shall be incorporated into the Agreement and made a part thereof.

Application for Payment Form (C-00 62 76)
Request for Interpretation/Information Form (C-00 63 15)
Field Order Form (C-00 63 36)
Work Change Directive Form (C-00 63 49)
Change Request Form (C-00 63 60)
Change Order Form (C-00 63 63 MA)
City of Quincy Standard Change Order Form Notice of Substantial Completion Form (C-00 65 15)
Certificate of Substantial Completion Form (C-00 65 16)
Notice of Completion Form (C-00 65 18)
## Contractor's Application for Payment

**Application for Period:**

**Payment No.:**

**Application Date:**

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<tr>
<th>To (Owner):</th>
<th>From (Contractor):</th>
<th>Via (Engineer):</th>
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**Project:**

**Owner's Contract No.:**

**Contractor's Project No.:**

**Engineer's Project No.:**

### Application For Payment Change Order Summary

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<th>Deductions</th>
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| NET CHANGE BY CHANGEORDERS |        |           |            |

### Contractor's Certification

The undersigned Contractor certifies that to the best of its knowledge: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Payment of: 

is approved by:

By: [Signature] Date: [Date]

Approved by:

Funding Agency (if applicable)

### 1. ORIGINAL CONTRACT PRICE

$ [Amount]

### 2. Net change by Change Orders

$ [Amount]

### 3. Current Contract Price (Line 1 ± 2)

$ [Amount]

### 4. TOTAL COMPLETED AND STORED TO DATE

(Column F on Progress Estimate) $ [Amount]

### 5. RETAINAGE

- **Work Completed**: $ [Amount]
- **Stored Material**: $ [Amount]
- **Total Retainage**: $ [Amount]

### 6. AMOUNT ELIGIBLE TO DATE

(Line 4 - Line 5c) $ [Amount]

### 7. LESS PREVIOUS PAYMENTS

(Line 6 from prior Application) $ [Amount]

### 8. AMOUNT DUE THIS APPLICATION

$ [Amount]

### 9. BALANCE TO FINISH, PLUS RETAINAGE

(Column G on Progress Estimate + Line 5 above) $ [Amount]

Payment of: $ [Amount]

(Line 8 or other - attach explanation of the other amount) is recommended by: [Signature] (Engineer) (Date)

Payment of: $ [Amount]

(Line 8 or other - attach explanation of the other amount) is approved by: [Signature] (Owner) (Date)

Approved by: [Signature] (Date)
# Progress Estimate - Lump Sum Work Application

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<td>From Previous Application</td>
<td>Material</td>
<td>Total Compl.</td>
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Totals
## Stored Material Summary

**Description of Materials or Equipment Stored**

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**Totals**

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EJCDC C-620 Contractor's Application for Payment
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Page 4 of 4
REQUEST FOR INTERPRETATION/INFORMATION (Form C-00 63 15)

RFI #: ____________  Attachment ☐

To: ____________________________  From: ____________________________
Attn: ____________________________  Issue Date: ____________________________
Project: ____________________________  Required Reply Date: ____________________________

DISTRIBUTION:
Contractor  Owner  Engineer
☐ ____________________________  ☐ ____________________________  ☐ ____________________________
☐ ____________________________  ☐ ____________________________  ☐ ____________________________
☐ ____________________________  ☐ ____________________________  ☐ ____________________________

REFERENCES:
• Specifications: ____________ Section: ____________ Page/Paragraph: ____________
• Drawings: ____________ Issue Date: ____________ Detail/Sections: ____________
• Work Area: ____________ Grid/Level: ____________

RFI DESCRIPTION:

Possible Cost Effect  Yes: ☐  No: ☐  Possible Schedule Effect  Yes: ☐  No: ☐
From: ____________ Tel No: ____________ Fax: No: ____________
Initial: ____________ E-mail: ____________

RFI REPLY: (response may be transmitted in separate document)

From: ____________ Reply Date: ____________ xc: ____________
Initial: ____________

Based on: CASE Form B-1999
# Field Order (C-00 63 36)

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<tr>
<th>Project:</th>
<th>Owner:</th>
<th>Owner's Contract No.:</th>
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<tr>
<td>Contract:</td>
<td>Date of Contract:</td>
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<tr>
<td>Contractor:</td>
<td>Engineer's Project No.:</td>
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</table>

**Attention:**

You are hereby directed to promptly execute this Field Order issued in accordance with General Conditions Paragraph 9.04.A, for minor changes in the Work without changes in Contract Price or Contract Times. If you consider that a change in Contract Price or Contract Times is required, please notify the Engineer immediately and before proceeding with this Work.

**Reference:**

- (Specification Section(s))
- (Drawing(s) / Detail(s))

**Description:**

---

**Attachments:**

---

**Receipt Acknowledged by Contractor:**

<table>
<thead>
<tr>
<th>Date:</th>
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</table>

**Copy to Owner**
Work Change Directive (Form C-00 63 49)

No. 

Date of Issuance: _____________________ Effective Date: ____________________

<table>
<thead>
<tr>
<th>Project:</th>
<th>Owner:</th>
<th>Owner's Contract No.:</th>
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</thead>
<tbody>
<tr>
<td>Contract:</td>
<td>Date of Contract:</td>
<td></td>
</tr>
<tr>
<td>Contractor:</td>
<td>Engineer's Project No.:</td>
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**Contractor is directed to proceed promptly with the following change(s):**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
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**Attachments (list documents supporting change):**

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**Purpose for Work Change Directive:**

Authorization for Work described herein to proceed on the basis of Cost of the Work due to:

- ☐ Nonagreement on pricing of proposed change.
- ☑ Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

**Estimated change in Contract Price and Contract Times:**

Contract Price $ (increase/decrease)  Contract Time ____ (increase/decrease) days

---

Recommended for Approval by Engineer: _____________________ Date: ____________

Authorized for Owner by: _____________________ Date: ____________

Received for Contractor by: _____________________ Date: ____________

Received by Funding Agency (if applicable): _____________________ Date: ____________
CHANGE REQUEST
(FORM C-00 63 60)
(Design Changes/Deviations/Substitutions)

Project:

Request Initiated by:
☐ Contractor
☐ Owner
☐ Engineer

Impact to Contract Price expected
☐ Impact to Contract Time expected

Change Orders will be processed separately

Request submitted as (format):

Description of Change (documentation attached)

Reason for Change

Response: This constitutes a Written Amendment to the Agreement.

Review of the proposed change/deviation/substitution by Engineer is for general compatibility with the design concept of the Project. This review does not extend to means, methods, sequences, or procedures of construction or to issues of safety incident thereto. This review shall not relieve the Contractor from responsibility for full compliance with the requirements specified and to determine and verify the information contained therein.

Recommended By Engineer for Acceptance
(subject to above comments if any)
recommended for processing and approval under a separate Change Order

☐
NAME:

Approved by Owner (no schedule or cost impact)

☐
NAME:

☐
Signature Date

☐
Signature Date

Acknowledged by Owner – to be processed and approved under a separate Change Order

☐
NAME:

☐
Signature Date

Approved by Contractor
Change Order to be requested

☐
NAME:

☐
Signature Date
Change Order No. ____________________________

(Form C-00 63 63) MA

Date of Issuance: ____________________________ Effective Date: ____________________________

<table>
<thead>
<tr>
<th>Project</th>
<th>Owner</th>
<th>Owner's Contract No.:</th>
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<th>Contractor</th>
<th>Engineer's Project No.:</th>
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The Contract Documents are modified as follows upon execution of this Change Order:

Description: ____________________________________________________________

Attachments (list documents supporting change):

CHANGE IN CONTRACT PRICE: ____________________________________________

<table>
<thead>
<tr>
<th>Original Contract Times:</th>
<th>Working days</th>
<th>Calendar days</th>
<th>Substantial completion (days or date):</th>
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<td>$_______________________</td>
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[Increase] [Decrease] from previously approved Change Orders No. to No.:

$_______________________ Ready for final payment (days or date): ________

[Increase] [Decrease] from previously approved Change Orders No. to No.:

Substantial completion (days): ________________

CHANGE IN CONTRACT TIMES:

<table>
<thead>
<tr>
<th>Contract Times prior to this Change Order:</th>
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<tbody>
<tr>
<td>$_______________________ Ready for final payment (days or date): ________</td>
</tr>
</tbody>
</table>

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): ________________

$_______________________ Ready for final payment (days or date): ________

Contract Price incorporating this Change Order:

Substantial completion (days or date): ________________

$_______________________ Ready for final payment (days or date): ________

RECOMMENDED: ____________________________ ACCEPTED: ____________________________ ACCEPTED: ____________________________

By: ____________________________ By: ____________________________ By: ____________________________

Engineer (Authorized Signature) Owner (Authorized Signature) Contractor (Authorized Signature)

Date: ____________________________ Date: ____________________________ Date: ____________________________

Approved by Funding Agency (if applicable): ____________________________

Date: ____________________________
Pursuant to MGL c.44, s31C, I certify that appropriated funds are available for the total amount of this Change Order.

Date: _____________________________________________
Owner’s Auditor/Accountant (Name)

Pursuant to MGL c.30, s39I, reasons for deviation are as stated on Page 1. The specified deviation(s) does not materially injure the Project as a whole, the Work is of the same cost and quality or an equitable adjustment has been agreed upon, and the deviation is in the best interest of the Owner.

Date: _____________________________________________
Owner
A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.
Notice of Substantial Completion (C-00 65 15)

<table>
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<tr>
<th>Project:</th>
<th>Owner:</th>
<th>Owner's Contract No.:</th>
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<tr>
<td>Contract:</td>
<td>Date of Contract:</td>
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<td>Contractor:</td>
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This NOTICE of Substantial Completion applies to:

- [ ] The following Systems, Equipment or specified portions
- [ ] All Work under the Contract Documents

Date of Substantial Completion for above:

The following documents are attached to and made part of this Notice.

Submitted by Contractor ________________________________ Date ____________
Certificate of Substantial Completion (Form C-00 65 16)

This [tentative] [definitive] Certificate of Substantial Completion applies to:
All Work under the Contract Documents: The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

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

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

Owner's Amended Responsibilities:

Contractor's Amended Responsibilities:
The following documents are attached to and made part of this Certificate:

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

Executed by Engineer

Accepted by Contractor

Accepted by Owner

Date

Date

Date
Notice of Completion (Form C-00 65 18)

This NOTICE of Completion applies to:

☐ All Work under the Contract Documents:  ☐ The following specified portions:

Date of final Completion

The Work to which this Notice applies is ready for inspection by authorized representatives of Engineer and Owner. Contractor has completed all corrections, delivered all required documentation, and the Project, or portion designated above, is complete. The Date of Completion of the Project or portion thereof designated above is hereby declared by the Contractor.

The following documents are attached to and made part of this Certificate:
- Final Punchlist
- Final Application for Payment

Only the making and acceptance of final payment will constitute:
1. A waiver of all claims by Owner against Contractor, except claims arising from any unsettled liens, from Defective Construction appearing after final inspection; from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
2. A waiver of all claims by Contractor against Owner other than those previously timely made in writing and still unsettled.

Submitted by Contractor ____________________________ Date ________________________
SECTION 00 72 05 STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by

CONSTRUCTION SPECIFICATIONS INSTITUTE

REVISIONS HIGHLIGHTED WITHIN THE TEXT OF THIS SECTION HAVE BEEN MADE ON BEHALF OF AND APPROVED BY THE OWNER.
These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).
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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.1 Defined Terms

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.

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. Asbestos—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. Bid—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed. May also be referred to as “Proposal” which may be used interchangeably and shall have the same meaning.

6. Bidder—The individual or entity who submits a Bid directly to Owner.


8. Bidding Requirements—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. Change Order—A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.

10. Claim—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. Contract—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
12. **Contract Documents**—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. **Contract Price**—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. **Contract Times**—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer’s written recommendation of final payment.

15. **Contractor**—The individual or entity with whom Owner has entered into the Agreement.

16. **Cost of the Work**—See Paragraph 11.01 for definition.

17. **Drawings**—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor and complement the Specifications. Shop Drawings and other Contractor submittals are not Drawings as so defined. May also be referred to as “Plans”, which may be used interchangeably and shall have the same meaning. Notes on Drawings are directed to Contractor unless specifically noted otherwise.

18. **Effective Date of the Agreement**—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. **Engineer**—The individual or entity named as such in the Agreement.

20. **Field Order**—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. **General Requirements**—Sections of Division 01 of the Specifications which govern the Work in all sections of the Specifications.

22. **Hazardous Environmental Condition**—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. **Hazardous Waste**—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. **Laws and Regulations; Laws or Regulations**—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. **Liens**—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. **Milestone**—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. **Notice of Award**—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. **Notice to Proceed**—A written notice given 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 under the Contract Documents.

29. **Owner**—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. **PCBs**—Polychlorinated biphenyls.

31. **Petroleum**—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. **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. **May also be referred to as “Construction Schedule”, which may be used interchangeably and shall have the same meaning.**

33. **Project**—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. **Project Manual**—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. **Radioactive Material**—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. **Resident Project Representative**—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. **Samples**—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. **Schedule of Submittals**—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. **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.

40. **Shop Drawings**—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. **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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. **Specifications**—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto. The Specifications are based on the guidelines of the Construction Specifications Institute (CSI) Project Resource Manual, and are directed to Contractor unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases in the Specifications.

43. **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 at the Site.

44. **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.

45. **Successful Bidder**—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. **Supplementary Conditions**—That part of the Contract Documents which amends or supplements these General Conditions.

47. **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 Subcontractor.
48. **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 those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. **Unit Price Work**—Work to be paid for on the basis of unit prices.

50. **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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. **Work Change Directive**—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

B. **Additional Terms**

1. **Final Completion**—The time at which all Work is completed and ready for final payment in accordance with Paragraph 14.07 of these General Conditions.

2. **Industry Practice**—The written practices, methods, materials, supplies and equipment, as changed from time to time, that are commonly used in the industry applicable to the Project to design, construct and operate facilities and plants, or any practices, methods and acts, which in the exercise of reasonable judgment in light of the facts known at the time, could have been expected to accomplish the desired results consistent with good business practices, reliability, safety and expedition.

3. **Installer**—The entity engaged by Contractor or a Subcontractor for installation, erection, application and similar required operations of a particular portion of the Work at the Site, including who has specialty experience in the Work they are engaged to perform.

4. **Punch List**—A list of open items representing portions of the Work which Contractor, Engineer, Owner reasonably agree is not complete on the date of Substantial Completion but which items will not significantly interfere with the safe, reliable operation and integrity of the Project or its intended use.

5. **Purchase Order**—A written agreement between Contractor and a Supplier for provision of material and equipment.
6. **Warranty Period**—The correction period after the date of Substantial Completion per Paragraph 13.07 of these General Conditions.

1.2 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F 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 Paragraph 9.09 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. See also Paragraph 17.02 of these General Conditions.

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 14.04 or 14.05).
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. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

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

2.1 Delivery of Bonds and Evidence of Insurance

A. 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 Insurance: Prior to execution of the Agreement and before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.2 Copies of Documents

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Contract Documents or Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.
2.3 **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 Agreement 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 Agreement. 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 Agreement, unless mutually agreed otherwise, whichever date is earlier.

2.4 **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 the date on which the Contract Times commence to run.

2.5 **Before Starting Construction**

A. **Preliminary Schedules:** Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents and the lead times for equipment and materials per the listing in subparagraph 2.05.A.4;

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 which will be confirmed in writing by Contractor at the time of submission. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work; and

4. a complete listing of equipment and materials with lead times between placing orders and delivery, including normal allowances of time for processing and correcting Shop Drawings.

B. **Evidence of Insurance:** In accordance with Paragraph 2.01.

2.6 **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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, 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 instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.7 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 2.05.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 component parts of the Work.

4. Contractor’s listing of equipment and materials with lead times must be reflected in the Progress Schedule. All orders for long lead items shall be placed within 30 days after Effective Date of the Agreement if delivery is critical to scheduling. Failure to place orders in accordance the Progress Schedule may result in full liability for liquidated damages if Milestones and Contract Times are not met.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 Intent

A. The Contract Documents are complementary; what is required by one is as binding as if required by all and comprise the entire agreement between Owner and Contractor concerning the Work. If any term or provision of any of the Contract Documents, or the application thereof to any party or circumstance shall, to any extent, be determined to be invalid or unenforceable, the remaining provisions of the Contract Documents, or the application of such term or provision to parties or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term and provision of each of the Contract Documents shall be valid and shall be enforced to the fullest extent permitted by Laws and Regulations.
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. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.2 Reference Standards

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, 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, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement 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, 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 Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.3 Reporting and Resolving Discrepancies

A. Reporting Discrepancies:

1. *Contractor’s Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor’s Review of Contract Documents During Performance of Work*: If, 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) any standard, specification, manual, or code, or (c) 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

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 or reasonably should have known of such conflict, error, ambiguity, or discrepancy thereof.

B. Resolving Discrepancies:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); 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).

3.4 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer’s approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer’s written interpretation or clarification.

3.5 Reuse of Documents

A. Contractor and any Subcontractor or Supplier 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

2. 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.
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.

3.6 **Electronic Data**

A. **Unless otherwise stated in the Supplementary Conditions,** the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies), files transmitted in in portable document format (PDF), and other electronic media formats of text, data, graphics or other file types supported by any digital document exchange system implemented for the Project, all of which are understood by all parties to constitute official Project correspondence and submittals. Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user’s sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data’s creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data’s creator.

**ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

4.1 **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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner’s furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

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 the Work is to be performed 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.
4.2 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 contiguous to the Site; and

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

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “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.

4.3 Differing Subsurface or Physical Conditions

A. Notice: If Contractor believes that any subsurface or physical condition that is uncovered or revealed 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 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; 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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.
B. **Engineer’s Review:** After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. Possible Price and Times Adjustments:

1. The Contract Price or the Contract Times, or both, will may be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and
   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 Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
   a. Contractor knew of the existence of such conditions at the time Contractor made a final 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
   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor’s making such final commitment; or
   c. Contractor failed to give the written notice as required by Paragraph 4.03.A, or written notice is submitted after final payment.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

4.4 **Underground Facilities**

A. **Shown or Indicated:** The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous 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 shall not be responsible for 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 such information and data;
   
   b. locating all Underground Facilities shown or indicated in the Contract Documents;
   
   c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
   
   d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated:

   1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

   2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

   3. Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, shall not be liable to Contractor for any Claims for losses or damages incurred by Contractor related to Underground Facilities not shown or indicated (including but not limited to all fees and changes of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs).
4.5 **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.

4.6 **Hazardous Environmental Condition at Site**

A. **Reports and Drawings:** The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. **Limited Reliance by Contractor on Technical Data Authorized:** Contractor may rely upon the accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work unless Contractor caused or contributed to such Hazardous Environmental Condition. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) 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 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, either party may make a Claim therefor as provided in Paragraph 10.05.

F. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner’s own forces or others in accordance with Article 7.

G. 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: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual’s or entity’s own negligence.

H. 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual’s or entity’s own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.
ARTICLE 5 – BONDS AND INSURANCE

5.1 Performance, Payment, and Other Bonds

A. Contractor shall furnish performance and payment bonds, 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 Documents. 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 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds 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 each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, 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 requirements of Paragraphs 5.01.B and 5.02.

5.2 Licensed Sureties and Insurers

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.3 Certificates of Insurance

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance and a letter from Contractor’s insurance company(s) and agents confirming types and limits of coverage (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the
Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by
Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with
these insurance requirements or failure of Owner to identify a deficiency in compliance from the
evidence provided shall not be construed as a waiver of Contractor’s obligation to maintain such
insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily
will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor’s
liability under the indemnities granted to Owner in the Contract Documents.

5.4 Contractor’s Insurance

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed,
complies with the requirements of Article 5, and as will provide protection from claims set forth below
which 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:

1. claims under workers’ compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of
Contractor’s employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than
Contractor’s employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are
sustained:
   a. by any person as a result of an offense directly or indirectly related to the employment of such
      person by Contractor, or
   b. by any other person for any other reason;

5. 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; and

6. 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.
7. claims arising out of violation of Laws or Regulations; and

8. claims for damages because of negligent acts, errors and omissions arising out of performing or providing professional services.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.68 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and 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;

2. include at least the specific coverages and be written for not less than the limits of liability provided herein and in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor’s indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide) and will contain waiver provisions in accordance with Paragraph 5.07;

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

   a. Such insurance shall remain in effect for two years after final payment.

   b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

7. In the event general liability insurance is provided on a claims-made policy, the retroactive date of such policy shall not be later than the date of the Notice to Proceed or the Effective Date of the Agreement, whichever is earlier. For construction periods extending beyond the expiration date of an initial claims-made policy, the retroactive date of all subsequent claims- made policies shall not be later than the date of the Notice to Proceed.
C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation and related coverage:

   Minimum limit of liability
   __________________________________________________________________________
   Statutory
   Applicable Federal (e.g., Longshoreman's) Statutory
   Employer's Liability $1,000,000

2. Contractor's General Liability:

   $1,000,000 per occurrence; $2,000,000 general aggregate; including:
   __________________________________________________________________________
   Broad Form Property Damage Liability including coverage for acts of terrorism
   Completed Operations and Product Liability
   Contractual Liability
   Independent Contractors
   Explosion, Collapse & Underground Hazards
   Personal Injury Coverage, Exclusion Deleted
   Damage to Rented Premises
   Medical Expenses
   Pollution Liability (covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from the Contractor's operations and completed operations maintained for no less than three years after final completion): $1,000,000
   Excess or Umbrella Liability: $5,000,000 per occurrence; $5,000,000 general aggregate

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

   Combined Single Limit of $1,000,000 for bodily injury & property damage covering Contractor and any vehicles owned, hired and non-owned by the Contractor

4. Professional Liability (E&O for engineers, architects or surveyors): $1,000,000 for each claim with an annual aggregate of at least $2,000,000 if professional services are required under the Specifications

5. Owners Protective Liability: as may be specified in the Supplementary Conditions

   Any self-insured retention (not allowed for Worker’s Compensation) and/or deductibles must be identified and cannot exceed $100,000 per occurrence without the prior approval of the Owner. Contractor must provide either an audited financial statement to confirm solvency or a letter of credit guaranteeing the $100,000 in case of loss for the duration of the Project and for the Correction Period.
5.5 **Owner’s Liability Insurance**

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, 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 *(ongoing and completed)* under the Contract Documents.

5.6 **Property Insurance**

A. Unless otherwise provided in the Supplementary Conditions, Owner may, in its discretion, purchase and maintain property insurance upon the Work at the Site. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. **Contractor shall be responsible for any (subject to such deductible amounts or self-insured retention as may be provided in the Supplementary Conditions or required by Laws and Regulations).** This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder’s Risk “all-risk” or **Special Forms** 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 **special form** perils or causes of loss, **including but not limited to:** fire, lightning, **flood, pollution**, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, 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.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued; **and**

8. comply with the requirements of Paragraph 5.06.C of the General Conditions.
B. (Not used) Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work, to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser’s own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.7 Waiver of Rights

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies 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 of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their 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 Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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 as trustee 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 utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.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, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.8 Receipt and Application of Insurance Proceeds (Not used)

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner’s exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.9 Acceptance of Bonds and Insurance; Option to Replace

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party Contractor in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party Owner shall so notify the other party Contractor in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other Owner such additional information in respect of insurance provided as the other may be reasonably requested. If either party Contractor does not purchase or maintain all of the bonds and insurance required of such party by the Contract
Documents, such party Contractor shall notify the other party Owner 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. Without prejudice to any other right or remedy, the other party Owner may elect to obtain equivalent bonds or insurance to protect such other party’s Owner’s interests at the expense of the party Contractor who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 Partial Utilization, Acknowledgment of Property Insurer

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.1 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. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

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.

6.2 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. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.
6.3 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.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, 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.

D. Provision of any instructions:

1. will not be effective to assign to Owner, or any of Owner's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 8.09; and

2. will not be effective to assign to Engineer, or any of Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09.

6.4 Progress Schedule

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.
6.5 Substitutes and “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, make or catalogue number, or the name of a particular Supplier, the specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. “Or-Equal” Items: If in Engineer’s sole discretion 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, it may be considered by Engineer as an “or-equal” item, in which case review and approval of the proposed item may, in Engineer’s sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, 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; and

      3) it has a proven record of performance and availability of responsive service.

   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.

2. Substitute Items:

   a. If in Engineer’s sole discretion an item of material or equipment proposed by Contractor does not qualify as an “or-equal” item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

   b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. 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:

1) shall certify that the proposed substitute item will:

   a) perform adequately the functions and achieve the results called for by the general design,

   b) be similar in substance to that specified, and

   c) be suited to the same use as that specified;

2) will state:

   a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor’s achievement of Substantial Completion on time,

   b) 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

   c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

   a) all variations of the proposed substitute item from that specified, and

   b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer’s sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
C. **Engineer’s Evaluation:** Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No “or equal” or substitute will be ordered, installed or utilized until Engineer’s review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an “or equal.” Engineer will advise Contractor in writing of any negative determination.

D. **Special Guarantee:** Owner may require Contractor to furnish at Contractor’s expense a special performance guarantee or other surety with respect to any substitute.

E. **Engineer’s Cost Reimbursement:** Engineer will record Engineer’s costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. 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.

F. **Contractor’s Expense:** Contractor shall provide all data in support of any proposed substitute or “or-equal” at Contractor’s expense.

6.6 **Concerning Subcontractors, Suppliers, and Others**

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the **Bidding Requirements or Supplementary Conditions** require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if the Contractor has submitted a list thereof in accordance with the **Bidding Requirements or Supplementary Conditions (which shall be included as an attachment to the Agreement),** Owner’s acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. 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 any right of Owner or Engineer to reject defective Work.
C. 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. 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 moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. 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.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

1. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

2. Such agreement between Contractor and the Subcontractor or Supplier shall specifically include dispute resolution provisions similar to those in Article 16 (if any) and provisions required by Laws and Regulations identified in the various Supplementary Conditions.
6.7 Patent Fees and Royalties

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

D. At the Owner’s option, Contractor shall defend claims in connection with any alleged infringement of such rights.

6.8 Permits

A. Unless otherwise provided in the Supplementary Conditions, 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.9 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 observes that the Specifications or Drawings are at variance with any Laws or Regulations, Contractor shall give Engineer prompt written notice thereof, and any necessary changes will be authorized by one of the methods set forth in Paragraph 3.04. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor’s responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor’s obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 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, except as may be set forth in the Supplementary Conditions.

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas:

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. 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 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 by or based upon Contractor’s performance of the Work.
B. **Removal of Debris During Performance of the Work:** During the progress of the Work Contractor shall keep the Site and other 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 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 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 property to stresses or pressures that will endanger it.

### 6.12 Record Documents

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings and other closeout submittals specified will be delivered to Engineer for Owner.

### 6.13 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, 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 owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner’s safety programs, if any. The Supplementary Conditions identify any Owner’s safety programs (if any) and other safety requirements 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 6.13.A.2 or 6.13.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 (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 for protection of the Work 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 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.

6.15 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.
6.16 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.

6.17 Shop Drawings and Samples

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings:
   a. Submit number of copies specified in the General Requirements.
   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 6.17.D.

2. Samples:
   a. Submit number of Samples specified in the Specifications.
   b. 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 6.17.D.

B. 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. Submittal Procedures:

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
   a. reviewed and coordinated each 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 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 and approval of that 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 both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer’s review and approval 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 6.17.C.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’s review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1. or for errors or omissions in a Shop Drawing or Sample.
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 in order to obtain required approval of an item with no more than 3 submittals. Engineer will record Engineer’s time for reviewing subsequent submittals of Shop Drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer’s charges for such time.

3. In the event that Contractor requests a change of a previously approved item, Contractor shall reimburse Owner for Engineer’s charges for its review time unless the need for such change is beyond the control of Contractor.

6.18 Continuing the Work

A. 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, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 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 in accordance with Subcontractor warranties, manufacturers and Suppliers warranties on equipment and material, and extended or special warranties and will not be defective for the correction period specified in 13.07. Owner and Engineer and its their officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor’s warranty and guarantee.

1. Contractor shall obtain and preserve for the benefit of the Owner:
   a. manufacturers’ and Suppliers’ written warranties and guarantees on equipment and material incorporated into the Work;
   b. written warranties and guarantees from each Subcontractor engaged in the performance of the Work; and

2. extended or special warranties.
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 or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner; or

8. any acceptance by Owner or any failure to do so.

D. Contractor shall prepare and execute a written general warranty and guarantee applicable to the Work reflecting the provisions of this Paragraph 6.19, Article 13 and other applicable provisions of the Contract Documents pertaining to warranties and guarantees, Subcontractor, manufacturers and Supplier warranties and guarantees, and extended or special warranties and guarantees. Contractor shall submit this written general warranty and guarantee in accordance with Article 14 and the General Requirements.

E. Provision of any warranties or guarantees:

1. will not be effective to assign to Owner, or any of Owner's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 8.09; and

2. will not be effective to assign to Engineer, or any of Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09.
F. The warranty and guarantee provisions of this Paragraph 6.19 shall be in addition to and not in limitation of any other warranties, guarantees or remedies allowed by Law or the Contract Documents.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify, defend, 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 or wrongful 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 6.20.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.

1. Without limiting the generality of the preceding Paragraph, the Contractor hereby specifically agrees to indemnify, defend, and hold harmless the Owner and Engineer from all such claims, losses or expenses which arise out of injuries of employees of the Contractor or any of its Subcontractors or Suppliers of any tier related to performance of the Work. It is the Owner intention that all financial risk of injuries related to the Work be borne by the Contractor, and that the Owner have no financial responsibility, direct or indirect, for any such claims.

C. The indemnification obligations of Contractor under Paragraph 6.20.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, provided however, that if the claim, cost, loss or damage referred to in this Paragraph 6.20 results from failure of the Engineer to discover a condition, Underground Facilities or object which is underground or otherwise not reasonably observable by the Engineer, and if said failure to discover either was or should have been apparent to the Contractor in that the said condition or object is omitted from the Engineer’s maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications, then the Contractor shall be liable for indemnification of the
Engineer and Owner under Paragraph 6.20 for claims, costs, losses and damages resulting from said failure to discover unless Contractor shall have notified Engineer of the existence and location of such condition or object prior to the occurrence of such claims, costs, losses and damages and in sufficient time for Engineer to have made provisions therefor; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage; or

3. caused by the negligent acts, errors or omissions of any of them.

6.21 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 law.

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, Shop Drawings 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 6.21, 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 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.
ARTICLE 7 – OTHER WORK AT THE SITE

7.1 Related Work at Site

A. Owner may perform other work related to the Project at the Site with Owner’s employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner’s employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. 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. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor’s Work depends upon work performed by others under this Article 7, 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.

7.2 Coordination

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.
7.3 **Legal Relationships**

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor’s wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor’s wrongful action or inactions.

**ARTICLE 8 – OWNER’S RESPONSIBILITIES**

8.1 **Communications to Contractor**

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

8.2 **Replacement of Engineer**

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.3 **Furnish Data**

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

8.4 **Pay When Due**

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.5 **Lands and Easements; Reports and Tests**

A. Owner’s duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.6 **Insurance**

A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.
8.7 Change Orders

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.8 Inspections, Tests, and Approvals

A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.9 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. However, the Owner shall have the right to direct the Contractor to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto. Owner will not be responsible for Contractor’s failure to perform the Work in accordance with the Contract Documents.

8.10 Undisclosed Hazardous Environmental Condition

A. Owner’s responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 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.

8.12 Compliance with Safety Program

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 pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER’S STATUS DURING CONSTRUCTION

9.1 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 Documents.

9.2 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 9.09. 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. 
However, the Engineer shall have the right to direct the Contractor to perform the Work according to 
any sequence schedule set forth in the Contract Documents or established pursuant thereto.

9.3 Project Representative

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist 
Engineer in providing more extensive observation of the Work. The authority and responsibilities of any 
such Resident Project Representative and assistants will be as provided in the Supplementary 
Conditions herein, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 
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.

B. The Resident Project Representative (RPR) will be Engineer’s employee or agent at the Site, will act as 
directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's 
actions. RPR's dealings in matters pertaining to the Work in general shall be with Engineer and 
Contractor. RPR's dealings with Subcontractors shall be through or with the full knowledge and 
approval of Contractor. The RPR shall perform the following:

1. Schedules: Review the Progress Schedule, schedule of Shop Drawing and Samples submittals, and 
   Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

2. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, 
   progress meetings, job conferences and other Project-related meetings, and prepare and circulate copies 
   of minutes thereof.

3. Liaison:

   a. Serve as Engineer’s liaison with Contractor, working principally through Contractor’s authorized 
      representative, to assist in providing information regarding the intent of the Contract Documents.
b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.

c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

4. **Interpretation of Contract Documents:** Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

5. **Shop Drawings and Samples:**
   a. Record date of receipt of Samples and approved Shop Drawings.
   b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

6. **Modifications:**
   a. Consider and evaluate Contractor’s suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR’s recommendations, to Engineer.
   b. Transmit to Contractor in writing, decisions as issued by Engineer.

7. **Review of Work and Rejection of Defective Work:**
   a. Conduct onSite observations of Contractor’s Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
   b. Report to Engineer whenever RPR believes that any part of Contractor’s Work in progress will not produce a completed Project that conforms generally to the Contract Documents or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of Work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

8. **Inspections, Tests, and System Startups:**
   a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner’s personnel, and that Contractor maintains adequate records thereof.
   b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
9. **Records:**
   a. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of Contractor, Subcontractors, and major Suppliers.
   b. Maintain records for use in preparing Project documentation.

10. **Reports:**
    a. Furnish periodic reports to Engineer as required of progress of the Work and of Contractor’s compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
    b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
    c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, damage to property by fire or other causes, or the discovery of any Hazardous Environmental Condition or conditions that may impede the compliant operation of existing facilities on Site.

11. **Payment Requests:** Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

12. **Certificates, Operation and Maintenance Manuals:** During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

13. **Completion:**
    a. Participate in a Substantial Completion inspection, assist in the determination of Substantial Completion and the preparation of the Punch List (lists of items to be completed or corrected).
    b. Participate in a final inspection in the company of Engineer, Owner, and Contractor and prepare a final Punch List (list of items to be completed and deficiencies to be remedied).
    c. Observe whether all items on the final Punch List have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work.
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, Suppliers, or Contractor’s superintendent.

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 unless such advice or directions are specifically required by the Contract Documents.

5. Advise on, issue directions regarding, or assume control over 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 or determine operational protocol that may affect the compliant operation of existing facilities.

9.4 Authorized Variations in Work

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.5 Rejecting Defective Work

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.
9.6 Shop Drawings, Change Orders and Payments

A. In connection with Engineer’s authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with 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, see Paragraph 6.21.

C. In connection with Engineer’s authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer’s authority as to Applications for Payment, see Article 14.

9.7 Determinations for Unit Price Work

A. 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 Paragraph 10.05.

9.8 Decisions on Requirements of Contract Documents and Acceptability of Work

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer’s decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer’s written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.
9.9  Limitations on Engineer’s Authority and Responsibilities

A. Neither Engineer’s authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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. However, the Engineer shall have the right to direct the Contractor to perform the Work according to any sequence schedule established pursuant thereto. 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 14.07.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 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

F. Engineer will have no responsibility or authority:

1. To order changes in construction which will result in additional costs or which will require extensions of Contract Times;

2. To suspend all or any portion of Contractor's operations;

3. To terminate all or any portion of the Work;

4. To make final acceptance of all or any portion of the Work; and

5. To operate or maintain any portion of the Work.

9.10 Compliance with Safety Program

A. While at the Site, Engineer’s employees and representatives shall comply with the specific applicable requirements of Contractor’s safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.
ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.1 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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.2 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 as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.3 Execution of Change Orders

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner’s correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. 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; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.4 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.
10.5 Claims

A. Engineer’s Decision Required: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. Notice: Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Failure to comply with this notice requirement shall constitute a waiver of the Claim. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant’s written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant’s last submittal (unless Engineer allows additional time).

C. Engineer’s Action: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer’s sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer’s written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

G. Contractor shall not have the right to stop performance of the Work pending resolution of a Claim.
ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.1 Cost of the Work

A. Costs Included: The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs 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 11.01.B, 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, 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 11.01.

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. Small tools and manual equipment are not allowable and considered to be included in overhead.

l) Rentals of construction equipment and machinery and the parts thereof whether rented from Contractor or others in accordance with rates published in current edition of the Rental Rate Blue Book® for construction equipment published by EquipmentWatch® (www.equipmentwatch.com). When Contractor-owned equipment is ordered by Owner or Engineer to be held at standby, equipment rental rates shall be 50% of normal rate. Rental or standby shall not include time that equipment is inoperative because of malfunction or breakdown and shall cease when the use thereof is no longer necessary for the Work. The rental rate, shall be determined as follows.

a) For equipment already on the Project: the monthly prorated rental rate by hourly use.

b) For equipment not on the Project: most cost effective daily, weekly or monthly rate. 1 month normal use = 176 hours.

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 5.06.D), 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 telegrams, long distance telephone calls, telephone 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 Contractor is required by the Contract Documents to purchase and maintain.

B. 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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which 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 Paragraphs 11.01.A.

C. Contractor’s Fee: When all the Work 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 or when a Claim for an 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 12.01.C.
D. **Documentation:** Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, 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.

### 11.2 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:** *(Not used)*

   Contractor agrees that:

   a. 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

   b. 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. **Owner’s Contingency Allowances:**

   1. Contractor agrees that Owner’s a contingency allowance, if any, is for the sole use of Owner to cover unestimated anticipated costs for certain items.

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 Owner’s contingency allowances, and the Contract Price shall be correspondingly adjusted. **Contractor shall not receive payment for any unused portion of the contingency allowance.**

### 11.3 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. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 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; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor 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 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.1 Change of Contract Price

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor’s fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. Contractor’s Fee: 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 11.01.A.1 and 11.01.A.2, the Contractor’s fee shall be 45 percent;

   b. for costs incurred under Paragraph 11.01.A.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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of \(4\frac{5}{10}\) percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor, provided, however, that on any subcontracted work the total maximum fee to be paid by Owner under this subparagraph shall be no greater than 27 percent of the costs incurred by the Subcontractor who actually performs the Work;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

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 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.2 Change of Contract Times

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.3 Delays

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, acts of war or terrorism, or acts of God (force majeure).

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 Price or the Contract Times, or both. 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.
C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of war or terrorism, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is 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 described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.1 Notice of Defects

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.2 Access to Work

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests 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.

13.3 Tests and Inspections

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. (Not Used) Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
3. as otherwise specifically provided in the Contract Documents.

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. Except where responsibility for a specific inspection or test is expressly allocated to Owner in the Specifications or by Laws and Regulations, Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner’s and Engineer’s acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor’s purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. 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.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor’s expense, unless Contractor has given Engineer timely notice of Contractor’s intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.4 Uncovering Work

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer’s observation and replaced at Contractor’s expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
D. 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, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.5 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, 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.

13.6 Correction or Removal of Defective Work

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. 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 removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner’s special warranty and guarantee, if any, on said Work.

13.7 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 land or areas made available for Contractor’s use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner’s written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

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 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. 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) will be paid by Contractor and may be deducted from amounts otherwise due the Contractor.

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, including materials, equipment and supplies or as defined in manufacturers’ and Suppliers’ warranties (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, 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 and the terms of this Paragraph 13.07 will continue to apply.

E. Contractor’s obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.8 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer’s recommendation of final payment, Engineer) prefers to accept it, Owner may do so. 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) 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 pursuant to this sentence. If any such acceptance occurs prior to Engineer’s recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.9 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 in accordance with Paragraph 13.06.A, 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,
Owner may, after seven days written notice to Contractor, or immediately in the case of an emergency, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, 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, take possession of Contractor’s tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. 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 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 Schedule of Values

A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

14.2 Progress Payments

A. Applications for Payments:

I. 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 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.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, 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 9.07, 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 Documents; 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 moneys 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer’s opinion to protect Owner from loss because:

   a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
   
   b. the Contract Price has been reduced by Change Orders;
   
   c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
   
   d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer’s recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

   a. claims have been made against Owner on account of Contractor’s performance or furnishing of the Work;
b. 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 and provides an indemnity satisfactory to Owner for all claims, costs, losses and damages arising out of such Liens; and provides an indemnity satisfactory to Owner for all claims, costs, losses and damages arising out of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended including liability for liquidated damages and correction of defective work by Owner or others; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor remedies the reasons for such action.

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 14.02.C.1 and subject to interest as provided in the Agreement.

14.3 Contractor’s Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.4 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use and final testing has been completed in accordance with the General Requirements, Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor in the Punchlist as incomplete) using the Notice of Substantial Completion form included in the Contract Documents, submit the Contractor’s written general warranty and guarantee per Paragraph 6.19.D., and request that Engineer issue a certificate of Substantial Completion.

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 tentative certificate of Substantial Completion which shall fix the date of Substantial Completion using the Certificate of Substantial Completion included in the Contract Documents. There shall be attached to the certificate a Punch List (tentative list of items to be completed or corrected before
final payment). Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner’s objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised Punch List (tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer’s issuing the definitive certificate of Substantial Completion, Engineer’s aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. 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 tentative list.

14.5 Partial Utilization

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. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and 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 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and 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 14.04 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 5.10 regarding property insurance.

B. Owner may request in writing that Contractor permit Owner to separately operate any part of the Work although it is not substantially complete subject to the following conditions.

1. 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 not substantially complete to determine the status of completion and will prepare a Punch List before final payment.

2. If Contractor does not indicate in writing to Owner and Engineer that such part of the Work is not ready for separate operation by Owner, Engineer will finalize the Punch List and will deliver such list to Owner and Contractor, together with a written recommendation as to the division of responsibilities between Owner and Contractor with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work pending final payment.

3. The Engineer’s recommendation and Punch List will become binding upon Owner and Contractor at the time the Owner takes over and separately operates such part of the Work unless otherwise agreed in writing and so informed Engineer.

4. During such separate operation by Owner and prior to Substantial Completion of such part of the Work, Owner shall allow Contractor reasonable access to complete or correct Punch List and to complete other related Work.

14.6 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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.7 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, warranties, updated Contractor’s written general warranty and guarantee per Paragraph 6.19.D if modified, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, and Engineer has indicated that the Work is acceptable (subject to the provisions of Paragraph 14.09), Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
   b. consent of the surety, if any, to final payment;
      c. a list of all Claims against Owner that Contractor believes are unsettled;
   d. Notice of Completion; and
   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) 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.

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 Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer’s recommendation of payment and present the Application for Payment to Owner for payment. 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 14.09. 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. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer’s recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.
14.8 Final Completion Delayed

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor’s final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted as detailed on the Notice of Completion. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.9 Waiver of Claims

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor’s continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.1 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 notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.2 Owner May Terminate for Cause

A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor’s disregard of Laws or Regulations of any public body having jurisdiction;
3. Contractor’s repeated disregard of the authority of Engineer; or

4. Contractor’s violation in any substantial way of any provisions of the Contract Documents; or

5. Contractor commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if Contractor takes any equivalent or similar action by filing a petition or otherwise under any Laws and Regulations in effect at such time relating to the bankruptcy or insolvency; or

6. a petition is filed against Contractor under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against Contractor under any Laws and Regulations in effect at the time relating to bankruptcy or insolvency; or

7. Contractor makes a general assignment for the benefit of creditors; or

8. a trustee, receiver, custodian or agent of Contractor is appointed under applicable law or under contract, whose appointment or authority to take charge of property of Contractor is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of Contractor’s creditors; or

9. Contractor admits in writing its inability to pay its debts generally as they become due.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor’s tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. 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

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed 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.
D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor’s services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.3 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;

3. all reasonable claims, costs, losses, and damages (including but not limited to all reasonable fees and charges of engineers, architects, attorneys, and other professionals and all reasonable court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.4 Contractor May Stop Work or Terminate

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) 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 15.03.
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 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 – DISPUTE RESOLUTION

16.1 Methods and Procedures

A. Subject to the requirements in Paragraph 10.05, Owner and Contractor shall attempt in good faith to resolve all unsettled Claims, counterclaims, disputes and other matters in question between them arising out of or relating to the Contract Documents (“Disputes”) promptly by negotiation, as follows. All negotiations pursuant to this clause are confidential and shall be treated as compromise and settlement negotiations for purposes of the Federal Rules of Evidence and state Rules of Evidence.

1. Either party may give the other party written notice of any Dispute not resolved.

2. Managers of both parties at levels at least one level above the Project personnel involved in the dispute shall meet at a mutually acceptable time and place within 5 business days after delivery of such notice, and thereafter as often as they reasonably deem necessary, to exchange relevant information and to attempt to resolve the Dispute.

3. If the matter has not been resolved within 30 days from the referral of the Dispute to the managers, or if no meeting has taken place within 10 days after such referral, either party may initiate mediation as provided hereinafter.

A.B. Subject to Paragraph 16.01.A, either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B.C. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

E.D. If the Claim is not resolved by mediation, Engineer’s action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

**ARTICLE 17 – MISCELLANEOUS**

17.1 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 to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.2 Computation of Times

A. When any period of time is referred to in the Contract Documents 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.

17.3 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 Documents. 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.

17.4 Survival of Obligations

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

17.5 Controlling Law

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

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

17.7 *Professional Fees and Court Costs Included*

A. In any action or proceeding to enforce or interpret any contractual provision or to resolve any conflict or dispute relating to or arising from this Contract, the prevailing party shall be entitled to recover, as part of its claim, award or judgment, reasonable attorneys’ fees and associated costs and expenses, including expenses of engineering, claims and other consultants.

END OF SECTION
SECTION 00 73 05

SUPPLEMENTARY CONDITIONS

The following sections modify or supplement the Standard General Conditions of the Construction Contract ("General Conditions") included in Section 00 72 05 and are in addition to the modifications highlighted within the text thereof. All provisions which are not so modified or supplemented remain in full force and effect. The Supplementary Conditions may include certain provisions required by Laws and Regulations. Contractor is responsible to determine and obtain applicable Laws and Regulations and to review and interpret the full text of such Laws and Regulations.

The terms used in these Supplementary Conditions have the meanings stated in the Standard General Conditions and as may be included within the Sections listed below.

00 73 10 Project Specific Requirements
00 73 19 Health and Safety Requirements
00 73 43 Wage Rate Requirements
00 73 46 Wage Determination Schedule
00 73 73 Statutory Requirements
SECTION 00 73 10

PROJECT SPECIFIC REQUIREMENTS

GENERAL

The address system used herein is the same as the address system used in the General Conditions, with the prefix "SC" added thereto. Additional terms used in this Section have the meanings stated below, which are applicable to both the singular and plural thereof.

This Section may include certain provisions required by Laws and Regulations, but does not represent or reflect all applicable provisions and policies or Laws and Regulations, and may only include excerpts and portions thereof. Other required provisions and policies, and Laws and Regulations, shall be deemed to be so included and incorporated herein. Contractor is solely responsible to determine, obtain, review and interpret the full text of applicable provisions and policies, Regulations, and Laws.

SC-1.01.B Additional Terms: Add the following new definition.

6. Installer -- The entity engaged by Contractor or a Subcontractor for installation, erection, application and similar required operations of a particular portion of the Work at the Site, including who has specialty experience in the Work they are engaged to perform.

SC-2.05 Before Starting Construction

Pursuant to subparagraph 2.05.A.1 regarding a preliminary Progress Schedule, the Project Schedule included in Section 00 43 40 will constitute the preliminary Progress Schedule for the Project.

Pursuant to subparagraph 2.05.A.2 regarding preliminary Schedule of Submittals, submittals shall be provided as noted in the Notice of Award.

Pursuant to subparagraph 2.05.A.3 regarding the Schedule of Values, the Units Prices Form included as Section 00 43 22 will constitute the preliminary Schedule of Values for this Project.

Add the following immediately after Paragraph 2.05.B.

C. Additionally, within 3 calendar days after the Effective Date of the Agreement, Contractor shall submit a Construction Operations Plan incorporating the schedules submitted pursuant to Paragraph 2.05.A and covering the following.

1. Construction methods and sequence of operations

2. Proposed Site access
3. Proposed erosion control measures and proposed measures to minimize impacts to existing vegetation and impacts to water quality in compliance with the General Requirements.

**SC-2.07 Initial Acceptance of Schedules**

Add the following immediately after subparagraph 2.07.A.4.

4. Contractor’s Construction Operations Plan submitted pursuant to Paragraph 2.05.C. will be acceptable to Engineer if it accurately and reasonably addresses all aspects of the Work.

**SC 4.01 Availability of Lands**

Pursuant to Paragraph 4.01.A, no easements and rights-of-way exist for the Project.

**SC-4.02 Subsurface and Physical Conditions**

A. Pursuant to Paragraph 4.02.A,

1. The following reports of explorations and tests of subsurface conditions at or contiguous to the Site are known to Owner:

2. None The following drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) are known to Owner:
   
   a. NONE

**SC 4.05 Reference Points**

Pursuant to Paragraph 4.05.A, surveys exist for the Project and are reflected on the Drawings.

**SC-4.06 Hazardous Environmental Conditions at Site**

A. Pursuant to Paragraph 4.06.A

1. The following reports regarding Hazardous Environmental Conditions at the Site are known to Owner:

   a. NONE

2. The following drawings regarding Hazardous Environmental Conditions at the Site are known to Owner:

   a. NONE

Insert the following at the beginning of Paragraph 4.06.D.

Except for removal and disposal of contaminated soils and water encountered during normal excavation and dewatering activities within Contractor’s scope of Work and
specified in Section 02 61 00,

Insert the following at the beginning of Paragraph 4.06.E.

Except for removal and disposal of contaminated soils and water encountered during normal excavation and dewatering activities within Contractor’s scope of Work and specified in Section 02 61 00,

**SC-5.04 Contractor's Insurance**

Pursuant to Paragraph 5.04.A, there are no other loss payees in addition to the individuals and entities specified in subparagraph 5.04.B.1.

*To be determined and coordinated prior to Contract execution*

Pursuant to subparagraph 5.04.C.5, also provide Owner’s Protective Liability in the amount of $3,000,000 general aggregate ($1,000,000 per occurrence for bodily injury & property damage).

**SC-6.02 Labor; Working Hours**

Pursuant to Paragraph 6.02.B, regular working hours for this Project are 7:30 a.m. to 4:30 p.m., Monday through Friday. Work outside these hours will require authorization by the City DPW.

**SC-6.08 Permits**

Pursuant to Paragraph 6.08.A, comply with permit requirements included in Quincy Code of Ordinances, in particular, Chapters 12.08 and 17.36 and Title 15, portions of which are included as attachments to this section. Owner will waive fees associated with road opening and trench permits to be obtained by Contractor.

Add the following after Paragraph A.

B. Contractor shall comply with the following licenses and permits that the Owner will be obtaining for the Project as included in Section 01 15 00.

   Massachusetts Water Resources Authority 8(m) Permit.

**SC-6.09 Laws and Regulations**

Add the following immediately after Paragraph 6.09.A.

1. The Contractor shall comply with the following included as attachments to this section.

   Applicable sections of the Quincy Code of Ordinances
   Quincy Zoning Ordinance (Title 17 of the Code of Ordinances)

2. Coordinate with Owner and Engineer for and provide public notification to residents on the
Project for pre-Project notification, interruption of water service, and temporary water system bypass and public notification of parking restrictions as specified in Section 01 11 00.

**SC-7.01 Related Work at Site**

Pursuant to Paragraph 7.01, Owner has not and does not intend to separately contract for other work on the Project at the Site.

**SC-8.09 Limitations on Owner’s Responsibilities**

Add the following to Paragraph 8.09.

B. No officer, member or employee of the City of Quincy or its designees or agents, and no member of its governing body, and no other public official of the governing body of the locality or localities in which the Project is situated or being carried out, who exercises any function or responsibilities in the review or approval or the undertaking or carrying out of this Project, shall participate in any decisions relating to this Contract which affects his personal interest or the interest of any corporation, partnership, or associations in which he is directly or indirectly interested or have any personal or pecuniary interest, direct or indirect, in this Contract or proceeds thereof.

C. **SC-14.02 Progress Payments**

Add the following at the end of Paragraph 14.02.C.1.

For the purposes of this Paragraph, “Owner” shall mean “Owner’s approving authorities”.

**SC-16 Dispute Resolution**

Add the following new paragraphs immediately after Paragraph 16.01.D.

16.2 **Arbitration**

A. All Claims or counterclaims, disputes, or other matters in question between Owner and Contractor arising out of or relating to the Contract Documents or the breach thereof (except for Claims which have been waived by the making or acceptance of final payment as provided by Paragraph 14.09) including but not limited to those not resolved under the provisions of Paragraphs 10.05 or 16.01, will be subject to arbitration in accordance with the rules of Construction Industry Rules of the American Arbitration Association, subject to the conditions and limitations of this Paragraph 16.02. This agreement to arbitrate, and any other agreement or consent to arbitrate entered into, will be specifically enforceable under the prevailing Laws of any court having jurisdiction.

B. The demand for arbitration will be filed in writing with the other party to this Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the 30-day period specified in Paragraph 16.01.D, and in all other cases, within a reasonable time after the Claim or...
counterclaim, dispute, or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such Claim or other dispute or matter in question would be barred by the applicable statute of limitations.

C. No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer’s consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:

1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and

2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.

D. Consolidation shall be by order of the arbitrator(s) in any pending case, or if the arbitrator(s) fail to make an order, a party may apply to a court of competent jurisdiction for such order. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity shall be specifically enforceable in accordance with the Laws of any court having jurisdiction thereof.

E. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include: (i) a concise breakdown of the award; (ii) a written explanation of the award specifically citing the Contract Document provisions deemed applicable and relied on in making the award.

F. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the controlling Laws relating to vacating or modifying an arbitral award.

G. If the parties decline to arbitrate, such Claims, disputes and other matters shall be decided by a court having jurisdiction.

16.3 General

A. The Contractor will require similar dispute resolution provisions in agreements with its Subcontractors and Suppliers.

B. Contractor shall not have the right to stop performance of the Work pending resolution of a Claim or dispute.

C. Notwithstanding any provision contained in this Article or elsewhere in the Contract Documents, the Owner reserves the following rights in connection with Claims and disputes between the Owner and the Contractor:

1. The right to institute legal action against the Contractor in any court of competent jurisdiction in lieu of demanding arbitration pursuant to this Article, in which case the Claims or disputes which are the subject of such action shall be decided by such court, and
not by arbitration.

2. The right to obtain from any court of competent jurisdiction a stay of any arbitration instituted by the Contractor, provided that the application for such stay is made before the appointment of the neutral arbitrator in such arbitration, in which case the Claims or disputes which are the subject of such arbitration shall be decided by such court, and not by arbitration.

3. The right to require the Contractor to join as a party in any arbitration between the Owner and the Engineer relating to the Project, in which case the Contractor agrees to be bound by the decision of the arbitrator or arbitrators in such arbitration.

ATTACHMENTS

A. Quincy Code of Ordinances, Chapters 12.08 and 17.36

B. Quincy Code of Ordinances, cover, preface, contents and Quincy Zoning Ordinance June, 2011, contents and website

END OF SECTION
12.08.010 - Streets—Defined.

Whenever the word "street" is used in this title, it shall be understood as meaning to include lanes, alleys, courts, public squares and sidewalks, unless otherwise expressed.

(Prior code Ch. 18, § 1)

12.8.20 - Permit for digging in public ways.

No entity (person, business, utility, government agency) shall dig into or break-up any public street in the city without first having obtained a permit from the commissioner of public works. The permit (hereafter known as a street opening permit) shall be in a form acceptable to the commissioner, consistent with this code and other laws. The commissioner may attach general and specific conditions under which a permit is granted. In all cases, the permit must be signed by the utility or property owner and contractor.

(Ord. 94-226 (part))

12.8.21 - Fees for street opening permits.

A. A one hundred dollar nonrefundable application fee is required.
B. A five hundred dollar, cash or certified check refundable deposit is required and will be held until the municipal contractor completes the permanent patch and payment is received. Interest on retained money is considered to be the property of the municipality. Trenches not inspected due to the failure of the permittee to properly notify the governing authority shall be subject to loss of deposit, and/or repeat of reconstruction procedures.
C. A five thousand dollar performance and payment bond is required for each street opening permit granted. The governing authority may allow a blanket bond commensurate with anticipated permit activity for routine excavators. Under no circumstances will this blanket bond be less than fifty thousand dollars.
D. The contractor must furnish the municipality with a certificate of insurance for general liability in the amount of one million five hundred thousand dollars.

(Ord. 94-226 (part))

12.8.22 - Notification.

A. The designated municipal coordinator of the governing authority shall be notified twenty-four hours before the commencement of any work.
B. Dig safe must be notified.

(Ord. 94-226 (part))

12.8.23 - Construction procedures.

A. The pavement shall be pre-cut and may only be disturbed within the area requiring excavation for repair, replacement or new installation. When the opening occurs within two feet of the curb and/or edge of the hardened surface, the paved area between the excavation and the curb and/or edge must also be removed.
B.
In the backfill process, the backfill shall be comprised of suitable material (subject to approval of the governing authority or his authorized representative). Concrete should be used around all electric and telephone conduit in trenches. Controlled density fill (CDF) may be required. Compaction, (when CDF is not in use) will be executed in six inch layers. Each layer shall be ninety-five percent compacted by mechanical means. When the total surface area of an individual opening in bituminous concrete is less than nine square feet, all backfill material(s) will be placed to within a minimum of six inches of the pavement surface, or the thickness of the original pavement structure, whichever is greater. For individual openings with surface areas of nine square feet and larger, the backfill materials will be installed to within four inches of the pavement surface or the thickness of the existing structure, whichever is greater. "Pavement structure" will incorporate all previous paving materials used above the gravel sub-base, including but not limited to bituminous concrete, cement concrete, cobblestone, macadam, etc.

C. The hardened pavement shall then be cut back and removed six to twelve inches from all sides of the initial excavation to the depth of the original pavement structure, exposing the undisturbed gravel sub-base. Edges will be cut perpendicular to the surrounding surface and have a clean vertical face, particularly in the corners. All structures shall be leveled to the adjacent surfaces. The cut back shall be in straight lines with ninety degree angles at the point(s) of intersection.

D. All surplus and/or unacceptable excavated materials shall be removed from the job site immediately. The excavation site shall be maintained in a clean and safe condition at all times. Sidewalks and streets shall be cleaned and opened to traffic at the end of each working day, unless otherwise authorized by the governing authority. Access to properties are to be maintained. The removal and disposal of materials, including pavement, is the responsibility of the permittee. This shall be achieved in such a manner to minimize interference with pedestrian and vehicular traffic.

E. The permittee shall be liable for the condition of the street and sidewalk openings and protection thereof prior to the temporary repair, and will be held responsible for all damage due to any failure of barricades, barriers, warning signs, lights or steel plates to properly protect the work from traffic, pedestrians or other causes. Other than while work is actually being performed, all open ditches shall be protected by uniform traffic control devices in conformance with the Massachusetts Highway Department Manual. All excavations must be properly secured to insure the safety of the travelling public, and immediately reported to the designated municipal coordinator.

F. Temporary patching shall be performed by a contract representative of the governing authority and shall be the financial responsibility of the permittee. All barricades and/or safety devices shall be immediately removed from the vicinity upon completion of the temporary bituminous patching application.

G. Any improperly prepared excavations, including those left with unacceptable backfill material or insufficient pavement depth, shall be temporarily paved by the municipal contract representative and charged to the refundable deposit of the permittee. The deposit shall immediately replenished to the original amount. At a later date, the trench shall be re-excavated and prepared correctly by the permittee. Under these conditions the permittee may also be subject to permit cancellation, inspection fees, fines, and loss of deposit and bond.

H. All excavations will be required to settle and/or consolidate for a period of time before the contract representative of the governing authority is directed to perform a permanent repair. This term will be defined as a minimum of thirty days when controlled density fill was used as backfill material. Compacted gravel sub-base must experience at least one seasonal
freeze/thaw cycle. The governing authority reserves the right to address any sub-base deficiency within, or adjacent to, the original excavated area with whatever measure deemed effective, during this period. These corrective procedures will be the financial responsibility of the permittee.

I. Immediately after the specified settling and/or consolidation period, all excavations shall be permanently restored by the contract representative for the governing authority. The following procedures shall be strictly adhered to:

1. The infrared process shall be utilized as the primary method of permanent restoration in bituminous concrete surfaces.

2. Temporary asphalt patches installed in cement concrete surfaces shall be re-excavated to the extremities of the square(s) in which the excavation is contained. The finished concrete shall be replaced to the depth, strength, and contour of the original structure. Any concrete surface damaged during construction shall also be replaced in a like manner.

3. All other surfaces, including but not limited to asphalt, brick, grass and wood shall be replaced consistent with the original and in strict accordance with municipal specifications. The permittee shall also be responsible for any and all necessary appurtenant measures including, but not limited to, complete surface reconstruction, curbing, resetting utility structures, "bar holes," compatible crackfilling, tack coating and infrared integration of pavement. All the required processes shall be determined by a site inspection with an authorized representative of the governing authority. All restoration procedures shall be the financial obligation of the permittee.

J. The permittee shall be responsible for any settlement, sub-base failure and pavement cracks that develop in, or adjacent to, the original excavated area for a period of three years from the date of the final accepted permanent repair or, if controlled density fill is used, for a period of one year from the date of the final accepted permanent repair. Any surface disorder caused by settlement and/or sub-base movement within the general area containing a street or sidewalk opening, shall be addressed by the municipal contract representative, at the direction of the governing authority. All related corrective measures will be charged to the permittee, and the term of obligation will begin again.

K. Excavations opened without the permit may be subject to cancellation and refusal of existing and future permits, and associated fines.

L. Police protection, if required, shall be paid by the permittee either directly or billed by the municipal representative of the municipality and billed directly to the permittee.

M. All surface restorations, bituminous concrete replacements, and permanent repairs will be done by a contract representative of the municipality and billed directly to the permittee.

(Ord. 94-226 (part))

12.8.24 - Billing and collections.

A. The contract representative of the municipality shall bill the permittee for the above mentioned services. All invoices will be paid within thirty days. One past due invoices, a service charge of one and one-half percent per month will be allowed on accounts thirty days past due, provided the rate does not exceed that which is permitted by law, in which case the highest allowable legal rate will apply. Invoices exceeding ninety days shall be paid by the municipality from the refundable deposit and/or bond, at which point the municipality shall fine the permittee that cost plus one hundred dollars per day, and continue to accrue the
service charges on any uncollected monies together with all costs of collection including attorney's fees.

B. The governing authority reserves the right to assume the billing function, including assessment and conveyance of reasonable handling charges, as provided by Massachusetts General Laws.

On ninety days past-due invoices, the municipality will revoke existing and future permits until payment of such invoices, including all service charges and fines.

If the account is found to be uncollectible, there shall be a lien upon such real estate in the manner provided in M.G.L. Ch. 40, Sec. 42A to 42F.

(Ord. 94-226 (part))

12.08.030 - Street construction—Safeguarding—Requirements—Fencing and lighting.

During the progress of any work referred to in the preceding section, the person holding the permit shall guard the area of such work by a proper fence or railing, and by lights during the nighttime, subject to the approval of the commissioner of public works.

(Prior code Ch. 18, § 5)


A. Any person, except the commissioner of public works, his agent or servant, receiving a permit to open, occupy, obstruct, use, dig into or break up any public street of the city, or portion thereof, in accordance with the provisions of Sections 12.08.020 and 12.08.030, shall maintain at his or its expense such police officer of the city, but in no event less than one police officer at each street location designated in each permit required to be issued, as the chief of police may deem necessary, to avoid, so far as reasonably possible, danger to the safety of persons and interference with the free circulation of vehicular traffic. For the purposes of this section, no emergency or like permits shall be issued granting blanket or similar permission to open, occupy, obstruct, use, dig into or break up more than one particular or separate street location per permit.

B. Opening Manholes. A person receiving a permit to open a manhole in any public street of the city shall maintain at his or its expense such police officers of the city as the chief of police may deem necessary, to avoid, so far as reasonably possible, danger to the safety of persons and interference with vehicular traffic.

C. Failure to Comply. Failure on the part of any such person to maintain such detail shall be cause for revocation of such permit, or the closing down of the opening, obstructing, using, digging into or breaking up of any public street of the city by police officers of the city until such detail is maintained.

D. Emergency Construction. In the event of an emergency which requires the opening, obstructing, using, digging into, or breaking up of any public street of or private way in the city by a person not able to obtain a permit because of the hour, such person shall immediately notify the officer in charge of Quincy police headquarters in order that the necessary police officers, but in no event less than one police officer, as designated by said officer, at each separate street location or place of such opening, obstructing, using, digging into, or breaking up of such street shall be assigned at the expense of such person.
12.08.050 - Digging near streets—Fencing required—Time limits.

If any person shall dig a cellar, or other cavity in the ground near to or adjoining any street, he shall, so long as the commissioner of public works may require, keep a railing or fence on or near the line of such street sufficient to protect travelers from falling into the place so dug, or being injured thereby.

(Prior code Ch. 18, § 36)

12.08.060 - Obstructing—Depositing trash or debris—Permitted for collection when.

No person shall place or cause to be placed or deposited, upon any street or other public place in this city, merchandise, ashes, shavings, house dirt, filth, offal or rubbish which shall in any way obstruct and disfigure the same; nor suffer his wood and coal to remain unnecessarily on any street. And no person shall place or deposit, or cause to be placed or deposited, any newspaper, circular, card or wastepaper of any kind or description upon any street or other public place in this city. And no person shall saw or split wood, or pile the same on any sidewalk; provided, that ashes or rubbish in suitable containers may be placed in the streets for collection, in such manner and on such days as the commissioner of public works may direct. No person shall place or cause to be placed on the public sidewalk rubbish barrels or rubbish containers fifteen hours before seven a.m. on the date of collections.

(Prior code Ch. 18, § 2)

12.08.070 - Obstructing during construction—Permit required—Requirements—Indemnification of city.

No person, unless authorized by law, shall erect on any street any staging for building, or place thereon any lumber, brick or other building materials, without a written permit from the commissioner of public works. Any person intending to erect or repair any building upon land abutting on a street shall give notice to the commissioner of public works, who may, at the owner's request, set apart such portion of the street as he shall deem expedient for such use. Such person shall, before the expiration of his permit, remove all rubbish, and restore such street, square or park to its former condition, to the satisfaction of the commissioner of public works. Every person so permitted shall, in writing, agree to indemnify the city against all damage or loss to the city, accruing from the doing of any act or thing under such permit, and sureties may be required by the commissioner of public works, and every person who, when so permitted, shall obstruct or render unsafe any public street, shall guard the same by a proper fence or railing, and by lights during the nighttime, subject to the approval of the commissioner of public works. Such permit may be revoked at any time by the commissioner of public works or by the city council.

(Prior code Ch. 18, § 3)

12.08.080 - Obstructing—Signs and awnings—Permission required—Requirements.

No person shall place or maintain over any street any sign, awning, shade or other obstruction, unless permission shall have first been obtained in writing from the commissioner of
public works. All such signs, awnings, shades or other obstructions shall be safely and securely supported. No awning shall be less than seven feet from the ground at its lowest point. All signs, awnings, shades and other obstructions, if built over a sidewalk, shall be of such width as shall be determined by the commissioner of public works.

(Prior code Ch. 18, § 7)

12.08.090 - Obstructing free passage.

No person shall stand, or remain alone, or with or near others, in any street of this city, in such a manner as to obstruct a free passage for passengers therein, or over any footway or sidewalk.

(Prior code Ch. 18, § 8)

12.08.100 - Placing obstructions on flagstones, stepping stones or footwalks.

No person shall place any obstruction of any kind upon any flagstone or stepping stone or other footwalks across any street in this city.

(Prior code Ch. 18, § 9)
Chapter 17.36 - ENVIRONMENTAL CONTROLS

17.36.010 - Illumination—Residence districts.

A. In a Residence district, no outdoor decorative or floodlighting shall be permitted except lighting primarily designed to illuminate walks, driveways, parking areas, doorways, outdoor living areas or outdoor recreational facilities, and except temporary holiday lighting, and except decorative floodlighting of institutions, public or historic buildings. Any permanent lighting permitted by the preceding sentence shall be continuous indirect light installed in such a manner that will prevent direct light from shining onto any street or adjacent property. No neon type or exposed illuminated gas tube type light shall be allowed.

(Prior code Ch. 24, § 82)

17.36.020 - Earth removal—Permit required.

No soil, loam, sand, gravel or stone shall be removed from any lot not in public use in the city without first obtaining a special permit from the board of appeals except as exempted in Section 17.36.060.

(Prior code Ch. 24, § 83 (part))

17.36.030 - Earth removal—Permit—Application—Procedures—Contents.

A. Each application for a special permit for earth removal shall be accompanied by a plan, submitted in triplicate, prepared at the expense of the applicant by a registered land surveyor or civil engineer, showing:

1. The existing contours of the land;
2. The contours after completion of the operation;
3. All public roads and private means of vehicular access;
4. Proposed drainage;
5. Any other information as may be required by the board of appeals.

(Prior code Ch. 24, § 83 (part))

17.36.40 - Earth removal—Permit—Conditions and restrictions.

A. In granting a permit hereunder, the board of appeals may impose reasonable conditions and restrictions as it deems to be in the public interest, including, but not limited to:
1. Method of removal;
2. Type and location of temporary structures;
3. Hours of operation;
4. Operations of removal trucks;
5. Area, depth and contours of excavations;
6. Distance of excavation to street and lot lines;
7. Reestablishment of ground lands and grades;
8. Provisions for temporary and permanent drainage;
9. Disposition of boulders and tree stumps;
10. Replacement of loam over the area of removal;
11. Planting of the area to suitable cover;
12. Cleaning, repair and/or resurfacing of streets used in removal activities which have been adversely affected by the removal activity.

(Prior code Ch. 24, § 83 (part))

17.36.050 - Earth removal—Permit—Duration—Renewal—Bond required when.

No permit for removal shall be issued for a period of more than three years, although such a permit may be renewed for additional periods in the same manner. The board of appeals shall require a cash bond or surety company bond to insure compliance with its conditions of authorization unless in a particular case it specifically finds that such security is not warranted and so states in its decision, giving the reason for its finding.

(Prior code Ch. 24, § 83 (part))

17.36.60 - Earth removal—Permit—Exceptions.

Sections 17.36.020 through 17.36.050 shall not apply to the following:

A. The removal of less than ten cubic yards of material in the aggregate in any year from one premise;
B. The transfer of material from one part of a premise to another part of the same premise for immediate use in such other part of the premise;
C. The removal of material necessarily excavated in connection with the lawful construction of a building or structure, driveway, parking area, sidewalk or path incidental to any such building or structure, as indicated on plans and profiles prepared by a registered engineer and approved by the director of inspections;
D. 
The removal of material necessarily excavated in connection with the lawful construction of public or private ways as indicated on plans and profiles prepared by a registered engineer and approved by the planning board.

(Ord. 97-337 § 6 (part); prior code Ch. 24, § 83 (part))

17.36.70 - Fencing and screening—Industrial and Business districts—Requirements.

A. Required when — Permitted Types. In an Industrial or Business district, the outdoor storage of goods, products, materials or equipment shall, if visible at normal eye level from any point beyond the boundaries of the premises and less than five hundred feet distant, be screened from such view. Screening, as defined herein, shall be an ornamental lattice, opaque fence, plantings or sight-obscuring screening which shall not be less than six nor more than ten feet high and not less than fifty percent opaque. Plantings shall be at least ten feet in width and contain at least two rows of alternate live deciduous and evergreen trees. Said trees shall not be more than five feet apart, shall have an original planting height of at least six feet, shall be able to attain a height of at least ten feet, and shall be maintained in a healthy growing condition by the property owner. Any existing open storage in any district shall within one year of the effective date of the ordinance codified in this title be properly screened or removed.

B. Adjacent to Residential Districts. Where an Industrial district is located adjacent to a Residence district or a public park or playground and is not separated therefrom by a public way, a compact planting screen as defined in subsection A of this section along the property or lot line adjoining said district boundary shall be provided and maintained by the owners of said premises. Said screening area shall contain no structures or parking or be devoted to any other use or purpose, and shall be maintained in a healthy growing condition by the property owner.

(Prior code Ch. 24, § 84)

17.36.080 - Traffic visibility across corners.

In any district, no structure, fence or sign shall be constructed and no vegetation shall be planted or maintained between a plane two and one-half feet above curb level and a plane ten feet above curb level, so as to interfere with traffic visibility across a corner within that part of the lot which is within a triangle formed by the street lines and a third line joining points on the street lot lines twenty-five feet from their intersection.

(Ord. 1988-6: prior code Ch. 24, § 85)

17.36.90 - Blasting—Permits—Pre-blasting survey—Required—Requirements.

A. Permitted Surveyors. For all permits issued for blasting (rock excavation) in the city, a pre-blast survey must be made by the contractor or by an approved firm in this kind of work and satisfactory to the contractor's insurance company.

B. Requirements.

1. Approval. The pre-blast survey will include a survey of the interior and exterior of existing buildings and stone walls adjacent to the project as specified herein, before any excavation or blasting is done. Written approval must be secured from the fire chief, city engineer and director of inspections serving as the committee on blasting.

2.
Adjacent Area. The adjacent area requiring the pre-blast survey is specified as all buildings and stone walls within a radius of three hundred fifty feet from said blast.

3. Structural Defects. The survey shall record all visible structural defects such as cracks, settlement and lines out of plumb.

(Ord. 97-337 § 6 (part); Ord. 1988-236 (part): prior code Ch. 24, § 87 (part))

17.36.100 - Blasting—Pre-blasting survey—Disposition of survey data.

The survey data shall be recorded in a permanent manner in approved hardbound notebooks. The survey data shall include polaroid photographs showing the building constructions surveyed referenced to the notebook pages. Also a tape recording of all data pertinent to the survey shall be made. The scope and format of the record survey data shall be satisfactory to the committee on blasting. Before commencing any blasting or ledge excavation, copies of the survey must be on file at the offices of the Quincy city engineer and the Quincy city clerk, City Hall, Quincy, MA.

(Ord. 1988-236 (part): prior code Ch. 24, § 87 (part))

17.36.110 - Blasting—Pre-blasting survey—Not required when.

No pre-blasting survey shall be required if blasting is within the following limits: The total charge weight per blast does not exceed five pounds and the maximum weight per delay does not exceed two pounds per delay.

(Ord. 1988-236 (part): prior code Ch. 24, § 87 (part))

17.36.120 - Blasting—Posting of bond—Required when—Amount.

If blasting is designed to excavate more than a ten-cubic-yard area, the contractor must post a bond with the city. The amount of said bond shall be determined by the committee on blasting.

The committee on blasting will not release the bond until it is convinced that all judgments and claims have been reasonably dealt with by the contractor.

(Ord. 1988-236 (part): prior code Ch. 24, § 87 (part))

17.36.130 - Blasting—Fire department supervision—Required—Costs.

All blasting is to be supervised on site by an authorized member of the fire department, assigned by the chief, and the cost of said supervision shall be the sole responsibility of the contractor.

(Ord. 1988-236 (part): prior code Ch. 24, § 87 (part))

17.36.140 - Blasting—Violations—Penalties.

Any person who shall violate any of the provisions of Sections 17.36.090 through 17.36.130, as determined by the committee on blasting, or who fails to comply therewith, shall severally, for each and every violation and noncompliance respectively, be liable to a penalty of two hundred dollars for each offense.

(Ord. 1988-236 (part): prior code Ch. 24, § 87 (part))
The Quincy, Massachusetts Municipal Code, originally published by Book Publishing Company in 1992, has been kept current by regular supplementation by Matthew Bender & Company, Inc., its successor in interest.

Beginning in September 2009, Municipal Code Corporation will be keeping this code current by regular supplementation.

During original codification, the ordinances were compiled, edited and indexed by the editorial staff of Book Publishing Company under the direction of Stephen J. McGrath, city solicitor, Joseph P. Shea, city clerk, and John M. Gillis, former city clerk.

The code is organized by subject matter under an expandable three-factor decimal numbering system which is designed to facilitate supplementation without disturbing the numbering.
of existing provisions. Each section number designates, in sequence, the numbers of the Title, chapter, and section. Thus, Section 2.12.040 is Section .040, located in Chapter 2.12 of Title 2. In most instances, sections are numbered by tens (.010, .020, .030, etc.), leaving nine vacant positions between original sections to accommodate future provisions. Similarly, chapters and titles are numbered to provide for internal expansion.

In parentheses following each section is a legislative history identifying the specific sources for the provisions of that section. This legislative history is complemented by an ordinance disposition table, following the text of the code, listing by number all ordinances, their subjects, and where they appear in the codification; and beginning in September 2009, legislation can be tracked using the "Code Comparative Table and Disposition List."

A subject-matter index, with complete cross-referencing, locates specific code provisions by individual section numbers.

This supplement brings the Code up to date through Ordinance___, passed ___ (Month, Date, Year)___.

Municipal Code Corporation 1700
Capital Circle SW Tallahassee,
FL 32310
800-262-2633

HOW TO USE YOUR CODE

This code is organized to make the laws of the city as accessible as possible to city officials, city employees and private citizens. Please take a moment to familiarize yourself with some of the important elements of this code.

Numbering System.

The numbering system is the backbone of a Code of Ordinances; Municipal Code Corporation uses a unique and versatile numbering structure that allows for easy expansion and amendment of this Code. It is based on three tiers, beginning with title, then chapter, and ending with section. Each part is represented in the code section number. For example, Section 2.04.010 is Section .010, in Chapter 2.04 of Title 2.

Title.

A title is a broad category under which ordinances on a related subject are compiled. This code contains about 15 to 20 titles. For example, the first title is Title 1, General Provisions, which may contain ordinances about the general penalty, code adoption and definitions. The titles in this code are separated by tabbed divider pages for quick reference. Some titles are Reserved for later use.

Chapter.

Chapters deal with more specific subjects, and are often derived from one ordinance. All of the chapters on a related subject are grouped in one title. The chapters are numbered so that new chapters which should logically be placed near certain existing chapters can be added at a later
time without renumbering existing material. For example, Chapter 2.06, City Manager, can
be added between 2.04, City Council, and Chapter 2.08, City Attorney.

Section.

Each section of the code contains substantive ordinance material. The sections
are numbered by "tens" to allow for expansion of the code without renumbering.

Tables of Contents.

There are many tables of contents in this code to assist in locating specific information. At
the beginning of the code is the main table of contents listing each title. In addition, each title and
chapter has its own table of contents listing the chapters and sections, respectively.

Ordinance History Note.

At the end of each code section, you will find an "ordinance history note," which lists the
underlying ordinances for that section. The ordinances are listed by number, section (if
applicable) and year. (Example: (Ord. 272 § 1, 1992).)

Beginning in September 2009, a secondary ordinance history note will be appended to
affected sections. Ordinance history notes will be amended with the most recent ordinance
added to the end. These history notes can be cross referenced to the code comparative table
and disposition list appearing at the back of the volume preceding the index.

Statutory References.

The statutory references direct the code user to those portions of the state statutes that
are applicable to the laws of the municipality. As the statutes are revised, these references will
be updated.

Cross-Reference Table.

When a code is based on an earlier codification, the cross-reference table will help users
find older or "prior" code references in the new code. The cross-reference table is located near the
end of the code, under the tabbed divider "Tables." This table lists the prior code section in the
column labeled "Prior Code Section" and the new code section in the column labeled "Herein."

As of September 2009, this table will no longer be updated.

Ordinance List and Disposition Table.

To find a specific ordinance in the code, turn to the section called "Tables" for the
Ordinance List and Disposition Table. This very useful table tells you the status of every ordinance
reviewed for inclusion in the code. The table is organized by ordinance number and provides a
brief description and the disposition of the ordinance. If the ordinance is codified, the chapter (or
chapters) will be indicated. (Example: (2.04, 6.12, 9.04).) If the ordinance is of a temporary nature
or deals with subjects not normally codified, such as budgets, taxes, annexations or rezones, the
disposition will be "(Special)." If the ordinance is for some reason omitted from the code, usually at
the direction of the municipality, the disposition will be "(Not codified)." Other dispositions
sometimes used are "(Tabled)," "(Pending)," "(Number Not Used)" or "(Missing)."

Beginning in September 2009, this table will be replaced with the "Code Comparative
Table and Disposition List."
Code Comparative Table and Disposition List.

Beginning in September 2009, a Code Comparative Table and Disposition List has been added for use in tracking legislative history. Located in the back of this volume, this table is a chronological listing of each ordinance considered for codification. The Code Comparative Table and Disposition List specifies the ordinance number, adoption date, description of the ordinance and the disposition within the code of each ordinance. By use of the Code Comparative Table and Disposition List, the reader can locate any section of the code as supplemented, and any subsequent ordinance included herein.

Index.

If you are not certain where to look for a particular subject in this code, start with the index. This is an alphabetical multi-tier subject index which uses section numbers as the reference, and cross-references where necessary. Look for the main heading of the subject you need, then the appropriate subheadings:

BUSINESS LICENSE
See also BUSINESS TAX Fee
5.04.030
Required when 5.04.010
The index will be updated as necessary when the code text is amended.

Instruction Sheet.

Each supplement to the new code will be accompanied by an Instruction Sheet. The Instruction Sheet will tell the code user the date of the most recent supplement and the last ordinance contained in that supplement. It will then list the pages that must be pulled from the code and the new pages that must be inserted. Following these instructions carefully will assure that the code is kept accurate and current. Removed pages should be kept for future reference.

Page Numbers.

When originally published, the pages of this code were consecutively numbered. As of September 2009, when new pages are inserted with amendments, the pages will follow a "Point Numbering System". (Example: 32, 32.1, 32.2, 32.2.1, 32.2.2., 33). Backs of pages that are blank (in codes that are printed double-sided) will be left unnumbered but the number will be "reserved" for later use.

Electronic Submission.

In the interests of accuracy and speed, we encourage you to submit your ordinances electronically if at all possible. We can accept most any file format, including Word, WordPerfect or text files. If you have a choice, we prefer Word, any version. You can send files to us as an e-mail attachment, by FTP, on a diskette or CD-ROM. Electronic files enable us not only to get you your code more quickly but also ensure that it is error-free. Our e-mail address is: ords@municode.com.

For hard copy, send two copies of all ordinances passed
to: Municipal Code Corporation
P.O. Box 2235
Tallahassee, FL 32316
Customer Service.

If you have any questions about this code or our services, please contact Municipal Code Corporation at 1-800-262-2633 or:

Municipal Code Corporation 1700
Capital Circle SW Tallahassee,
FL 32310
Quincy, Massachusetts, Code of Ordinances
www.municode.com

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City of Quincy, Massachusetts Zoning Code

Mayor Thomas P. Koch
Quincy, Massachusetts
Updated ~ June 2011
# QUINCY ZONING ORDINANCE

June 14, 2011

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SECTION 00 73 19
HEALTH AND SAFETY REQUIREMENTS

Contractor shall comply with the following minimum requirements and is solely responsible to determine, obtain, review and interpret the full text of applicable Laws and Regulations.

A. Code of Federal Regulations, Chapter XVII-Occupational Safety and Health Administration (OSHA), Department of Labor, Title 29, Part 1926, Safety and Health Regulations for Construction

1. Contractor shall strictly comply with the Hazard Communication Standard 1910.1200 regulated by OSHA, including providing and maintaining Safety Data Sheets, labeling of hazardous substances, and providing required protective equipment and training and instruction to personnel on the Site including Owner and Engineer’s personnel.

2. Perform confined space work in accordance with OSHA General Industry 1910.146: Permit Required Confined Space Entry.

B. ANSI/ASSE A10 series of safety construction standards including the "Manual of Accident Prevention In Construction" published by The Associated General Contractors of America

C. AASHTO Guide on Occupational Safety on Highway Construction Projects, Subpart N, 1926.550, relating to protection of personnel and equipment under electric lines and construction equipment clearances at overhead electric lines especially during operations using large vehicles

D. Pursuant to MGL Chapter 30, Section 39S, all employees to be employed at the Work Site 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. Any employee found on a Work Site subject to this section without documentation of successful completion of 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 shall be subject to immediate removal.

E. This Project is also subject to the following.

- MGL Chapter 82, The Laying Out, Alteration, Relocation and Discontinuance Of Public Ways, And Specific Repairs Thereon, Section 40:
  
  Section 40 Definitions
  Section 40A Excavations; notice
Section 40B Designation of location of underground facilities
Section 40C Excavator’s responsibility to maintain designation markings; damage caused by excavator
Section 40D Local laws requiring excavation permits; public ways

- **MGL Chapter 82A, *Excavation and Trench Safety***
  - Section 1 Unattended open trenches; safety hazards; rules and regulations; fines
  - Section 2 Trench excavating permits; permits issued by board or officer; certificate of insurance; fees
  - Section 3 Form of trench excavation permits; required statements
  - Section 4 Definitions
  - Section 5 Additional requirements

- **MGL Chapter 149**
  - Section 6C Health and safety of general public and asbestos workers; rules and regulations
  - Section 18A Sanitary and safety conditions; tools
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  - Section 18D Ropes, hooks and cranes; use and operation
  - Section 18E Safety precautions in dangerous undertakings
  - Section 18F Explosives
  - Section 18G Industrial truck and internal combustion equipment
  - Section 129A Shoring Trenches for local governments

- Massachusetts Department of Labor and Industries, Division of Occupational Safety (Chapter 454 CMR 10.00 et seq.)

- Massachusetts Department of Public Safety “*Excavation and Trench Safety*” (Chapter 520 CMR 14.00 et seq.)

END OF SECTION
SECTION 00 73 43

WAGE RATE REQUIREMENTS

The content of this Section does not represent or reflect all applicable Laws and Regulations and may only include excerpts and portions of certain Laws and Regulations. Other provisions required by statute shall be deemed to be so included and incorporated herein. Contractor is solely responsible to determine, obtain, review and interpret the full text of applicable Laws and Regulations.

The Project is subject to minimum wage rates as issued by the Director of the Executive Office of Labor and Workforce Development, Department of Labor Standards and the requirements of MGL Chapter 149, Sections 26, 27 and 27A to 27H. Wage Determination Schedules are included in Section 00 73 46. Pursuant to MGL Chapter 149, Section 34B, wages paid to reserve police officers shall be the same prevailing rate of wage paid to regular police officers at the location of the Project.

Submit required records and statements of compliance in accordance with MGL Chapter 149, Section 27B using the latest Weekly Payroll and Compliance forms available on the following website. Copies included in this section are for information only.

http://www.mass.gov/lwd/labor-standards/prevailing-wage-program

ATTACHMENTS

A. Massachusetts Prevailing Wage Law guidance and forms

END OF SECTION
A Guide to the MA Prevailing Wage Law for Contractors

What is the Prevailing Wage Law?

The Massachusetts Prevailing Wage Law for public works projects G.L. c. 149, §§ 26 - 27 ("The Prevailing Wage Law") establishes minimum wage rates for workers on public construction projects. The Massachusetts Executive Office of Labor and Workforce Development, Department of Labor Standards (DLS) is the agency responsible for issuing prevailing wage rate sheets and administering the Prevailing Wage Law. The Massachusetts Attorney General's Fair Labor Division is responsible for enforcing the law. If contractors fail to comply with any provision of the Prevailing Wage Law or if you believe a contractor is not paying prevailing wages, you should contact the Attorney General's Fair Labor Division at (617) 727-3465.

Before soliciting bids for any public construction project an awarding authority must obtain a prevailing wage rate sheet from DLS. Each prevailing wage rate sheet applies only to the public construction project for which it is issued. The prevailing wage rates for each construction project are in effect for 90 days from the date of issue. Projects not bid within 90 days of the issued rates will require the awarding authority to request new prevailing wage rates. Once a project has been awarded, the prevailing wage rate schedule will apply for the duration of any contracts which result from that bid, except in the case of multi-year projects. For projects lasting more than one year, the awarding authority must request annual updates to the wage schedules (see FAQs below for more information on annual updates). All wage increases listed on the schedule, if any, must be paid on the dates indicated.

During the project, it is the contractor's responsibility to submit certified weekly payroll records to the awarding authority by first class mail or by electronic mail. Weekly payroll report forms and required statements of compliance are available on DLS' website. All information set forth on the form must be provided. Failure to submit certified weekly payroll records and statements of compliance may result in fines of up to $10,000 per occurrence.

Frequently Asked Questions (FAQ)

Q. How Can I Determine the Prevailing Wage Rates for Bidding on a Project?

A. Under the law, the awarding authority is required to include the rate sheet in the bid documents. In addition, for bidding purposes, you may request an "Example Rate Sheet" by accessing the DLS website. If you have questions or problems obtaining an Example Rate Sheet, you may call (617) 626-6953. Notwithstanding information contained on an Example Rate sheet, the wage rates which a contractor must pay to its workers if awarded the contract are those contained on the official rate sheet obtained by the awarding authority.

Q. Which Benefits are Included in the Prevailing Wage Rate?

A. Payments by employers to health and welfare plans, pension plans and supplemental unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers are included in the wage rates. G.L. c. 149, §§ 26 and 27. Only those amounts contributed by an employer to a bonafide health and welfare, pension or supplementary unemployment plan may be deducted from the wage rate.

Q. Why Does the Rate Sheet Contain Both Percentages and Dollar Figures for the Apprentice Rates?

A. Effective March 18, 2010, DLS began to publish on the prevailing wage rate sheets, the actual apprentice wage rates including the enumerated benefits described above. To the extent that the employer actually contributes, on behalf of the employee, to a health and welfare, pension or supplementary unemployment plan, the employer may deduct the amount contributed from the apprentice wage rate published on the rate sheet, just as they may for journeyman. Although for a period of time the percentages may still appear on the rate sheets, for projects that include wage schedules issued from this date forward, contractors should no longer calculate the apprentice rate based upon the percentage, but instead shall pay no less than the wage rate listed on the rate sheet.

Q. What if I Have a Question about a Classification on the Rate Sheet?

A. The DLS website contains a Topical Index that contains details regarding classifications, among other information. In addition, the website contains DLS Opinion Letters from 2000 onward which contain detailed information about many of the classifications. If you cannot find an answer or have further questions, you must call the DLS at (617) 626-6952.

Q. Is Preventative Maintenance Work Covered by the Prevailing Wage Law?

A. Maintenance or repair which involve any "additions or alterations" to a public work is covered under the prevailing wage law.

Q. What is an Annual Update?

A. On August 8, 2008, the prevailing wage law was amended to require annual updates to prevailing wage rate sheets for all public construction projects lasting longer than one year. This law applies to all public construction contracts bid on or after August 8, 2008. This law does not affect contracts bid prior to August 8, 2008.

Q. What if the Awarding Authority Estimates that the Project Will Last Less than One Year, But the Work Extends Into a Second Contract Year?

A. Should the awarding authority determine during the project that the work will last longer than the estimated time period as outlined in the bid documents, the awarding authority must request new wage schedules from DLS. Each prevailing wage rate sheet applies only to the public construction project for which it is issued.
A. The awarding authority must request an annual update, and the contractor must obtain and pay those rates.

Q. What Are My Obligations As a Contractor for Annual Updates?

A. General Contractors must obtain these updated schedules from awarding authorities, and general and sub-contractors must pay no less than these rates to covered workers. Updated schedules must also be posted in a conspicuous place at the worksite during the life of the contract. Failure to comply with the prevailing wage law may result in civil or criminal penalties and/or sanctions under M.G.L. c. 149, §27C.

Did you find the information you were looking for on this page? *

☐ Yes
☐ No

Send Feedback
WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form is available from the Department of Labor Standards (DLS) at www.mass.gov/dols/pw and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

On a weekly basis, every contractor and subcontractor is required to submit a certified copy of their weekly payroll records to the awarding authority; this includes the payroll forms and the Statement of Compliance form. The certified payroll records must be submitted either by regular mail or by e-mail to the awarding authority. Once collected, the awarding authority is required to preserve those records for three years from the date of completion of the project.

Each such contractor and subcontractor shall furnish weekly and within 15 days after completion of its portion of the work, to the awarding authority directly by first-class mail or e-mail, a statement, executed by the contractor, subcontractor or by any authorized officer thereof who supervised the payment of wages, this form, accompanied by their payroll:

STATEMENT OF COMPLIANCE

_____________________, 20_____  

I, ____________________________________________________________, (Name of signatory party) (Title)  
do hereby state:  
That I pay or supervise the payment of the persons employed by  
_________________________ on the ________________________________ (Contractor, subcontractor or public body) (Building or project)  
and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature ________________________________  
Title ________________________________
MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM

Company's Name:  
Address:  
Phone No.:  
Payroll No.:  

Employer's Signature:  
Title:  
Contract No:  
Tax Payer ID Number:  
Work Week Ending:  

Awarding Authority's Name:  
Public Works Project Name:  
Public Works Project Location:  
Min. Wage Rate Sheet Number:  

General / Prime Contractor's Name:  
Subcontractor's Name:  
"Employer" Hourly Fringe Benefit Contributions

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Are all apprentice employees identified above currently registered with the MA DLS’s Division of Apprentice Standards?

For all apprentices performing work during the reporting period, attach a copy of the apprentice identification card issued by the Massachusetts Department of Labor Standards/Division of Apprentice Standards.

NOTE: Pursuant to MGL c. 149, s. 27B, every contractor and subcontractor is required to submit a true and accurate copy of their certified weekly payroll records to the awarding authority by first-class mail or e-mail. In addition, each weekly payroll must be accompanied by a statement of compliance signed by the employer. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

Date Received by Awarding Authority

Page  of  _
SECTION 00 73 46

WAGE DETERMINATION SCHEDULE

The Project is subject to the following wage rates (included in this section) in accordance with the requirements included in Section 00 73 43. In case of discrepancy between Federal wage rates (if any) and state wage rates, the higher wage rates shall apply.

- Minimum wage rates as issued by the Director of the Executive Office of Labor and Workforce Development, Department of Labor Standards pursuant to MGL Chapter 149, Sections 26, 27 and 27A to 27H

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

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

CHARLES D. BAKER
Governor

ROSA L IN ACOSTA
Secretary

WILLIAM D MCKINNEY
Director

prevailing Wage Rates

Awarding Authority: City of Quincy

City/Town: QUINCY

Contract Number: QUINCY

Description of Work: Work under this Contract 2 includes, but is not limited to removal of 6-in to 20-inch unlined cast iron water main, installation of 6-inch to 20-inch cement lined ductile iron water mains.

Job Location: Various locations throughout the City of Quincy

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. A 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

Issue Date: 02/06/2019  Wage Request Number: 20190206-030
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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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### Apprentice - BOILERMAKER - Local 29

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### Notes:

Apprentice to Journeyworker Ratio: 1:4

### BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

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### Notes:

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

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### Bulldozer/Grader/Scraper Operating Engineers Local 4

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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For apprentice rates see "Apprentice- LABORER"

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For apprentice rates see "Apprentice- LABORER"

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For apprentice rates see "Apprentice- LABORER"

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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 $30.22/ 3&4 $36.03/ 5&6 $52.86/ 7&8 $58.73
- Apprentice to Journeyworker Ratio: 1:5

**Issue Date:** 02/06/2019  **Wage Request Number:** 20190206-030
### Carpenter Wood Frame

**Effective Date:**
- 10/01/2018
- 04/01/2019
- 10/01/2019

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All Aspects of New Wood Frame Work - As of 9/1/09 Carpentry work on wood-frame WEATHERIZATION projects shall be paid the WOOD FRAME CARPENTER rate.

### Carpenter (Wood Frame) - Zone 2

**Effective Date:** 10/01/2018

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**Effective Date:** 04/01/2019

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### Notes:
- % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
- Step 1&2 $19.26/ 3&4 $26.72/ 5&6 $33.89/ 7&8 $36.60

Apprentice to Journeyworker Ratio: 1:5

### Cemnt Masonry/Plastering

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

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#### Apprentice - 01/01/2019

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

Apprentice to Journeyworker Ratio: 1:3

### Chain Saw Operator

**Laborers - Zone 1**

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For apprentice rates see "Apprentice- LABORER"

### Clam Shells/Slurry Buckets/Heading Machines

**Operating Engineers Local 4**

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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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### PAINTER Local 35 - BRIDGES/TANKS

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**Notes:**
Steps are 750 hrs.

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

### DEMO: ADZEMAN
**LABORERS - ZONE 1**

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For apprentice rates see "Apprentice- LABORER"
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Issue Date: 02/06/2019  Wage Request Number: 20190206-030  Page 10 of 42
### ELECTRICIAN - Local 103

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**Notes:**

- App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

**Apprentice to Journeyworker Ratio:** 2:3

### ELEVATOR CONSTRUCTOR

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

Apprentice to Journeyworker Ratio: 1:1

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**ELEVATOR CONSTRUCTOR HELPER**

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For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

**FENCE & GUARD RAIL ERECTOR**

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For apprentice rates see "Apprentice- LABORER"

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

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

| FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 | 11/01/2018 | $22.45 | $11.00 | $15.50 | $0.00 | $48.95 |
|                                                                  | 05/01/2019 | $23.13 | $11.00 | $15.50 | $0.00 | $49.63 |
|                                                                  | 11/01/2019 | $23.72 | $11.00 | $15.50 | $0.00 | $50.22 |
|                                                                  | 05/01/2020 | $24.39 | $11.00 | $15.50 | $0.00 | $50.89 |
|                                                                  | 11/01/2020 | $24.98 | $11.00 | $15.50 | $0.00 | $51.48 |
|                                                                  | 05/01/2021 | $25.66 | $11.00 | $15.50 | $0.00 | $52.16 |
|                                                                  | 11/01/2021 | $26.26 | $11.00 | $15.50 | $0.00 | $52.76 |
|                                                                  | 05/01/2022 | $26.93 | $11.00 | $15.50 | $0.00 | $53.43 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| FIRE ALARM INSTALLER ELECTRICIANS LOCAL 103 | 09/01/2018 | $50.62 | $13.00 | $18.37 | $0.00 | $81.99 |
|                                            | 03/01/2019 | $51.10 | $13.00 | $18.88 | $0.00 | $82.98 |

For apprentice rates see "Apprentice- ELECTRICIAN"

| FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING ELECTRICIANS LOCAL 103 | 09/01/2018 | $37.97 | $13.00 | $16.35 | $0.00 | $67.32 |
|                                                                      | 03/01/2019 | $38.33 | $13.00 | $16.82 | $0.00 | $68.15 |

For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"

| FIREMAN (ASST. ENGINEER) OPERATING ENGINEERS LOCAL 4 | 12/01/2018 | $39.13 | $11.50 | $15.60 | $0.00 | $66.23 |
|                                                        | 06/01/2019 | $40.04 | $11.50 | $15.60 | $0.00 | $67.14 |
|                                                        | 12/01/2019 | $40.99 | $11.50 | $15.60 | $0.00 | $68.09 |
|                                                        | 06/01/2020 | $41.90 | $11.50 | $15.60 | $0.00 | $69.00 |
|                                                        | 12/01/2020 | $42.85 | $11.50 | $15.60 | $0.00 | $69.95 |
|                                                        | 06/01/2021 | $43.76 | $11.50 | $15.60 | $0.00 | $70.86 |
|                                                        | 12/01/2021 | $44.71 | $11.50 | $15.60 | $0.00 | $71.81 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| FLAGGER & SIGNALER LABORERS - ZONE 1 | 12/01/2018 | $22.50 | $7.85  | $15.35 | $0.00 | $45.70 |
|                                       | 06/01/2019 | $22.50 | $7.85  | $15.35 | $0.00 | $45.70 |
|                                       | 12/01/2019 | $23.50 | $7.85  | $15.35 | $0.00 | $46.70 |
|                                       | 06/01/2020 | $23.50 | $7.85  | $15.35 | $0.00 | $46.70 |
|                                       | 12/01/2020 | $24.50 | $7.85  | $15.35 | $0.00 | $47.70 |
|                                       | 06/01/2021 | $24.50 | $7.85  | $15.35 | $0.00 | $47.70 |
|                                       | 12/01/2021 | $24.50 | $7.85  | $15.35 | $0.00 | $47.70 |

For apprentice rates see "Apprentice- LABORER"

| FLOORCOVERER FLOORCOVERERS LOCAL 2168 ZONE 1 | 03/01/2016 | $42.13 | $9.80  | $17.62 | $0.00 | $69.55 |
## Classification

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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 $30.55/ 3 & 4 $36.49/ 5 & 6 $53.33/ 7 & 8 $59.33

Apprentice to Journeyworker Ratio: 1:1

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

---

### FORK LIFT/CHERRY PICKER

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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### GENERATOR/LIGHTING PLANT/HEATERS

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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

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**Issue Date:** 02/06/2019  
**Wage Request Number:** 20190206-030  
**Page 14 of 42**
### GLAZIER - Local 35 Zone 2

#### Apprentice - GLAZIER - Local 35 Zone 2

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

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**Notes:**
Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

### HOISTING ENGINEER/CRANES/GRADALLS

**OPERATING ENGINEERS LOCAL 4**

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**Effective Date:** 06/01/2019

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

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**HVAC (DUCTWORK)**

SHEETMETAL WORKERS LOCAL 17 - A

For apprentice rates see "Apprentice- SHEET METAL WORKER"

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**HVAC (ELECTRICAL CONTROLS)**

ELECTRICIANS LOCAL 103

For apprentice rates see "Apprentice- ELECTRICIAN"

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**HVAC (TESTING AND BALANCING - AIR)**

SHEETMETAL WORKERS LOCAL 17 - A

For apprentice rates see "Apprentice- SHEET METAL WORKER"

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**HVAC (TESTING AND BALANCING -WATER)**

PIPEFITTERS LOCAL 537

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

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**HVAC MECHANIC**

PIPEFITTERS LOCAL 537

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For apprentice rates see "Apprentice- LABORER"

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

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Notes:
- Steps are 1 year

Apprentice to Journeyworker Ratio: 1:4

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## Apprentice - IRONWORKER - Local 7 Boston

### Effective Date - 09/16/2018

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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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### LABORER

### LABORERS - ZONE 1

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Notes:

Apprentice to Journeyworker Ratio: 1:5

LABORER: CARPENTER TENDER
Laborers - Zone 1

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For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER
Laborers - Zone 1

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For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER
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For apprentice rates see "Apprentice- LABORER"

| LABORER: MULTI-TRADE TENDER        |                |           |        |         |              |              |            |
| LABORERS - ZONE 1                  | 12/01/2018     | $38.65    | $7.85  | $15.35  | $0.00        | $61.85       |            |
|                                   | 06/01/2019     | $39.65    | $7.85  | $15.35  | $0.00        | $62.85       |            |
|                                   | 12/01/2019     | $40.65    | $7.85  | $15.35  | $0.00        | $63.85       |            |
|                                   | 06/01/2020     | $41.64    | $7.85  | $15.35  | $0.00        | $64.84       |            |
|                                   | 12/01/2020     | $42.62    | $7.85  | $15.35  | $0.00        | $65.82       |            |
|                                   | 06/01/2021     | $43.64    | $7.85  | $15.35  | $0.00        | $66.84       |            |
|                                   | 12/01/2021     | $44.65    | $7.85  | $15.35  | $0.00        | $67.85       |            |

For apprentice rates see "Apprentice- LABORER"

| LABORER: TREE REMOVER              |                |           |        |         |              |              |            |
| LABORERS - ZONE 1                  | 12/01/2018     | $38.65    | $7.85  | $15.35  | $0.00        | $61.85       |            |
|                                   | 06/01/2019     | $39.65    | $7.85  | $15.35  | $0.00        | $62.85       |            |
|                                   | 12/01/2019     | $40.65    | $7.85  | $15.35  | $0.00        | $63.85       |            |
|                                   | 06/01/2020     | $41.64    | $7.85  | $15.35  | $0.00        | $64.84       |            |
|                                   | 12/01/2020     | $42.62    | $7.85  | $15.35  | $0.00        | $65.82       |            |
|                                   | 06/01/2021     | $43.64    | $7.85  | $15.35  | $0.00        | $66.84       |            |
|                                   | 12/01/2021     | $44.65    | $7.85  | $15.35  | $0.00        | $67.85       |            |

This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"

| LASER BEAM OPERATOR                |                |           |        |         |              |              |            |
| LABORERS - ZONE 1                  | 12/01/2018     | $38.90    | $7.85  | $15.35  | $0.00        | $62.10       |            |
|                                   | 06/01/2019     | $39.90    | $7.85  | $15.35  | $0.00        | $63.10       |            |
|                                   | 12/01/2019     | $40.90    | $7.85  | $15.35  | $0.00        | $64.10       |            |
|                                   | 06/01/2020     | $41.89    | $7.85  | $15.35  | $0.00        | $65.09       |            |
|                                   | 12/01/2020     | $42.87    | $7.85  | $15.35  | $0.00        | $66.07       |            |
|                                   | 06/01/2021     | $43.89    | $7.85  | $15.35  | $0.00        | $67.09       |            |
|                                   | 12/01/2021     | $44.90    | $7.85  | $15.35  | $0.00        | $68.10       |            |

For apprentice rates see "Apprentice- LABORER"

| MARBLE & TILE Finishers            |                |           |        |         |              |              |            |
| BRICKLAYERS LOCAL 3 - MARBLE & TILE| 02/01/2019     | $40.91    | $10.75 | $18.97  | $0.00        | $70.63       |            |
|                                   | 08/01/2019     | $41.99    | $10.75 | $19.11  | $0.00        | $71.85       |            |
|                                   | 02/01/2020     | $42.90    | $10.75 | $19.11  | $0.00        | $72.65       |            |
|                                   | 08/01/2020     | $43.58    | $10.75 | $19.26  | $0.00        | $73.61       |            |
|                                   | 02/01/2021     | $44.09    | $10.75 | $19.26  | $0.00        | $74.15       |            |
|                                   | 08/01/2021     | $45.21    | $10.75 | $19.42  | $0.00        | $75.83       |            |
|                                   | 02/01/2022     | $45.68    | $10.75 | $19.42  | $0.00        | $75.85       |            |
### Apprentices - MARBLE & TILE FINISHER - Local 3 Marble & Tile

**Effective Date -** 02/01/2019

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**Notes:**
- Apprentice to Journeyworker Ratio: 1:3

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**MARBLE MASONS, TILELAYERS & TERRAZZO MECH**

**BRICKLAYERS LOCAL 3 - MARBLE & TILE**

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**Issue Date:** 02/06/2019  **Wage Request Number:** 20190206-030  **Page 21 of 42**
### Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile

#### Effective Date - 02/01/2019

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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

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

### MILLWRIGHT (Zone 1)

**MILLWRIGHTS LOCAL 1121 - Zone 1**

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

---

### MORTAR MIXER

**LABORERS - ZONE 1**

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For apprentice rates see "Apprentice- LABORER"

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### OILER (OTHER THAN TRUCK CRANES, GRADALLS)

**OPERATING ENGINEERS LOCAL 4**

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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### OILER (TRUCK CRANES, GRADALLS)

**OPERATING ENGINEERS LOCAL 4**

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"
### Classification

**OTHER POWER DRIVEN EQUIPMENT - CLASS II**

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For apprentice rates see "Apprentice - OPERATING ENGINEERS"

### Apprentice - **PAINTER Local 35 - BRIDGES/TANKS**

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#### Effective Date - 07/01/2019

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**Notes:**

Steps are 750 hrs.

**Apprentice 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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**PAINTERS LOCAL 35 - ZONE 2**

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### Apprenticeship Rates

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

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

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

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

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**PAINTER (SPRAY OR SANDBLAST, REPAINT)**

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**Issue Date**: 02/06/2019  
**Wage Request Number**: 20190206-030
### Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint

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**Notes:**

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

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### PAINTER (TRAFFIC MARKINGS)

**LABORERS - ZONE 1**

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*For Apprentice rates see "Apprentice- LABORER"

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

* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.

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**Notes:**
Steps are 750 hrs.

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

PAINTER / TAPER (BRUSH, REPAINT)

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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)**

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**PILE DRIVER**

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

Pipefitter & Steamfitter

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### Apprentice - PIPEFITTER - Local 537

**Effective Date:** 09/01/2018

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

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**Notes:**
- **1:3; 3:15; 1:10 thereafter / Steps are 1 yr.**

**Apprentice to Journeyworker Ratio:**

**PIPELAYER**

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For apprentice rates see "Apprentice- LABORER"
### Apprentice - PLUMBER/GASFITTER - Local 12

#### Effective Date: 09/01/2018

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**Notes:**
- **1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
- Step4 with lic$62.12, Step5 with lic$69.27

**Apprentice to Journeyworker Ratio:**

**PNEUMATIC CONTROLS (TEMP.)**

| 09/01/2018 | $52.94 | $9.95 | $18.74 | $0.00 | $81.63 |
| 09/01/2019 | $54.44 | $9.95 | $18.74 | $0.00 | $83.13 |
| 09/01/2020 | $55.94 | $9.95 | $18.74 | $0.00 | $84.63 |

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

**PNEUMATIC DRILL/TOOL OPERATOR**

| 12/01/2018 | $38.90 | $7.85 | $15.35 | $0.00 | $62.10 |
| 06/01/2019 | $39.90 | $7.85 | $15.35 | $0.00 | $63.10 |
| 12/01/2019 | $40.90 | $7.85 | $15.35 | $0.00 | $64.10 |
| 06/01/2020 | $41.89 | $7.85 | $15.35 | $0.00 | $65.09 |
| 12/01/2020 | $42.87 | $7.85 | $15.35 | $0.00 | $66.07 |
| 06/01/2021 | $43.89 | $7.85 | $15.35 | $0.00 | $67.09 |
| 12/01/2021 | $44.90 | $7.85 | $15.35 | $0.00 | $68.10 |

For apprentice rates see "Apprentice- LABORER"

**POWDERMAN & BLASTER**

| 12/01/2018 | $39.65 | $7.85 | $15.35 | $0.00 | $62.85 |
| 06/01/2019 | $40.65 | $7.85 | $15.35 | $0.00 | $63.85 |
| 12/01/2019 | $41.65 | $7.85 | $15.35 | $0.00 | $64.85 |
| 06/01/2020 | $42.64 | $7.85 | $15.35 | $0.00 | $65.84 |
| 12/01/2020 | $43.62 | $7.85 | $15.35 | $0.00 | $66.82 |
| 06/01/2021 | $44.64 | $7.85 | $15.35 | $0.00 | $67.84 |
| 12/01/2021 | $45.65 | $7.85 | $15.35 | $0.00 | $68.85 |

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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**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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### PAINTER LOCAL 35 - Zone 2

**Effective Date:** 06/01/2013

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**Notes:**
- Steps are 4 mos.

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

Apprentice to Journeyworker Ratio: 1:3

### STEAM BOILER OPERATOR

**OPERATING ENGINEERS LOCAL 4**

| Issue Date: 02/06/2019 | Wage Request Number: 20190206-030 | Page 36 of 42 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"
### Classification

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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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Apprentice to Journeyworker Ratio: 1:1
### TERRAZZO FINISHERS

**BRICKLAYERS LOCAL 3 - MARBLE & TILE**

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**LABORERS - FOUNDATION AND MARINE**

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For apprentice rates see "Apprentice- LABORER"

### TEST BORING DRILLER HELPER

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For apprentice rates see "Apprentice- LABORER"

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For apprentice rates see "Apprentice- LABORER*"
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<th>Classification</th>
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<th>Base Wage</th>
<th>Health</th>
<th>Pension</th>
<th>Supplemental Unemployment</th>
<th>Total Rate</th>
</tr>
</thead>
</table>
| WATER METER INSTALLER  
*PLUMBERS & GASFITTERS LOCAL 12*                 | 09/01/2018     | $55.69    | $11.82 | $16.01  | $0.00                     | $83.52     |
|                                                     | 03/01/2019     | $57.19    | $11.82 | $16.01  | $0.00                     | $85.02     |
|                                                     | 09/01/2019     | $58.69    | $11.82 | $16.01  | $0.00                     | $86.52     |
|                                                     | 03/01/2020     | $60.19    | $11.82 | $16.01  | $0.00                     | $88.02     |
|                                                     | 09/01/2020     | $61.69    | $11.82 | $16.01  | $0.00                     | $89.52     |
|                                                     | 03/01/2021     | $63.19    | $11.82 | $16.01  | $0.00                     | $91.02     |

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

**Outside Electrical - East**

CABLE TECHNICIAN (Power Zone)  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

<table>
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<th>Effective Date</th>
<th>Base Wage</th>
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For apprentice rates see "Apprentice- LINEMAN"

CABLEMAN (Underground Ducts & Cables)  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

<table>
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<tr>
<th>Effective Date</th>
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For apprentice rates see "Apprentice- LINEMAN"

DRIVER / GROUNDMAN CDL  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

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<th>Effective Date</th>
<th>Base Wage</th>
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For apprentice rates see "Apprentice- LINEMAN"

DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

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For apprentice rates see "Apprentice- LINEMAN"

EQUIPMENT OPERATOR (Class A CDL)  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

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<th>Total Rate</th>
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For apprentice rates see "Apprentice- LINEMAN"

EQUIPMENT OPERATOR (Class B CDL)  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

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For apprentice rates see "Apprentice- LINEMAN"

GROUNDMAN  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

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For apprentice rates see "Apprentice- LINEMAN"

GROUNDMAN -Inexperienced (<2000 Hrs.)  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

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For apprentice rates see "Apprentice- LINEMAN"

JOURNEYMAN LINEMAN  
*OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*

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

**Effective Date:** 09/03/2017

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### Notes:

Apprentice to Journeyworker Ratio: 1:2

### TELEDATA CABLE SPlicer

**OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104**

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<th>Effective Date</th>
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<th>Supplemental Unemployment</th>
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### TELEDATA LINEMAN/EQUIPMENT OPERATOR

**OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104**

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### TELEDATA WIREMAN/INSTALLER/TECHNICIAN

**OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104**

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<th>Total Rate</th>
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### TREE TRIMMER

**OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104**

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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.

### TREE TRIMMER GROUNDMAN

**OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104**

<table>
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</table>

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.

### 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, 1:2, 2:2, 3:3, 4:4, 1:5, 4:5, 6:6, 7:7, 8:8, 9:9, 10:10, 11:11, 12:12, 13:13, 14:14, etc.

**** APP to JM: 1:1, 1:2, 2:3, 3:4, 4:5, 4:6, 5:7, 6:8, 7:9, 8:10, 9:11, 10:12, 11:13, 12:14, 13:15, 14:16, etc.
SECTION 00 73 73

STATUTORY REQUIREMENTS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2007 Edition) included in Section 00 72 05. Provisions not so amended or supplemented remain in full force and effect unless amended or supplemented in another section. The terms used in this section have the meanings stated in the General Conditions. Additional terms used in this section, if any, have the meanings stated below which are applicable to both the singular and plural thereof. The address system used herein is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

This section includes certain provisions required by Laws and Regulations, but does not represent or reflect all applicable provisions and policies or Laws and Regulations, and may only include excerpts and portions thereof. Other required provisions and policies, and Laws and Regulations, shall be deemed to be so included and incorporated herein. Contractor is solely responsible to determine, obtain, review and interpret the full text of applicable provisions and policies, Regulations, and Laws.

The Project is specifically subject to the provisions of the Massachusetts General Laws ("MGL").

**SC-1.01.A.15 Contractor**

Add the following language at the end of the definition.

Also referred to as “general Contractor” in applicable statutory provisions which may be used interchangeably and shall have the same meaning.

**SC-1.01.A.29 Owner**

Add the following language at the end of the definition.

Also referred to as “Awarding Authority” or “contracting authority” in applicable statutory provisions which may be used interchangeably and shall have the same meaning.

**SC-1.01.A.44 Substantial Completion**

Add the following language at the end of the definition.

For the purposes of MGL Chapter 30, Section 39G, Completion of public works; semi-final and final estimates; payments; extra work; disputed items, Substantial Completion shall also mean either that the Work has been completed except for Work having a valued at less than 1 percent of the then adjusted total Contract Price, or substantially all of the Work has been completed and opened to public use except for minor incomplete or unsatisfactory Work items that do not materially impair the usefulness of the Work as required by the Contract.
Add the following new definition.

7. *material or Material* -- As used in MGL Chapter 30, Section 39M, *Contracts for construction and materials; manner of awarding*, regarding items equal to those specified, the word “material” shall mean and include any article, assembly, system, included in the Work, or any component part thereof.

**SC-3 CONTRACT DOCUMENTS: INTENT, AMEND, REUSE**

Add the following new paragraph immediately after Paragraph 3.06.

3.07  *Public Records*

B. Pursuant to MGL Chapter 66 et seq, *Public Records*, related submittals, purchase orders, related pricing documents, and invoices will be public documents, and may be available for public and private distribution, except as specifically excluded. The Contractor will provide the Owner copies of any documents requested under this Law at no charge to the Owner or the requestor.

**SC-4.03 Differing Subsurface or Physical Conditions**

Delete Paragraph 4.03.B in its entirety and insert the following in its place.

B. Pursuant to MGL Chapter 30, Section 39N, *Construction contracts; equitable adjustment in contract price for differing subsurface or latent physical conditions*:

“If, during the progress of the Work, the Contractor or the Awarding Authority discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the Plans or indicated in the Contract Documents either the Contractor or the contracting authority may request an equitable adjustment in the Contract Price of the Contract applying to Work affected by the differing Site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a Contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the Plans or indicated in the Contract Documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Plans and Contract Documents and are of such a nature as to cause an increase or decrease in the cost of performance of the Work or a change in the construction methods required for the performance of the Work which results in an increase or decrease in the cost of...
the Work, the contracting authority shall make an equitable adjustment in the Contract Price and the Contract shall be modified in writing accordingly.”

SC-5.01 Performance, Payment, and Other Bonds

Add the following new subparagraphs immediately after Paragraph 5.01.A.

1. Pursuant to MGL Chapter 30, Section 39A, Construction contracts for public ways, airports or public works; truck rentals; security for payment, and MGL Chapter 149, Section 29, Bonds for payment for labor, materials, rentals or transportation charges (et al), the required payment bond shall also cover payment by the Contractor and Subcontractors for the rental or hire of dump trucks and “... the rental or hire of vehicles, steam shovels, rollers propelled by steam or other power, concrete mixers, tools and other appliances and equipment employed in such construction, ...” and “... for payment of transportation charges directly related to such rental or hire. ...” Such security for payment of transportation charges shall be incorporated by appropriate reference thereto as an additional obligation or condition in the required bonds.

2. In addition, such bonds shall cover “... payment by Contractor and Subcontractors of any sums due trustees or other persons authorized to collect such payments from the Contractor or Subcontractors, for health and welfare plans, supplementary unemployment benefit plans and other fringe benefits which are payable in cash and provided for in collective bargaining agreements between organized labor and the Contractor or Subcontractors. ...”

SC-5.02 Licensed Sureties and Insurers

Add the following new subparagraphs immediately after Paragraph 5.02.A.

1. Pursuant to MGL Chapter 149, Section 29D, Surety company; bonds:

“Every bid bond, every performance bond and every payment bond issued for any construction work in the commonwealth shall be the bond of a surety company organized pursuant to section 105 of chapter 175 or of a surety company authorized to do business in the commonwealth under the provisions of section 106 of said chapter 175 and be approved by the U.S. Department of Treasury and are acceptable as sureties and reinsurers on federal bonds under Title 31 of the United States Code, sections 9304 to 9308.

2. If there is more than one surety company, the surety companies shall be jointly and severally liable.
SC-5.04 Contractor’s Insurance:

Add the following language at the end of subparagraph 5.04.A.1.

, pursuant to MGL Chapter 149, Section 34A, Contracts for public works; workers’
compensation insurance; breach of contract; enforcement and violation of statute:

“Every Contract for the construction, alteration, maintenance, repair or demolition
of, or addition to, any public building or other public works for the commonwealth
or any political subdivision thereof shall contain stipulations requiring that the
Contractor shall, before commencing performance of such Contract, provide by
insurance for the payment of compensation and the furnishing of other benefits
under chapter one hundred and fifty-two to all persons to be employed under the
Contract, and that the Contractor shall continue such insurance in full force and
effect during the term of the Contract. No officer or agent contracting in behalf of
the commonwealth or any political subdivision thereof shall award such a Contract
until he has been furnished with sufficient proof of compliance with the aforesaid
stipulations. Failure to provide and continue in force such insurance as aforesaid
shall be deemed a material breach of the Contract and shall operate as an immediate
termination thereof. No cancellation of such insurance, whether by the insurer or
by the insured, shall be valid unless written notice thereof is given by the party
proposing cancellation to the other party and to the officer or agent who awarded
the Contract at least fifteen days prior to the intended effective date thereof, which
date shall be expressed in said notice. Notice of cancellation sent by the party
proposing cancellation by registered mail, postage prepaid, with a return receipt of
the addressee requested, shall be a sufficient notice. An affidavit of any officer,
agent or employee of the insurer or of the insured, as the case may be, duly
authorized for the purpose, that he has so sent such notice addressed as aforesaid
shall be prima facie evidence of the sending thereof as aforesaid. This section shall
apply to the legal representative, trustee in bankruptcy, receiver, assignee, trustee
and the successor in interest of any such Contractor. The superior court shall have
jurisdiction in equity to enforce this section.

“Whoever violates any provision of this section shall be punished by a fine of not
more than one hundred dollars or by imprisonment for six months, or both; and, in
addition, any contractor who violates any provision of this section shall be
prohibited from contracting, directly or indirectly, with the commonwealth or any
political subdivision thereof, for the construction, alteration, demolition,
maintenance or repair of, or addition to, any public works or public building for a
period of two years from the date of conviction of said violation.”

Delete the words “materially changed” per Massachusetts insurance Laws in subparagraph
5.04.B.4. line 2.
Add the following immediately after subparagraph 5.04.B.7.

8. The provisions of MGL Chapter 258, *Claims and Indemnity Procedure for the Commonwealth, its Municipalities, Counties and Districts and the Officers and Employees Thereof* and MGL Chapter 260, Section 2B *Tort Actions Arising from Improvements to Real Property* shall apply.

Add the following language at the end of subparagraph 5.04.C.1, in compliance with MGL Chapter 152

**SC-5.06 Property Insurance**

Delete the words “or materially changed” per Massachusetts insurance Laws in Paragraph 5.04.C. line 3.

**SC-6.02 Labor; Working Hours**

Add the following new subparagraphs immediately after Paragraph 6.02.A.

1. Pursuant to MGL Chapter 30, Section 39S, *Contracts for construction; requirements*, Contractor shall furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work.

2. Pursuant to MGL Chapter 149, Section 26, *Public works; preference to veterans and citizens; wages*, preference shall be given to citizens of the Commonwealth of Massachusetts, citizens of the town or city where the Project is located, veterans and service-disabled veterans, and citizens of the United States.

3. The Contractor shall comply with the provisions of MGL Chapter 151B, *Unlawful Discrimination Because of Race, Color, Religious Creed, National Origin, Ancestry or Sex*.

4. The Contractor shall not participate in or cooperate with an international boycott, as defined in Section 999 (b)(3) and (4) of the Internal Revenue Code as amended, or engage in conduct declared to be unlawful by MGL Chapter 151E, *Prohibition Of Certain Discrimination By Businesses*, Section 2.

Add the following new subparagraph immediately after Paragraph 6.02.B.

1. Pursuant to MGL Chapter 149, Section 30, *Eight hour day and six day week; emergencies; work on highways*, and Section 34, *Public contracts; stipulation as to hours and days of work; void contracts*:
“Every contract, except for the purchase of material or supplies, involving the employment of laborers, workmen, mechanics, foremen or inspectors, to which the commonwealth or any county or any town, subject to section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working within the commonwealth, in the employ of the contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency, or, in case any town subject to section thirty-one is a party to such a contract, more than eight hours in any one day, except as aforesaid; provided, that in contracts entered into by the department of highways for the construction or reconstruction of highways there may be inserted in said stipulation a provision that said department, or any contractor or sub-contractor for said department, may employ laborers, workmen, mechanics, foremen and inspectors for more than eight hours in any one day in such construction or reconstruction when, in the opinion of the commissioner, public necessity so requires. Every such contract not containing the aforesaid stipulation shall be null and void.”

SC-6.05 Substitutes and “Or-Equals”

Add the following language at the end of Paragraph 6.05.A.

The provisions of MGL Chapter 30, Section 39M, subsection (b) also apply to this Paragraph.

SC-6.10 Taxes

Add the following new subparagraph immediately after Paragraph 6.10.A.

1. MGL Chapter 64H, Section 6, Exemptions, subsection (f), exempts from Massachusetts sales tax, building materials and supplies to be used in the Project, and Contractor shall not include any amount therefor. The words “building materials and supplies” shall include all materials and supplies consumed, employed or expended in the construction, reconstruction, alteration, remodeling or repair of any building, structure, public highway, bridge, or other such public work, as well as such materials and supplies physically incorporated therein. Said words also shall include rental charges for construction vehicles, equipment and machinery rented specifically for use on the Project Site, or while being used exclusively for the transportation of materials for the Project.
SC-6.12 Record Documents

Add the following new paragraph and subparagraphs immediately after Paragraph 6.12.A.

B. Subject to the provisions of MGL Chapter 266, Section 67C, *Capital facility construction projects, etc.; false entries in records; penalties*, and pursuant to MGL Chapter 30, Section 39R, *Definitions; contract provisions; management and financial statements; enforcement*:

“(b). . .(1) The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor, and

“(2) until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the Contractor or of his Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or his Subcontractors, and

“(3) if the agreement is a contract as defined herein, the Contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the Awarding Authority, including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the Contractor’s independent certified public accountant approving or otherwise commenting on the changes, and

“(4) if the agreement is a contract as defined herein, the Contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and

“(5) if the agreement is a contract as defined herein, the Contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

“(c) Every Contractor awarded a contract shall file with the Awarding Authority a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:

“(1) transactions are executed in accordance with management’s general and specific authorization;

“(2) transactions are recorded as necessary
i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

ii. to maintain accountability for assets;

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

“(4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference. Every Contractor awarded a contract shall also file with the Awarding Authority a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to (1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management’s evaluation of the system of internal accounting controls; and (1) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant’s financial statements.

“(d) Every Contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital asset management and maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant’s report. Such statements shall be made available to the Awarding Authority upon request.

“(e) . . . A Contractor’s failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.

“(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).”
**SC-8.09 Limitations on Owner’s Responsibilities**

Add the following new subparagraph immediately after Paragraph 8.09.A.

1. Pursuant to MGL Chapter 30, Section 39J *Public construction contracts; effect of decisions of contracting body or administrative board*, a decision on a dispute shall not be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily, is unsupported by substantial evidence, or is based upon error of law.

**SC-9.08 Decisions on Requirements of Contract Documents and Acceptability of Work**

Replace “with reasonable promptness” with “within 30 days pursuant to MGL Chapter 30, Section 39P, *Contracts for construction and materials; awarding authority’s decisions on interpretation of specifications, etc.; time limit; notice* in Paragraph 9.08.B.

Add the following new paragraph immediately after Paragraph 9.08.D.

E. Pursuant to MGL Chapter 30, Section 39J *Public construction contracts; effect of decisions of contracting body or administrative board*, a decision on a dispute shall not be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily, is unsupported by substantial evidence, or is based upon error of law.

**SC-10.01 Authorized Changes in the Work**

Add the following subparagraph immediately after Paragraph 10.01.A.

3. Changes to the Work are subject to the requirements of MGL Chapter 30, Section 39I, *Deviations from plans and specifications*.

**SC-10.05 Claims:** Add the following paragraph immediately after Paragraph 10.05.G.

H. Presentation of false, fictitious, or fraudulent Claims is subject to the provisions of MGL Chapter 266, Section 67B, *Presentation of false claims*.

**SC-11.01. Cost of the Work**

Pursuant to subparagraph 11.01.A.1.a, prevailing wage requirements are included in Section 00 73 43.

Add the following new subparagraph immediately after subparagraph 11.01.A.5.d.

1) The Project is exempt from sales tax as set forth in SC-6.10.

**SC-14.02. Progress Payments**
Add the following language to Paragraph 14.02.A.

The provisions of MGL Chapter 30, Section 39G, *Completion of public works; semi-final and final estimates; payments; extra work; disputed items*, covering “periodic estimate” and “periodic payment” apply to this Project and shall be considered Progress Payments per Paragraph 14.02. The forms listed in Section 00 60 00 and included in the Contract Documents will be utilized.

Add the following new subparagraph immediately after subparagraph 14.02.A.1.

Pursuant to MGL Chapter 30, Section 39S, *Contracts for construction; requirements*, provide certification for each employee employed at the Work Site of successful completion of 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.

Add the following new paragraph and subparagraphs immediately after subparagraph 14.02.D.3.

E. Pursuant to MGL Chapter 30, Section 39F, *Construction contracts; assignment and subrogation; subcontractor defined; enforcement of claim for direct payment; deposit, reduction of disputed amounts* regarding payment to Subcontractors, the following provisions shall be included in any subcontract in connection with Work under the Contract Documents.

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

“(b) Not later than the 65th day after each Subcontractor substantially completes his Work in accordance with the Plans and Specifications, the entire balance due under the subcontract less amounts retained by the Awarding Authority as the estimated cost of completing the incomplete and unsatisfactory items of Work, shall be due the Subcontractor; and the Awarding Authority shall pay that amount to the general Contractor. The
general Contractor shall forthwith pay to the Subcontractor the full amount received from the Awarding Authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the general Contractor.

“(c) Each payment made by the Awarding Authority to the general Contractor pursuant to subparagraphs (a) and (b) above for the labor performed and the materials furnished by a Subcontractor shall be made to the general Contractor for the account of that Subcontractor; and the Awarding Authority shall take reasonable steps to compel the general Contractor to make each such payment to each such Subcontractor. If the Awarding Authority has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to the general Contractor or which is to be included in a payment to the general Contractor for payment to the Subcontractor as provided in subparagraphs (a) and (b) above, the Awarding Authority shall act upon the demand as provided in this section of the MGL.

“(d) If, within seventy days after the Subcontractor has substantially completed the subcontract Work, the Subcontractor has not received from the general Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general Contractor, less any amount retained by the Awarding Authority as the estimated cost of completing the incomplete and unsatisfactory items of Work, the Subcontractor may demand direct payment of that balance from the Awarding Authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the Awarding Authority, and a copy shall be delivered to or sent by certified mail to the general Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the Subcontractor has substantially completed the subcontract work. Within 10 days after the Subcontractor has delivered or so mailed the demand to the Awarding Authority and delivered or so mailed a copy to the general Contractor, the general Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the Awarding Authority and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general Contractor and of the amount due for each Claim made by the general Contractor against the Subcontractor.

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

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

“(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) above shall be made out of amounts payable to the general Contractor at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the general Contractor and in the order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the Awarding Authority to the general Contractor to the extent of such payment.

“(h) The Awarding Authority shall deduct from payments to a general Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f) above, are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any Claims against such amounts by creditors of the general Contractor.”

**SC 14.04 Substantial Completion**

Add the following new paragraph immediately after Paragraph 14.04.E.

F. The provisions of MGL Chapter 30, Section 39G, *Completion of public works; semi-final and final estimates; payments; extra work; disputed items*, covering substantial completion apply to this Project. The forms listed in Section 00 60 00 and included in the Contract Documents will be utilized.

**SC 14.07 Final Payment**

Add the following new subparagraphs immediately after subparagraph 14.07.A.1.

A. The provisions of MGL Chapter 30, Section 39G, *Completion of public works; semi-final and final estimates; payments; extrawork; disputed items* covering the final estimate and completion of the Work apply to this Project. The forms listed in Section 00 60 00 and included in the Contract Documents will be utilized.
SC-15.01 Owner May Suspend Work

Add the following new subparagraphs immediately after Paragraph 15.01.A.

1. Pursuant to MGL Chapter 30, Section 39O, *Contracts for construction and materials; suspension, delay or interruption due to order of awarding authority; adjustment in contract price; written claim*:

“. . . (a) The Awarding Authority may order the general Contractor in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as it may determine to be appropriate for the convenience of the Awarding Authority; provided however, that if there is a suspension, delay or interruption for 15 days or more or due to a failure of the Awarding Authority to act within the time specified in the Contract, the Awarding Authority shall make an adjustment in the Contract Price for any increase in the cost of performance of the Contract but shall not include any profit to the general Contractor on such increase; and provided further, that the Awarding Authority shall not make any adjustment in the Contract Price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this Contract provides for an equitable adjustment of the Contract Price under any other Contract provisions.

“(b) The general Contractor must submit the amount of a Claim under provision 1 above to the Awarding Authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under the Contract and, except for costs due to a suspension order, the Awarding Authority shall not approve any costs in the Claim incurred more than 20 days before the general Contractor notified the Awarding Authority in writing of the act or failure to act involved in the Claim.

“In the event a suspension, delay, interruption or failure to act of the Awarding Authority increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the general Contractor for payment for an increase in the cost of his performance as provisions (a) and (b) above give the general Contractor against the Awarding Authority, but nothing in provisions (a) and (b) above shall in any way change, modify or alter any other rights which the general Contractor or the Subcontractor may have against each other.”

SC-17.05 Controlling Law

Add the following new subparagraphs immediately after Paragraph 17.05.A.

This Contract is subject to all Laws and Regulations of the United States of America (including the U.S. Code of Federal Regulations), the Commonwealth of Massachusetts and other public authorities, and all amendments thereto. Where any requirements contained herein do not conform to or are inconsistent with such Laws and Regulations to which the Contract is subject or by which it is governed, such Laws and Regulations shall have precedence over any matters set forth herein.

2. The Project is specifically subject to MGL Chapters 30 and 149 for contracts awarded pursuant to MGL Chapter 30, Section 39M.

3. Statutes, Regulations, and portions and summaries thereof which are set forth or referred to in the Contract Documents shall be construed to include all amendments thereto in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no
Bids). The Owner and Engineer make no representation as to and assume no responsibility for the correctness or completeness of such statutory matters referred to or set forth herein.

4. Any provision in violation of the foregoing shall be deemed null, void and of no effect. Where conflicts with Laws and Regulations exist, the more stringent requirement shall apply.

END OF SECTION
SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Project Description
B. Description of the Work
C. Work Sequence and Coordination
D. Special Requirements
E. Attachments

1.2 PROJECT DESCRIPTION

A. The Project is titled Bid FY19 Water Mains Contract 2 and generally consists of replacing existing cast iron water mains with new cement lined, ductile iron water mains, furnishing and installing new valves, hydrants and cement lined, ductile iron fittings, and replacing existing water services. The Project is located in the City of Quincy, Massachusetts.

1.3 DESCRIPTION OF THE WORK

A. The Work includes all labor, material, tools, equipment and services required for construction, testing, and commissioning of the Work in accordance with the Contract Documents and as more specifically described in the Specifications and Drawings. The Work includes, but is not limited to, the following principal features.

1. Locating and operating existing valves to obtain isolation control for the Project area with Owner’s permission.

2. Removal of 6-inch through 20-inch unlined cast iron water line. Installation of 6-inch to 20-inch ductile iron water main, including all related gate valves, hydrants, fittings, service connections, and all other appurtenances.

3. Furnishing and installing temporary water main bypass systems to provide water service and fire protection during construction.

4. Traffic control

5. Trench paving
B. Work Site locations: generally as shown on the Drawings and defined as follows.

1. Coordinate and schedule work with Owner and Engineer. Additional improvements on Kidder Street and Samoset Avenue to be performed by others.

C. Existing conditions and Site data: per the Drawings and Specifications 01 15 00.

1.4 WORK SEQUENCE AND COORDINATION

A. Owner shall be responsible for operating valves to isolate water mains adjacent to the Project area. However, Contractor may be requested to operate valves to isolate water mains adjacent to the Project area with written permission from the Owner.

B. Access to businesses and residences must be maintained during all Work.

C. Generally sequence the Work as follows.

1. Install temporary bypass water main system. Chlorinate, sample and put temporary bypass system into service
2. Cut-in isolation valves in locations shown on Drawings or where directed by Owner.
3. Perform proposed water main improvements.
4. Test, chlorinate, sample and put water mains into service.
5. Install water service connections .
6. Remove temporary bypass water main system.
7. Perform trench paving and Site clean-up.
1.5  **SPECIAL REQUIREMENTS**

A. Coordinate with Owner and Engineer for and provide public notification on the Project as specified below.

1. Notification to Owner and Engineer at least 30 calendar days prior to beginning Work in a new area of the Project to allow Owner and Engineer to complete pre-Project notification to residents.

2. Posting parking restriction signs in accordance with Quincy DPW requirements, no less than 7 days prior to beginning construction or paving on a street.

3. Notification to residents who will experience an interruption in water service, no less than 48 hours prior to interruption in water service. See Shutdown Notification attached to this section.

4. Notification to residents who will be connected to the temporary bypass system, no less than 24 hours prior to connection to temporary bypass. See Bypass Notification attached to this section.

1.6  **ATTACHMENTS**

A. Shutdown Notification

B. Temporary Bypass Notification

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

END OF SECTION
The City of Quincy is completing repairs on the distribution system in this area. As a result of the work on this project, your water service will be disrupted on _, 20___ starting at ______ for approximately ____________________________ hours. Please make any necessary arrangements as you may be without water during this period. When your water service is restored, it is recommended that you clean removable aerators or faucet screens, if present, and run an interior cold and an outside faucet for several minutes. If you experience discolored water even after flushing for several minutes, please run your outside faucet until the water runs clear. If you have any questions, please contact the Quincy Department of Public Works at [phone number]. Thank you for your cooperation with these essential repairs.
TEMPORARY WATER SYSTEM CONNECTION NOTICE

The City of Quincy is completing repairs on the distribution system in this area. As a result of the work on this project, the City will supply your water through a temporary bypass system for the duration of the work. In order to complete the temporary bypass connection, the City’s Contractor will need to access your water meter between ________, 20___ and ____, 20____. Please contact the Contractor’s Office at [Phone Number] to schedule this service.

Once you are connected to the temporary bypass system, your water will operate as normal. Should you experience issues with the temporary water system, please contact the Quincy Department of Public Works at [Phone Number]. If you experience an unexpected interruption in water service, please contact the Contractor’s emergency response personnel:

1. [Name of Emergency Contact 1] at [Phone Number]
2. [Name of Emergency Contact 2] at [Phone Number]
3. [Name of Emergency Contact 3] at [Phone Number]

Thank you for your cooperation with these essential repairs.
SECTION 01 15 00

SPECIFIC PROJECT REQUIREMENTS AND PROCEDURES

The following supplement the requirements and procedures of Sections 01 15 30, 01 50 00, 01 60 00, and 01 70 00 using the same titles, headings, and paragraph numbers to which the supplement applies.

Certain provisions required by Laws and Regulations may be referenced. Contractor is responsible to determine and obtain applicable Laws and Regulations and to review and interpret the full text of such Laws and Regulations.

SECTION 01 15 30 - PAYMENT AND ADMINISTRATIVE PROCEDURES AND QUALITY REQUIREMENTS

1.2 PAYMENT PROCEDURES

Pursuant to Paragraph B. Payment Procedures, submit the following specific items.

- Copy of cashed check paid and copy of receipts for Traffic Police Details invoices paid showing: the Project name; the officers' names; location of assignment; date of assignment; hours of assignment; and number of hours being invoiced

Pursuant to Paragraph C. Change Procedures, also use the City of Quincy standard Change Order Form provided.

1.3 ADMINISTRATIVE REQUIREMENTS

Pursuant to Paragraph A. Project Management and Coordination; Meetings,

subparagraph 1., the Project contact list will be provided at the pre-construction meeting.

subparagraph 4, identify documents and items for the Project as follows.

FY 19 Water Mains Contract 2 Quincy, Massachusetts

Pursuant to Paragraph B. Documentation of Progress,

subparagraph 4. Reports, submit the following additional reports.

- Updates to the Construction Operations Plan approved pursuant to SC 2.07 of Section 00 73 10 when it is modified
Pursuant to Paragraph C. **Submittal Procedures**, subparagraph 1., address submittals as follows.

**Engineer:**
Tetra Tech Inc  
100 Nickerson Road Marlborough, MA 01752  
Attn: Mark Negrotti P.E.  
Phone: (508) 786-2341  
Email: mark.negrotti@tetratech.com

**Owner:**
City of Quincy, Department of Public Works  
55 Sea Street, Quincy, MA 02169  
Attn: Peter Hoyt  
Phone: (617)3761912  
Email: phoyt@quincyma.gov

### 1.4 QUALITY REQUIREMENTS

Pursuant to Paragraph A. **Reference Standards and Regulatory Requirements**, specific requirements applicable to the Project include the following.

- requirements of the Quincy Code of Ordinances and Zoning Code portions of which are included in Section 00 73 10.

- Comply with the Massachusetts Department of Transportation - Highway Division’s (referred to as “MassDOT”) Construction Specifications (including Interim Supplemental Specifications and Supplemental Specifications but not including Compensation sections), Construction Details (including Standard Drawings), and Design Guides as incorporated into the Specifications and Drawings, and as may be modified therein or superseded by the Owner’s requirements through the direction of the Engineer. Specific sections of the MassDOT documents are referenced in the Specifications and Drawings. References to “Department” in the MassDOT documents shall mean Owner or Resident Project Representative for this Project. See MassDOT Highway Division website.

SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

1.3 TEMPORARY UTILITIES

Pursuant to Paragraph C. Water Service, specific requirements applicable to the Project include the following.

- Owner will provide water at no charge for construction and flushing. Owner shall not provide a backflow preventer. Backflow preventer shall be provided by Contractor.

1.4 TEMPORARY CONTROLS

Pursuant to Paragraph B. Water Control and Dewatering, comply with the following additional requirements.

- MassDEP requirements
- Section 02 61 05 Removal and Disposal of Contaminated Soil and Water

Pursuant to Paragraph C. Erosion and Sediment Control, comply with the following additional requirements.

- Quincy Conservation Commission requirements
- MassDEP requirements

Pursuant to Paragraph E. Pollution Control, submit a plan and employ additional protective measures to prevent harm to resource areas from a potential fuel leak or spill.

Pursuant to Paragraph F. Traffic Regulation,

subparagraph 1. regarding a plan for traffic control, also submit a schedule of road closures/detours and obtain a road closure and road blockage permit for every location where Work is being performed. Detours and street closures are subject to the approval of the [City] Traffic Engineer who will strictly control the periods when traffic is being detoured or streets can be closed.

subparagraph 2. regarding the MUTCD, comply with the following additional requirements.

subparagraph 4. regarding use of police officers, comply with the following additional requirements.

- Coordinate schedule of police details with Owner which will be paid by the Contractor and billed under Owner’s contingency allowance payment item. Contractor must pay police details immediately upon receipt of Police Detail invoice. Reimbursement shall be made through monthly payment requisition.

subparagraph 5, regarding maintaining one moving lane, comply with the following additional requirements.

- Except when road closure and road blockage permits are obtained, maintain two lanes of traffic (one in each direction) throughout construction and during non-working hours to the maximum extent possible.
- Lane closures will not be permitted from 7:00 am to 9:00 am except when road closure and road blockage permits are obtained.

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

1.2 OVERALL EXECUTION REQUIREMENTS

Pursuant to Paragraph A. Coordination, comply with the following additional requirements.

- technical requirements included in the Quincy Code of Ordinances (referenced portions and list of contents are included in Section 00 73 10)

subparagraph 4. regarding space requirements, a primary Site restriction is the width of the streets and volume of traffic within the Project Site which may require complete shut down or partial blocking of the streets during construction. Coordinate with the Fire Department and Police Department.

Pursuant to Paragraph B. Existing Conditions,

subparagraph 3. regarding underground utilities, comply with the following additional requirements.

- Contact DIGSAFE (www.digsafe.com) by dialing 811.

subparagraph 4. regarding reference points, survey information is included on the Drawings.
ATTACHMENTS

A. Anticipated Permits – *To be provided*
   1. Massachusetts Water Resources Authority 8(m) Permit
   2. Department of Conservation and Recreation (DCR) Access Permit

END OF SECTION
SECTION 01 15 30
PAYMENT AND ADMINISTRATIVE PROCEDURES AND QUALITY REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements relating to payment, the process of contract administration, and the methods of communicating, controlling, and assuring quality, and applies to all Specifications and Drawings.

1. In certain Paragraphs, checked items indicate those requirements applicable to the Project.

2. Provisions of this Section may be supplemented in the Specific Project Requirements and Procedures or other sections of Division 01.

B. Section Includes

1.2 PAYMENT PROCEDURES Schedule of Values
Payment Procedures Change Procedures
Measurement and Payment Procedures Correlation of Submittals

1.3 ADMINISTRATIVE REQUIREMENTS
Project Management and Coordination; Meetings Documentation of Progress
Submittal Procedures Closeout Procedures

1.4 QUALITY REQUIREMENTS
Reference Standards and Regulatory Requirements Qualifications
1.2 PAYMENT PROCEDURES

A. Payment Procedures: in accordance with Article 14 of Standard General and Supplementary Conditions, if any.

1. Submit Application for Payment using the form included in the Project Forms section. Utilize latest approved Schedule of Values for listing items in Application for Payment. Provide supporting documentation for items included in the Application for Payment.

Submit electronically in PDF format by email

2. Payment Period: at intervals stipulated in the Agreement.

3. Submit an updated Progress Schedule with each Application for Payment.

B. Change Procedures: in accordance with Articles 10 and 12 of Standard General and Supplementary Conditions, if any, utilizing forms included in Section 00 60 00 Project Forms.

Submit electronically in PDF format by email

C. Measurement and Payment Procedures

1. Payment includes full compensation for required labor, material and equipment, tools, plant, transportation, services and incidentals; erection, application or installation and construction of an item of the Work; and overhead and profit, unless otherwise indicated.

See Section 01 20 25 Measurement and Payment

D. Correlation of Submittals

1. Promptly revise Schedule of Values and Applications for Payment to record each authorized Change Order as a separate line item and adjust the Contract Price.

2. Promptly revise Progress Schedule to reflect any change in Contract Times and revise sub-schedules to adjust time for other items of the Work affected by the change.

3. Promptly enter changes in Project Record Documents.
1.3 ADMINISTRATIVE REQUIREMENTS

A. Project Management and Coordination; Meetings

1. Contact information for Owner and other entities related to the Project and special coordination requirements and contacts during prosecution of the Work will be provided at the Preconstruction Meeting.

2. Inform Owner and Engineer of the address for sending official correspondence and the address and telephone number of Contractor's representative who will be project manager and Site superintendent for the Contract.

3. During periods of construction and testing keep Owner and Engineer informed in writing with name, address, and telephone number of Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of safety devices.

4. Identify the 24 hour, 7 days per week emergency response telephone or cell phone number that is staffed by a person (not a passive answering machine) or provide that a phone call will be returned within one hour.

5. Identify correspondence, submittals, drawings, data and materials, packing slips or other items associated with this Contract as specified in the Specific Project Requirements and Procedures.

6. Coordinate scheduling, submittals, and Work of the various Specifications to effectuate an efficient and orderly sequence for installing interdependent construction elements, with provisions for accommodating items installed later.

7. Preconstruction Conference and Site Mobilization Meeting

a. Owner to schedule an initial preconstruction conference in accordance with Paragraph 2.06 of the Standard General and Supplementary Conditions, if any.

b. Attendance required by Owner, Contractor, Engineer, Contractor's Superintendent, Project Manager, and Subcontractors as a minimum.
c. Sample Agenda

- Distribute Contract Documents
- Discuss design concepts
- Discuss preliminary Progress Schedule, Schedule of Submittals, Schedule of Values and preliminary cash flow projections.
- Designate personnel representing each party; communication procedures
- Procedures and processing of submittals, substitutions, applications for payments, Change Orders and Contract closeout procedures
- Scheduling
- Use of premises by Owner and Contractor
- Owner's requirements and partial occupancy
- Construction facilities and controls provided by Owner
- Temporary utilities provided by Owner and Contractor
- Survey and Site Layout
- Security and housekeeping procedures
- Schedules
- Procedures for testing
- Procedures for maintaining record documents
- Requirements for start-up
- Inspection and acceptance of equipment put into service during construction period
- Access, laydown and coordination with others

d. Engineer will record minutes and distribute draft copies promptly after meeting to Owner and Contractor for review, then revise as required and distribute thereafter to meeting participants, with copies to Owner and Contractor, and those affected by decisions made.

8. Progress Meetings

a. In addition to other regular project meetings for other purposes (as indicated elsewhere in the Contract Documents), Engineer to schedule progress meetings beginning no later than 60 days after the Initial Conference and continue throughout progress of the Work thereafter on a monthly basis, or as necessary as determined by the Engineer, with times coordinated with preparation of payment requests.

b. Every entity then involved in the planning, coordination, or performance of Work is required to be properly represented at each meeting. Attendance is required by Contractor, Contractor's Superintendent, major Subcontractors and Suppliers, Owner, and Engineer as appropriate to agenda topics for each meeting. When applicable, consultants, separate contractors (if any), principal subcontractors, manufacturers/ fabricators, governing authorities,
insurers, special supervisory personnel and others with an interest or expertise in the progress of the Work will be included.

c. During each meeting, review each entity’s present and future needs including interface requirements, time, sequence, deliveries, access, site utilization, temporary facilities and services, hours of work, hazards and risks, housekeeping, submittals, change orders, and documentation of information for payment requests. Discuss whether each element of current work is ahead of schedule. Determine how behind-time work will be expedited and secure commitments from the entities involved in doing so. Discuss whether schedule revisions are required to ensure current work and subsequent work will be completed within the Contract Time. Review everything of significance which could affect the progress of work.

d. Sample Agenda

- Review minutes of previous meetings – unresolved issues
- Overall project status
- Work Completed
- Anticipated Work
- Schedule
- Pay Applications
- Change Orders
- Submittals
- Observations, problems, and decisions
- General Discussion/Comments
- Action Items
- Date and time for next meeting

e. Engineer will record minutes and distribute draft copies promptly after each meeting to Owner and Contractor for review, then revise as required and distribute thereafter to meeting participants, with copies to Owner and Contractor, and those affected by decisions made.

9. Pre-installation Conference and Coordination Meetings

a. When required, convene a pre-installation conference at Site before commencing certain Work that requires coordination or has special requirements or approval.

b. Convene coordination meetings as may be generally required.

c. Attendance required by parties directly affecting, or affected by, Work of the specific Specification section.

1. For pre-installation conference, notify Owner and Engineer 5 days in advance.
2. For coordination meetings, party requesting coordination meeting to notify other party(s).

B. Documentation of Progress

1. Submit preliminary and final Progress Schedules as specified in Paragraphs 2.05 and 2.07 of the Standard General and Supplementary Conditions, if any, or as established in Notice to Proceed.

Submit electronically in PDF format by email

a. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.

b. Indicate estimated percentage of completion for each item of Work at each submission.

c. Indicate dates for fabrication, factory testing, delivery, shipping and field testing, and material and equipment delivery dates, including those furnished by Owner. Coordinate with Schedule of Submittals.

2. Submit revised Progress Schedule on monthly basis and with each Application for Payment, identifying changes since previous version. Coordinate content with Schedule of Values, if any.

3. Documentation of pre-construction conditions, construction progress, and final conditions:

3.1 Construction Photographs: to record Site conditions. Ensure existing conditions of roadway surfaces, curbing, berms, sidewalks, driveways, property bounds, landscaped areas, abutters property and any other items that might be affected by the Work are clearly recorded.

a. Submit prior to starting construction.

b. monthly showing progress of Work.

c. for final payment to record final condition.

Construction photographs: electronic in PDF or JPG format, minimum 300 dpi quality and a minimum resolution of 6.0 megapixels. Identify photographs with date, time, orientation and Project identification.

Submit electronically on CD

3.2 Digital Video Recording: Video record, in color, all areas of the Project Site. Ensure existing conditions of roadway surfaces, curbing, berms, sidewalks, driveways, property bounds, landscaped areas, abutters’ property and any other items that might be affected by the Work are clearly recorded.

a. Submit pre-construction video prior to the starting construction.
Arrange for video recordings to be conducted by a professional videographer in digital videodisc (DVD) format. Include clear and concise audio descriptions of the existing Project Site conditions.

Submit 1 copy of the first completed video recording to the Engineer for review of visual and audio quality. Re-record any recording furnished which, in the opinion of the Engineer, are poor quality or incomplete at no additional cost to Owner. Submit 2 copies of approved videos.

4. Reports

   a. Submit weekly Safety Reports signed by the Safety Representative.

Submit electronically in PDF format by email

C. Submittal Procedures

1. Schedule submittals to expedite the Project and coordinate with schedules required by Paragraph 1.03.B above. Deliver each submittal in the quantity and electronic form indicated to Engineer (with copy to Owner where required) at the addresses specified in the Specific Project Requirements and Procedures. Coordinate submission of related items.

2. Present submittals in a clear and thorough manner, in English and using English units. Provide space for Contractor, Engineer, and Owner's review stamps. Use sheet size of not less than 8 1/2 by 11 inches and not more than 24 by 36 inches.

3. Revise and resubmit documents as required. Identify all changes made since previous submittal. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions. Submittals not requested on the submittal schedule may not be recognized or processed.

4. Submit preliminary and final Schedule of Submittals as specified in Article 2 of the Standard General and Supplementary Conditions, if any, or as established in Notice to Proceed. Include all submittals specified in the Standard General and Supplementary Conditions, if any, General Requirements, and other Specification sections.

   a. Submit electronically in PDF format by email Include description of each submittal, date by which each submittal will be delivered to Engineer and Owner date by which each submittal must be approved to maintain project schedule, and relevant section reference.

   b. Allow 15-30 days from receipt of submittal/resubmittal for Engineer review of submittals and possible resubmittal.

5. Shop Drawings and Samples: Submit in accordance with Paragraph 6.17 of the Standard General and Supplementary Conditions, if any, and as follows,
and coordinate with the Schedule of Submittals required in subparagraph 4 above.

a. Submit electronically in PDF format by email. Complete the submittal transmittal form included as an attachment to this Section as is indicated, numbering each submittal consecutively. Assign resubmittals the same transmittal number as the original with a suffix of a sequential letter to indicate the resubmittal (e.g. the first resubmittal of submittal 25 would be number 25A.) Include only those documents previously issued under original transmittal number in resubmittals. Do not combine new submittals with resubmittals.

b. Attach a transmittal form to each group of Shop Drawings, manufacturer's literature, equipment data and Samples submitted. Use a sufficient number of transmittal forms so that: items on a single transmittal form pertain to the same equipment item, Specification section or element of Work; items on a single transmittal form are either original submittals or the same number resubmittal; and each Sample is listed on a separate transmittal form.

c. Engineer to complete review in accordance with Paragraph 6.17.D. of the Standard General and Supplementary Conditions, if any.

d. Submittals which do not have a fully completed transmittal form will be returned along with unreviewed attachments. Returned submittals, even though incomplete, will be counted as a submittal.

e. Contractor shall reimburse Owner for Engineer’s time for resubmittals per Paragraph 6.17.E. of the Standard General and Supplementary Conditions.

f. Submission of any Shop Drawing or Sample bearing Contractor's and Engineer's approval shall constitute a representation to Owner that the requirements of Paragraph 6.17 of the Standard General and Supplementary Conditions, if any, have been fulfilled.

6. **Variations:** Identify variations from Contract Documents and material and equipment or system limitations which may be detrimental to successful performance of the completed Work and identify reasons therefor in accordance with subparagraph 6.17.C.3 of the Standard General and Supplementary Conditions, if any.

a. Clearly identify requests for “Or-Equal” and substitute items and submit per Paragraph 6.05 of Standard General and Supplementary Conditions, if any, and subparagraph 1.02.C.5 above. Substitute items will not be considered when indicated or implied on Shop Drawing or material and equipment data submittals without separate written request, or when acceptance will require revision to the Contract Documents.

7. **Manufacturers' Installation Instructions and Certificates:** Submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing.

a. Submit electronically in PDF format by email Indicate special procedures, perimeter conditions requiring special attention and special environmental criteria required
b. Submit manufacturers' certificates for recent or previous test results on material or equipment, but they must be acceptable to Engineer and Owner. Indicate material or equipment conforms to or exceeds specified requirements and provide supporting reference date, affidavits, and certifications as appropriate.

c. Submit test results, data, and reports and certifications to Engineer based on tests performed. Submit test reports and certifications for independent testing services specified.


   a. As-Builts for Material and Equipment

      Submit electronically in PDF format by email. Indicate "As-Supplied" in revision block and sign. Show all changes and revisions to Final Completion per Execution and

C. Closeout Requirements.

   b. Conformed to Construction Record Drawings: Submit for Engineer’s use in preparing final Record Drawings.

      Submit electronically in PDF format by email. Indicate "Conformed by Contractor to Construction Records" in revision block and sign. Show all changes and revisions to Final Completion per Execution and Closeout Requirements.

   c. Warranties and Guarantees: Submit duplicate notarized copies of warranty documents which are executed and transferable from Subcontractors, Suppliers, and manufacturers. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of Warranty Period.

      Submit electronically in PDF format by email

D. Closeout Procedures

1. Substantial Completion shall have been achieved when the following has been completed and the requirements of Paragraph 14.04 of the Standard General and Supplementary Conditions, if any, have been met.

   a. Work is complete, systems are successfully operating, and final testing has been successfully completed.

   b. A full inventory of the spare parts and special tools purchased by the Owner are replenished and in the custody of the Owner.

   c. The Site has been restored to the satisfaction of the Owner.

   d. An inspection of the Work has been completed by the Engineer and the Owner.

   e. An updated Punch List is provided.

   f. The Contractor’s written warranty and guarantee has been submitted as required by Paragraph 6.19.D. of the Standard General and Supplementary Conditions, if any.

   g. A Certificate of Substantial Completion has been provided in accordance with Paragraph
14.04.C. of the Standard General and Supplementary Conditions, if any.

2. The Contractor shall have sole care, custody, and control of the Work until achievement of Substantial Completion. During the period between Substantial Completion and the date for Final Completion, Contractor shall be given access to correct items on the Punch List and achieve Final Completion.

3. The date of achieving Substantial Completion is the date set forth in the Certificate of Substantial Completion that is accepted and signed by the Owner.

4. Final Completion shall have been achieved when the Work is complete, the requirements of Paragraphs 14.06 and 14.07 of the Standard General and Supplementary Conditions, if any, have been met, and when the following is complete.

   a. Substantial Completion has been achieved and liquidated damages for failure to meet Substantial Completion Date have been paid.
   b. All Work including Punch List Items has been completed.
   c. Final cleaning has been conducted and Contractor equipment and supplies including waste materials have been removed from the Site and legally disposed of.
   d. A full set of record documents have been submitted as specified in subparagraph 1.03.C.8 above and Contractor’s written warranty and guarantee has been resubmitted if adjusted.
   e. Inspections required by Laws and Regulations are complete. Certificates and permits to occupy and operate have been issued if required.
   f. Spare parts, maintenance and extra materials have been delivered in quantities specified to Project Site and stored as directed.
   g. A request for final inspection in accordance with Paragraph 14.06 of the Standard General and Supplementary Conditions, if any, has been submitted to the Engineer and the inspection has been completed and the results accepted by the Owner.
   h. A Final Application for Payment has been submitted to the Engineer identifying total adjusted Contract Price, previous payments, and balance due along with required documentation in accordance with Paragraph 14.07.A. of the Standard General and Supplementary Conditions, if any.

1.4 QUALITY REQUIREMENTS

A. Reference Standards and Regulatory Requirements

1. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or Laws or Regulations of any governmental authority are used in accordance with Paragraph 3.02 of the Standard General and Supplementary Conditions, if any.

2. Acronyms and abbreviations used are defined in the applicable versions of the Encyclopedia of Associations published by Gale (part of Cengage Learning) generally available in large libraries and on the internet.
B. Qualifications

1. Meet or provide capability to meet the criteria specified in individual Specification sections in connection with various portions of the Work of the Contract Documents.

2. As a minimum, Contractor shall:
   a. have been regularly and actively engaged in similar Work as described in the Contract Documents, operating under the same business name and business organization structure, for the last 5 years on at least 5 projects;
   b. have successfully completed at least 3 projects involving construction of similar facilities in the same state as the Project covered by the Contract Documents;
   c. have a full-time project manager in responsible charge of the Work with at least 10 years’ experience as project manager on comparable projects; and
   d. carry at least the insurance coverage and amounts required in Article 5 of the Standard General and Supplementary Conditions, if any.

1.5 ATTACHMENTS

A. Transmittal form

END OF SECTION
SECTION 01 20 25
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section describes the measurement and payment for the Work to be completed under each item in Section 00 43 22 Unit Prices Form, which may also be referred to as “pay item”.

B. Payment procedures are in accordance with the Agreement, Article 14 of the General Conditions, the Supplementary Conditions (if any), and the General Requirements.

C. Measurement: as determined, verified, or approved by Engineer or Owner in accordance with Paragraph 11.03 of the General Conditions, the Supplementary Conditions (if any), and the General Requirements, except as otherwise specified.

D. The Work described in each pay item shall be as described in the Specifications and shown on the Drawings and not included in other pay items.

1. Pay item descriptions are general and may not specifically describe all associated Work or elements thereof, do not constitute Specifications, and do not supersede the content of the Specifications and Drawings.

2. Review the Specifications and Drawings for Work associated with each pay item. Claims for being unfamiliar with the content of the Specifications and Drawings will not be considered.

E. The following Work is not specifically described or designated as a pay item, is considered incidental to all pay items, and shall not be measured separately for payment.

1. Division 01 General Requirements including but not limited to:
   a. Temporary bypass pumping
   b. Public notification including posting of No Parking Signs
   c. Design and submit traffic/pedestrian control plans; furnish, maintain and remove all traffic/pedestrian control devices (i.e. construction signs, barricades, flashers, drums, etc.)
   d. Environmental protection (including material, installation, relocating, operation, maintenance, removal and off-Site disposal of: silt sacks, sedimentation barrier, erosion control devices, silt fence, dust control – calcium chloride, construction entrances)
   e. Field and laboratory testing and reporting by independent laboratory, including but not limited to compaction of backfill materials, compaction of gravel borrow materials; aggregate gradation, and concrete testing.
   f. Field office
F. Restoration of all areas disturbed by the Contractor within the limits of Work shall be included and considered incidental to that pay item. The Contractor shall only receive compensation for restoration work clearly identified and specified as a bid item.

G. Payment will not be made for restoration of areas disturbed by the Contractor outside the limits of Work. Restoration outside the limits of Work shall be the Contractor’s responsibility.

H. Payment will only be made for those utility services, including water and fire services, specifically identified for replacement on the Drawings. Relocation or replacement for the Contractor’s convenience or due to breakage by the Contractor of any other utility services shown on the Drawings, or at locations which could reasonably be assumed, shall be at no cost to Owner.

I. Design, installation and removal of excavation support systems, temporary and permanent utility/structure support systems associated with a pay item shall be considered incidental to that pay item.

J. All dewatering and erosion control (including installation, operation, maintenance, removal and off-Site disposal of erosion control devices) associated with a pay item shall be considered incidental to that pay item.

K. Controlling dust generated from performing work associated with a pay item shall be considered incidental to that pay item.

L. Pay items identified as a Contingency Allowance will be processed per Article 11.02 of the General Conditions.

M. All police details will be direct billed by the police department to the Contractor. Contractor must pay police details immediately upon receipt of Police Detail invoice. Reimbursement shall be made through monthly payment requisition.
### 1.2 MEASUREMENT AND PAYMENT BASIS

**ITEMS:**

1.a. Furnish and Install 20-inch Cement Lined Ductile Iron Water Main  
1.b. Furnish and Install 16-inch Cement Lined Ductile Iron Water Main  
1.c. Furnish and Install 12-inch Cement Lined Ductile Iron Water Main  
1.d. Furnish and Install 10-inch Cement Lined Ductile Iron Water Main  
1.e. Furnish and Install 8-inch Cement Lined Ductile Iron Water Main  
1.f. Furnish and Install 6-inch Cement Lined Ductile Iron Water Main

| Measurement | As measured along the horizontal projection of the centerline of the pipe; for water main replacement, measured from and to face of water pipe fittings and valves |
| Payment     | Unit price per linear foot |
| Schedule of Payment | Monthly based on quantity installed, tested and accepted |

All labor, equipment, tools and materials to furnish and install cement lined ductile iron pipe including but not limited to: clearing and grubbing, tree trimming, saw cutting, excavation, removing and disposing of excess material, shoring/bracing, dewatering, removing and disposing existing pipe and appurtenances, capping existing water mains to be abandoned in place, connecting to existing water mains, restraining thrust blocks, restraining rods, joint restraints, pipe fittings, mega-lug fittings, couplings, pipe insulation (as required), pipe bedding material, backfill, compaction, crossing and support of existing utilities, providing and removing temporary blow-off/sampling fittings, disinfection, pressure testing, bacteria testing, loam and seed, temporary sidewalk restoration, removing and replacing signs, fences and mail boxes, removing and resetting granite curbing, removing and resetting granite cobble edging/swale (in-kind), replacement of bituminous berm, removing and resetting guard rails, and all other incidentals necessary to furnish and install the pipe, complete in place, as shown on the Drawings or as directed by the Engineer.
ITEMS:

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<td>2.b.</td>
<td>Furnish and Install 16-inch Gate Valve &amp; Box</td>
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<td>2.c.</td>
<td>Furnish and Install 12-inch Gate Valve &amp; Box</td>
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<td>Furnish and Install 6-inch Gate Valve &amp; Box</td>
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<tr>
<td>2.g.</td>
<td>Furnish and Install 16” x 6” Tapping Sleeve, Gate Valve &amp; Box</td>
</tr>
<tr>
<td>2.h.</td>
<td>Furnish and Install 12” x 6” Tapping Sleeve, Gate Valve &amp; Box</td>
</tr>
<tr>
<td>2.i.</td>
<td>Furnish and Install 8” x 6” Tapping Sleeve, Gate Valve &amp; Box</td>
</tr>
<tr>
<td>2.j.</td>
<td>Furnish and Install 6” x 6” Tapping Sleeve, Gate Valve &amp; Box</td>
</tr>
</tbody>
</table>

| Measurement | Units installed complete in place |
| Payment | Unit price per each |
| Schedule of Payment | Monthly based on quantity installed, tested and accepted |

All labor, equipment, tools and materials to furnish and install valves and valve boxes including but not limited to: clearing and grubbing, tree trimming, saw cutting, excavation; removing and disposal of excess material, shoring/bracing, dewatering and removal and disposing existing pipe and appurtenances, capping existing water mains to be abandoned in place, connecting to existing water mains, restraining thrust blocks, restraining rods, joint restraints, fittings, mega-lug fittings, couplings, pipe bedding material, backfill, compaction, exploratory test pits, verifying outside diameter of existing pipe, cutting into existing mains where required, crossing utilities and support of existing utilities, valve installation, blocking for support of valve, loam and seed, temporary sidewalk restoration, removing and replacing signs, fences and mail boxes, removing and resetting granite curbing, removing and resetting granite cobble edging/swale (in-kind), replacement of bituminous berm, removing and resetting guard rails and all other incidentals necessary to furnish and install the valves as shown on the Drawings or as directed by the Engineer.
ITEMS:

3.a. Furnish and Install 16-inch Insertion Valve
3.b. Furnish and Install 12-inch Insertion Valve
3.c. Furnish and Install 10-inch Insertion Valve
3.d. Furnish and Install 8-inch Insertion Valve
3.e. Furnish and Install 6-inch Insertion Valve

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Units installed complete in place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per each</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, equipment, tools and materials required to furnish and install insertion valves including but not limited to: clearing and grubbing, tree trimming, exploratory test pits, verifying outside diameter of existing pipe, restraining systems (concrete thrust blocks, concrete collars, rods, etc.), valve sleeve, valve assembly, gate box, sleeve installation and testing, tapping/installation services, valve installation, couplings, glands, nuts, bolts, gaskets, and storage of materials, hydrant flushing to clear rusty water from mains caused by insertion valve installation, public notifications, coordination with City/Engineer, and notifying all affected water users a minimum of 48 hours prior to operation of gate valves, permitting, utility mark-outs, protection and support of existing utilities, excavation, removing and disposing of excess material, shoring/bracing dewatering, bedding, backfill, compaction, furnishing and installing gate valve box, loam and seed, temporary sidewalk restoration, removing and replacing signs, fences and mail boxes, removing and resetting curb, removing and resetting granite cobble edging/swale (in-kind), removing and resetting guard rails, site clean-up, storage of materials and all other incidentals necessary to furnish and install insertion valves, as shown on the Drawings or as directed by the Engineer at locations determined by the Engineer.
ITEMS:

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Each installed complete in place.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per each</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed, tested, and accepted.</td>
</tr>
</tbody>
</table>

All labor, equipment, tools, and materials to furnish and install line stops including but not limited to: clearing and grubbing, tree trimming, saw cutting, excavating, removing and disposing of excess material, shoring/bracing, dewatering, removing and disposing existing pipe, valves and appurtenances, design and installation of restraining systems (concrete thrust block restraints, concrete collars, restraining rods etc.), joint restraints, fittings, couplings, pipe insulation, pipe bedding, backfill, compaction, exploratory test pits, verifying outside diameter of existing pipe, cutting into existing mains where required, crossing and support of existing utilities, loam and seed, temporary sidewalk restoration, removing and replacing signs, fences and mailboxes, removing and resetting granite curbing, removing and resetting granite cobble edging/swale (in-kind), replacement of bituminous berm, removing, resetting and/or replacing guard rails and all other incidentals necessary to furnish, install, and removal or line stops complete in place, as shown on the Drawings or as directed by the Engineer. Confirm location of line stop installation with Owner and Engineer prior to beginning any Work or ordering line stop materials.
ITEMS:

5. Furnish and Install Hydrant

| Measurement | Each installed, complete in place, set in true horizontal and vertical alignment and with bury line set at finish grade |
| Payment     | Unit price per each |
| Schedule of Payment | Monthly based on quantity installed |

All labor, equipment, tools and materials to furnish and install hydrants including but not limited to: clearing and grubbing, tree trimming, saw cutting, excavation, removing and disposing of excess soil materials, dewatering, shoring/bracing, removing and disposing of existing pipe/valves and appurtenances, plugging and capping existing water mains to be abandoned in place, restraining thrust blocks, restraining rods, joint restraints, fittings, mega-lug fittings, connecting existing water mains, crushed stone dry well, bearing block, installation of off-sets and extensions to set bury line to finished grade, setting true in vertical and horizontal plane, pipe bedding material, backfill, crossing and support of existing utilities, painting hydrant in accordance with local requirements, loam and seed, temporary sidewalk restoration, removing and replacing signs, fences, and mailboxes, removing and resetting granite curbs, replacement of bituminous berm, removing and resetting granite cobble edging/swale (in-kind), removing and resetting guard rails and all other incidentals necessary to furnish and install hydrants, complete in place as shown on the Drawings or as directed by the Engineer.
ITEMS:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.a.</td>
<td>Furnish and Install 1-inch Type K Copper Tubing</td>
</tr>
<tr>
<td>6.b.</td>
<td>Furnish and Install 2-inch Type K Copper Tubing</td>
</tr>
</tbody>
</table>

| Measurement | As measured along the horizontal projection from outside face of corporation stop outside face of curb stop. |
| Payment     | Unit price per linear foot |
| Schedule of Payment | Monthly based on quantity installed, tested and accepted |

All labor, tools, equipment and materials to furnish and install copper tubing including but not limited to: grubbing, tree trimming, saw cutting, excavation, shoring/bracing, dewatering, removing and disposal of excess material disposing of existing service piping, sand bedding, couplings, unions, insulation (as required), backfill, compaction, crossing of underground utilities, support of existing utilities as specified, loam and seed, temporary sidewalk restoration, removing and replacing signs, fences, and mailboxes, removing and resetting granite curbing, removing and resetting granite cobble edging/swale (in-kind), replacement of bituminous berm, removing and resetting guard rails and all other incidentals necessary to furnish and install water service, complete in place, as shown on the Drawings or directed by the Engineer.
## ITEMS:

7.a. Furnish and Install 1-inch Corporation Stop  
7.b. Furnish and Install 2-inch Corporation Stop  
7.c. Furnish and Install 1-inch Curb Stop and Box  
7.d. Furnish and Install 2-inch Curb Stop and Box

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Units installed complete in place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per each</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed, tested and accepted</td>
</tr>
</tbody>
</table>

All labor, equipment, tools, and materials to furnish and install corporation stop and/or curb stop and boxes including but not limited to: clearing and grubbing, tree trimming, saw cutting, excavation, shoring/bracing, dewatering, removing and disposing of excess material, saddles, couplings, unions, fittings, connecting to existing service, crossing and support of existing utilities, sand bedding, backfill, compaction, loam and seed, temporary sidewalk restoration, removing and replacing signs, fences, and mailboxes, removing and resetting granite curbing, removing and resetting granite cobble edging/swale (in-kind), replacement of bituminous berm, resetting guard rails and all other incidentals necessary to furnish and install corporation stops and/or curb stop and box complete in place, as shown on the Drawings or as directed by the Engineer.
ITEMS:

<table>
<thead>
<tr>
<th>8.a. Furnish and Install 2-inch Temporary Bypass Piping</th>
<th>8.b. Furnish and Install 4-inch Temporary Bypass Piping</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Measurement</th>
<th>As measured along the horizontal projection centerline of the pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per linear foot</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on progress; up to 75% upon installation and 25% upon successful testing</td>
</tr>
</tbody>
</table>

All labor, equipment, tools and materials to install temporary by-pass piping including but not limited to: cleaning and grubbing, tree trimming, saw cutting, excavation, backfill, compaction, joining of pipe, bypass fittings, valves and hydrants, connecting to existing hydrants, ramping material, burying bypass pipe as required, flushing, chlorinating, neutralizing chlorine residual, providing and removing temporary blow-off/sample lines, sampling, performing analysis of water quality, delivery of samples, water quality analysis in accordance with the latest revision of AWWA C651 - Disinfecting Water Mains by qualified laboratory, providing analysis results to the Engineer and Owner, delivery of notification, scheduling service connections with property owner, service connections, providing wye connections for all sillocks, loam and seed, removing and replacing signs, fences and mail boxes, removing and resetting granite curbing, removing and resetting granite cobble edging/swale (in-kind), replacement of bituminous berm, temporary sidewalk restoration, temporary and permanent patching of bypass trenches with hot mix asphalt and all other incidentals necessary to install temporary by-pass piping complete in place.
## ITEMS:

### 9.a. Excavation of Unsuitable Materials Below Normal Grade

<table>
<thead>
<tr>
<th>Measurement</th>
<th>As measured and directed by the Engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per cubic yard</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, equipment, tools and materials to excavate and replace unsuitable materials as defined in Section 31 00 00 and determined by the Engineer. Work under these items shall also include but not be limited to: shoring/bracing, dewatering, removal and disposal of excess materials, crossing and support of existing utilities.

### 9.b. Excavation of Unsuitable Materials Above Normal Grade

<table>
<thead>
<tr>
<th>Measurement</th>
<th>In place prior to excavation within pay limits shown on the Drawings. Rock and boulder excavation shall be by mechanical means (air or hydraulic) hammers only. Payment for rock removed shall be limited to the actual depth removed within the limits established by the contract documents. Boulders encountered within the pay limits of excavation, whose volume is one cubic yard or greater, part of which extends outside said limits shall be paid in accordance with the actual volume excavated.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per cubic yard</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, equipment, tools and materials to remove and dispose “rock” by mechanical means, specifically ledge or bed rock and/or boulders larger than one cubic yard in volume as directed by the Engineer.
**ITEMS:**

**10. Test Pits**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Actual dimensions, as measured by Engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per cubic yard</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, equipment, tools and materials to determine location, depth, diameter and material type for uncharted utilities or to shut off existing utilities in locations shown on the Drawings including but not limited to: clearing and grubbing, tree trimming, saw cutting, excavation, removing and disposing of excess materials, backfilling, compacting, loam and seed, removing and resetting granite curb, replacement of bituminous berm, removing and resetting granite cobble edging/swale (in-kind) and all other incidentals necessary to determine the location of existing as shown on the Drawings or as directed by the Engineer.

**11.a. Gravel Subbase**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>In place to the dimensions shown on the Drawings or as directed by Engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per cubic yard</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, tools, equipment and materials required to furnish, install and compact gravel subbase for temporary and permanent trench pavement areas at water main and copper tubing installation locations to the required depths as shown on the Drawings or as directed by the Engineer.
### ITEMS:

**11.b. Bituminous Binder**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Ton of bituminous binder course installed complete in place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per ton</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, tools, equipment and materials required to furnish and install bituminous binder course for permanent trench pavement at water main and copper tubing service installation locations. Work under this item includes but is not limited to: saw cutting, disposal of existing pavement, fine grading and compacting subbase materials, bituminous tack coat, adjusting of roadway castings, placement and compaction of bituminous binder course to the required depths as shown on the Drawings or as directed by the Engineer, restoring pavement markings and all other incidentals necessary to furnish and install bituminous binder course pavement.

### ITEMS:

**11.c. Bituminous Top**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Ton of bituminous top course installed complete in place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per ton</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, tools, equipment and materials required to furnish and install bituminous top course for permanent trench pavement at water main and copper tubing service installation locations. Work under this task includes but is not limited to: saw cutting, compacting, bituminous tack coat, adjusting of roadway castings, placement and compaction of bituminous top course to the required depths shown on the Drawings or as directed by the Engineer, sealing joints, restoring pavement markings and all other incidentals necessary to furnish and install bituminous top course pavement.
<table>
<thead>
<tr>
<th>ITEMS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.d. Temporary Pavement</td>
</tr>
</tbody>
</table>
| **Measurement** | Ton of temporary bituminous pavement installed complete in place  
| **Payment** | Unit price per ton  
| **Schedule of Payment** | Monthly based on quantity installed and approved  

All labor, tools, equipment and materials to furnish and install temporary bituminous pavement at watermain and copper service installation locations. Work under this item includes but is not limited to: saw cutting, excavation and disposal of existing pavement, fine grading and compaction subbase materials, bituminous tack coat, adjusting roadway castings, placement and compaction of bituminous materials to the required depths shown on the Drawings or as directed by the Engineer, restoring pavement markings and all other incidentals necessary to furnish and install temporary bituminous pavement.
### ITEMS:

**12.a. Concrete for Thrust Restraint**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>In place to the dimensions shown on the Drawings or as directed by the Engineer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per cubic yard</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, materials, tools and equipment necessary to furnish and install concrete thrust blocks.

### ITEMS:

**12.b. Controlled Density Fill (CDF) – Type 2E**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>In place to the dimensions shown on the Drawings or as directed by the Engineer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Unit price per cubic yard</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on quantity installed</td>
</tr>
</tbody>
</table>

All labor, materials, tools and equipment necessary to furnish and install CDF from batch plant.
ITEMS:

<table>
<thead>
<tr>
<th>13. Mobilization/Demobilization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement</strong></td>
</tr>
<tr>
<td><strong>Payment</strong></td>
</tr>
<tr>
<td><strong>Schedule of Payment</strong></td>
</tr>
</tbody>
</table>

All labor, equipment, tools and materials to deliver and remove equipment from the Project Site including but not limited to: temporary facilities and controls, obtaining necessary permits including associated fees, insurance and bond costs, development of pre-construction schedules and plans required by the Standard General Conditions and Supplementary Conditions, and General Requirements; necessary pre-construction investigations, verifying existing field conditions, coordination, and Site clean-up, restoration and closeout.
## ITEMS:

### 14. ALLOWANCE for Contaminated Soil and Groundwater

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Portion of contingency allowance amount authorized per Paragraph 11.02 of the General Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Percent of not to exceed contingency allowance amount</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on progress and authorized by Change Order</td>
</tr>
</tbody>
</table>

All labor, equipment, tools and materials necessary to excavate, stockpile, maintain stockpiles, load and transport contaminated soil and store, treat and discharge contaminated groundwater as defined in Section 02 61 05 in the event contamination is encountered during construction. Also includes laboratory characterization of contaminated soil and groundwater.
ITEMS:

15. ALLOWANCE for Police Details

| Measurement | Portion of Owner’s contingency allowance amount authorized per Paragraph 11.02 of the General Conditions. Actual wages and fringes paid to police officers based upon invoices. |
| Payment | Percent of direct cost (no markup) not to exceed contingency allowance. |
| Schedule of Payment | Based on actual hours worked and invoiced by Police Department and invoices paid including standard administrative charges levied by the Police Department and excluding mark-up. Monthly based on progress. |

Direct cost of Police Details and excluding Contractor markup and/or administration fees. Contractor shall not receive payment for any unused portion of the contingency allowance. Excluded: Charges for Police Details not canceled in accordance with Police Department policies and procedures. Contractor **must** pay police details immediately upon receipt of Police Detail invoice. Reimbursement shall be made through monthly payment requisition.
ITEMS:

16. ALLOWANCE for Private Property Plumbing and/or Residential Issues

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Portion of contingency allowance authorized per Paragraph 11.02 of the General Conditions and Supplemental Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>Percent of not to exceed allowance amount</td>
</tr>
<tr>
<td>Schedule of Payment</td>
<td>Monthly based on progress</td>
</tr>
</tbody>
</table>

This item shall be used at the discretion of the Owner to resolve private property plumbing and/or residential issues that arise during the course of performing work under this Contract and are not specified to be included or as incidental to other items in the Contract.

PART 2 - PRODUCTS (not used)

PART 3 – EXECUTION (not used)

END OF SECTION
SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.1 SUMMARY

A. This Section specifies temporary facilities and controls for execution of the Work put into place for use only during the period of construction, that will be removed when no longer required for construction operations, and applies to all Specifications and Drawings.

1. In certain paragraphs, checked items indicate requirements applicable to the Project.

2. Provisions of this Section may be supplemented in the Specific Project Requirements and Procedures or other sections of Division 01.

B. Section Includes

1.2 TEMPORARY CONSTRUCTION FACILITIES

- Barriers
- Protection of Work Security
- Safety Facilities Parking
- Field Offices Staging Area
- Project Identification
- Progress Cleaning and Waste Removal

1.3 TEMPORARY UTILITIES

1.4 TEMPORARY CONTROLS

- Dust Control
- Water Control and Dewatering
- Erosion and Sediment Control
- Noise Control
- Pollution Control
- Traffic Regulation

1.5 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS
1.2 TEMPORARY CONSTRUCTION FACILITIES

A. Barriers
1. Comply with the requirements of Paragraph 6.11. of the Standard General Conditions and Supplementary Conditions, if any.
2. Furnish barriers to prevent unauthorized entry to and clear delineation of construction areas, to allow for Owner's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations as recommended by OSHA and as otherwise required for the protection of life and property during construction.
3. Construct barricades and protective facilities in accordance with local and state regulations. Furnish and install signs, lights, reflectors, and such protection facilities as may be required.
5. Provide protection for plant life designated to remain. Replace damaged plant life.
6. Protect non-owned vehicular traffic, stored materials, Site and structures from damage.

B. Protection of Work
1. Protect Work during working and non-working hours.
2. Provide special protection where specified in Specifications or Drawings and in accordance with manufacturer recommendations.
3. Furnish temporary and removable protection for installed equipment and material. Control activity in immediate Work area to minimize damage.
4. Protect exterior areas of Work from damage. Prohibit traffic from landscaped areas.

C. Security
1. Provide protection to stored items, the Work and Owner's operations from unauthorized entry, vandalism, or theft, and against fire, storms and other losses during working and non-working hours.

D. Safety Facilities
1. Provide first aid and other safety facilities required by Laws and Regulations during working and non-working hours.

E. Parking
1. Do not allow construction vehicle parking on sidewalks.
Off-Site construction parking area shall be the responsibility of the Contractor.

F. **Field Offices**

1. Furnish weather tight office office for use by Engineer (Resident Project Representative). The field office shall be equipped with lighting, electrical outlets, high speed broadband internet access (wifi), heating, cooling and ventilating equipment, furnishings and accessories to accommodate supervision of Work, maintenance of records, and project meetings, including, but not limited to the following:

   - Office desk and office desk chair
   - Folding table and 8 metal fold chairs
   - Plan table with stool
   - 1 four drawer locking file cabinets
   - Hanging plan rack
   - Book case with 4 shelves or equivalent
   - “All-in-one” color copier, printer, scanner and fax machine, capable of 11” by 17” output (OR separate color copier, color printer, color scanner, all capable of 11” by 17” output)
   - Paper stock for duration of Project
   - Bathroom facilities (sanitary facilities)
   - Small refrigerator and bottled water supply for duration of Project
   - First aid kit
   - Fire extinguisher

2. Location of Field Offices shall be within or adjacent to the project location as approved by the Owner and Engineer

G. **Staging Area**

Owner is not providing a location for staging area. The Contractor shall be responsible for securing a location for their staging area.

H. **Progress Cleaning and Waste Removal**

1. Comply with the requirements of Paragraph 6.11. B and C of the Standard General Conditions and Supplementary Conditions, if any.

2. Maintain areas free of waste materials, debris, and rubbish and maintain the Site in a clean and orderly condition.

3. Remove debris and rubbish from spaces and other closed or remote spaces before enclosing the space.

4. Collect and remove waste materials, debris, and rubbish from Site at least weekly and legally dispose off-Site.
1.3 TEMPORARY UTILITIES

A. Power service

1. Provide electrical power service to the field office for duration of Project.

B. Telephone service and internet access to field offices

1. Provide wireless, high speed broadband internet access via DSL, cable, satellite, or T1 to the field office for the duration of the Project.

B. Water service

1. Owner will provide water to the Contractor at no charge for construction.

1.4 TEMPORARY CONTROLS

A. Dust Control: Execute Work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere. Utilize the application of sprinkled water to reduce the emission of air-borne soil particulates from the Project Site.

B. Water Control and Dewatering

Provide for the Project as follows.

1. Grade Site to drain away from excavations to approved drainage collection facilities. Ensure collected surface drainage water meets permitted criteria for sediment content prior to discharge.

2. Maintain excavations free of water. Furnish, operate and maintain pumping equipment.

3. Dewater excavations and legally dispose of water in a manner that will not cause injury to public and private property.

   a. Locate dewatering facilities to prevent interference with utilities and construction work to be done by others.

   b. For dewatering operations with relatively minor flows, direct pump discharges using filtration bag or system per Erosion and Sediment Control below, or pump into hay bale sedimentation traps lined with filter fabric. Filter water through the hay bales and filter fabric prior to seepage into storm drainage or any natural water course.

   c. For dewatering operations with larger flows, provide pump discharges into a steel dewatering/sedimentation basin. Use steel baffle plates to slow water velocities, to increase the contact time, and allow adequate settlement of sediment prior to discharge into waterways, storm drainage or discharge point allowed by the construction dewatering
Utilize silt sacks in catch basins when excess silt is suspended in the discharge water per Erosion and Sediment Control below.

If siltation basin is used, size to effectively filter for the volume and discharge rate of water anticipated without overflow.

Provide treatment necessary to prevent discharge of silty and/or contaminated ground water caused by the Contractor’s operations, or any contaminated ground water that may pass from excavated surfaces and/or through the excavation support system selected by the Contractor.

Dispose of water pumped or drained from the Work in accordance with permit requirements and in a manner to prevent undue interference with other work or damage to adjacent properties, pavements and other surfaces, buildings, structures and utilities.

Obtain necessary regulatory approvals for the disposal of dewatering flows, including, among others, approval by the Environmental Protection Agency under the National Pollutant Discharge Elimination System (NPDES) program for construction dewatering activities. Submit the completed and approved construction dewatering permit to the Engineer immediately upon receipt.

Protect site from surface water puddling and/or ponding.

C. Erosion and Sediment Control

Submit erosion and sediment control plan to Engineer prior to the start of construction.

Install erosion and sediment controls as may be shown on the Drawings or as directed by Engineer and as required by Laws and Regulations. Install additional erosion and sedimentation control measures beyond those that may be shown on the Drawings as necessary to stabilize the Site. Coordinate temporary erosion controls with permanent erosion controls to the extent practical. Provide and maintain devices to control erosion, siltation, and sedimentation that occur during construction operations. Undertake reasonable precautions and measures to avoid erosion of soil and to prevent silting of drainage ditches, storm sewers, rivers, streams, and lakes.

Employ pollution prevention measures, erosion and sedimentation control before, during, and after soils are exposed. Implement measures prior to soil disturbance or soil storage to the extent possible to ensure that such measures are in place before activity occurs and employ additional measures as the Work progresses. Implement and maintain as necessary until the Site is permanently stabilized.

Perform inspections of disturbed soil areas, material storage areas exposed to precipitation, and erosion control measures with Engineer a minimum of once every 14 days and also within 24 hours after any storm event greater than 0.5-inches of rainfall. Immediately correct deficiencies in the erosion control measures identified or indicated by failures or erosion by implementing additional measures or different techniques to correct and prevent
subsequent erosion at no additional cost to Owner.

5. In the event that silt or debris breaches erosion control, immediately remove and clean silt or debris from drainage ditches and storm sewers and revise erosion control measures as required by the Conservation Commission or the Engineer. Should silt or debris breach erosion controls and reach rivers, streams or lakes, immediately notify local, state or Federal representatives as required and implement required remediation methods at no additional cost to Owner.

6. Limit duration of the exposure of soils on embankments, excavations, and graded areas to a minimum.

7. Provide temporary measures such as berms, dikes and drains to prevent water flow. Install erosion control measures in any ditch, swale or channel before water is allowed to flow in the waterway. Handle water pumped from trenches to minimize discharge of silty water to the maximum extent practicable.

8. Stabilize storm drain outfalls as shown on the Drawings before the discharge points become operational. Install inlet protection immediately upon construction of culverts.

9. Stabilize disturbed areas with temporary and permanent erosion control practices as soon as practicable, but no more than 14 days after construction activity on a particular portion of the Site has temporarily or permanently ceased. Exceptions to this time requirement include: a) where construction activities will resume on the particular portion of the Site within 21 days; and b) where snow cover delays initiation of stabilization measures.

10. Conduct pavement sweeping to remove sediment and soil debris accumulation on pavement resulting from construction activity

11. Siltation/Silt Fence
   b. Wood posts: oak, 2 inches by 2 inches in section, and at least 4.5 feet in length.
   c. Erosion control fencing: heavy-duty filter fabric towed into the existing soil as shown on the Drawings.
   d. Construct as shown on Drawings or as directed by Engineer. Install parallel to contours where possible, prior to Site clearing and grading activities.

1) Dig a 6 inch by 6 inch minimum trench where the fence is to be installed. Position the fence in the trench with the fence posts set at 8 feet on center (maximum). Curve ends of fence uphill to prevent flow around ends.

2) Staple sedimentation control fabric and the industrial netting to each post. When joints are necessary, splice filter fabric together only at support posts with 6-inch overlap and securely seal.

3) Bury lower edge of fabric at least 6 inches below ground surface to prevent underflow. Backfill trench and compact soil over filter fabric.
4) Installed height: minimum 2.5 feet and 36 inches maximum.

5) Inspect frequently; repair or replace any damaged sections.

12. Temporary Erosion Control Matting

a. Rolled matting blanket consisting of curled wood excelsior, coconut fiber, straw or paper bound with a weave of twisted craft paper, cotton cord or plastic mesh.

b. Provide staples for fastening matting to the ground. Staples: fabricated in a "U" shape from 11 gage or heavier stiff steel wire, 6 to 12 inches in length and 1 to 2 inches across.

c. Surface Preparation and Installation

1) Conform to grades and cross sections for slopes and ditches shown on the Drawings. Finish to a smooth and even condition with all debris, roots, stones, and lumps raked out and removed. Loosen soil surface to permit bedding of the matting.

2) Unless otherwise directed, apply seed prior to placement. When directed, spread additional seed over matting, particularly at those locations disturbed by building slots. Press matting onto the ground with a light lawn roller or by other similar means.

3) Bury edges of matting around the edges of catch basins and other structures.

13. Catch Basin Silt Sacks


b. Test Method: ASTM D-4884 165.0 lbs./inch.

c. Silt sack seams: certified average wide width strength.

d. Meet the following ASTM D-4884 standards.

e. Properties are Minimum Average Roll Values (MARV).

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>Test</th>
<th>Units</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grab Tensile</td>
<td>AST</td>
<td>lbs.</td>
<td>315x300</td>
</tr>
<tr>
<td>Grab Elongation</td>
<td>AST</td>
<td>%</td>
<td>15x15</td>
</tr>
<tr>
<td>Puncture</td>
<td>AST</td>
<td>lbs.</td>
<td>125</td>
</tr>
<tr>
<td>Mullen Burst</td>
<td>AST</td>
<td>psi</td>
<td>650</td>
</tr>
<tr>
<td>Trapezoid Tear</td>
<td>AST</td>
<td>lbs</td>
<td>120x150</td>
</tr>
<tr>
<td>UV Resistance</td>
<td>AST</td>
<td>%</td>
<td>90</td>
</tr>
<tr>
<td>Apparent Opening</td>
<td>AST</td>
<td>US</td>
<td>40</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>AST</td>
<td>gal/m</td>
<td>40</td>
</tr>
</tbody>
</table>

1) Utilize silt sacks in catch basins as required when excess silt is suspended in discharge water.

14. Filtration Bag or System for Discharge from Excavation Dewatering

a. Meet the following standards. Properties are Minimum Average Roll Values (MARV).
### PROPERTY | Test | Unit | Test Results
--- | --- | --- | ---
Flow Rate | AST | gal/ | 40
Permittivity | AST | sec - | 0.55

b. For discharge from excavation dewatering, install filtration bag or system or dewatering siltation basin constructed of a hay bale barrier lined with filter fabric sized to handle the volume of dewatering without overflowing.

15. Compost Filter Socks

a. Furnish and install biodegradable mesh “socks” filled with mature, clean compost per EPA National Pollutant Discharge Elimination System (NPDES) specifications.
   1) Install per EPA and manufacturers recommendations.
   2) Install parallel to contours where possible. Stake socks as needed to stabilize. Inspect frequently and repair as necessary.

16. Provide detention basins or water filtration systems for dewatering and coordinate locations with Engineer.

17. Other Temporary Measures

a. Provide and maintain temporary slope drains as required.

b. Employ other temporary erosion control measures as directed by the Engineer or local Conservation Commission.

18. Maintenance

a. Inspect erosion control practices immediately after each rainfall and at least daily during prolonged rainfall or snowmelt for damage. Make appropriate repairs or replacement until Final Completion at no additional cost to the Owner.

b. Remove silt from siltation fence and/or haybale when it has reached one-quarter of the bale and/or fence height, or prior to expected heavy runoff or siltation.

c. Repair matting if any staples become loosened or raised, or if any matting becomes loose, torn, or undermined, make satisfactory repairs immediately.

d. Maintain areas mulched or matted until Final Completion, at no additional cost to the Owner.

e. Maintain sediment basins by removing silt that reaches a depth of over one foot, at no additional cost to the Owner, until Final Completion.
19. Removal of Temporary Erosion Control

a. Remove temporary materials and devices upon completion of the Work when permanent soil stabilization has been achieved. Re-use materials in good condition if approved by Engineer.

1) If silt socks are used, remove in paved areas or cut open and disperse media in unpaved areas.

b. Level and grade to preconstruction conditions and to the extent required to prevent any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.

c. Remove siltation fences only when adequate grass growth has been established.

d. Repair areas damaged by silt fences and hay bales to preconstruction conditions to the satisfaction of the local Conservation Commission and the Engineer.

e. Remove unsuitable materials from Site and dispose of in a lawful manner.

D. Noise Control

1. Provide methods, means, and facilities to minimize noise from construction operations.

E. Pollution Control

Provide for the Project as follows:

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

   a. Water Pollution Control

      1) Assure that sediment, debris, petroleums, chemicals, or other contaminants will not enter existing drainage facilities and channels. Use construction methods that will prevent entrance of pollutants and wastes into existing streams, rivers, lakes, and flowing and dry watercourses.

      2) Obtain legal disposal sites and dispose of pollutants and wastes in a legal manner.

      3)Respond immediately to emergencies as directed when water quality of existing streams, rivers, lakes and flowing and dry watercourses is threatened. Take corrective action to remove or contain pollutants until a permanent solution is determined.

   b. Air Pollution Control

      1) Equipment and vehicles that exhibit excessive exhaust emissions due to poor engine adjustments or inefficient operation will not be permitted to operate until corrective repairs or adjustments are made.
2) Burning of materials from clearing or grubbing operations, combustible construction materials, and rubbish will not be allowed.

F. Traffic Management During Construction

Provide for the Project as follows:

1. Control and maintain traffic within the Project area.

2. Submit traffic management plans and coordinate with Owner and local agencies. Submit plan for traffic management to Owner for review 14 days in advance of any Work within public right-of-way, street closure or detour.

3. Provide and maintain traffic control and maintenance devices in accordance with Part 6, Temporary Traffic Control, of the "Manual on Uniform Traffic Control Devices for Streets and Highways", published by the U.S. Department of Transportation, Federal Highway Administration and other applicable codes and standards as specified. Operate devices 24 hours per day as required.

4. Provide for access by emergency vehicles, such as police, fire, and disaster units at all times. Contractor shall be liable for damages resulting from failure to provide such access.

5. During construction hours, traffic flow must be controlled by uniformed traffic police officers or other traffic controllers allowed by Laws and Regulations. The services of traffic controllers shall in no way relieve the Contractor of its responsibilities under the Contract.

6. Maintain minimum of one moving lane on roadways at all times.

   a. Where detours are permitted, provide necessary barricades, flashers, flashing arrows and signs in accordance with referenced Manuals and Laws and Regulations.

   b. Provide gravel borrow and bituminous concrete to maintain temporary passable travel lane ramps, temporary bridging, steel plates, temporary pavement, wood-framed walkways, caution, safety and other necessary signs directing the pedestrian and vehicular traffic towards unblocked and safe areas.

7. Provide safe access/egress to businesses and abutting property owners within the Project area. In areas where the construction activity is in progress, install directional signs in front of businesses indicating "OPEN FOR BUSINESS" or similar for guidance of customers.
a. Certain construction operations such as utility work and roadway/sidewalk reconstruction may restrict access/egress on some roads and to businesses and abutting property owners. Under these circumstances, schedule operations during off-peak hours or late evenings with Owner approval so that a particular work activity can be completed in the shortest possible time.

b. Provide 48 hours’ notice to businesses and abutting property owners when access/egress will not be available, or restrictions will exist.

8. Exercise particular care to establish and maintain such methods and procedures that will not create hazards.

9. Remove or properly cover traffic control, safety devices and/or signs having messages that are irrelevant to normal traffic conditions at the end of each Work period. Keep signs clean at all times and provide that legends are distinctive and unmarred.

10. Place excavated material and construction equipment so that vehicular and pedestrian traffic is maintained at all times unless road closure permit is obtained. If the Contractor's operations cause traffic hazards, implement appropriate safety measures immediately.

11. In areas of high pedestrian and vehicular traffic volume, the remove waste materials and construction equipment from the Work Site on a daily basis. Do not park construction equipment overnight on the Site or the adjacent roads unless permitted by Owner.

12. Provide night watchmen where special hazards exist.

13. Post No Parking signage clearly stating that any vehicle impeding the progress of construction will be towed at the vehicle owner’s expense. Towing charges incurred by Owner for Contractor’s failure to post such signs will be borne by the Contractor. Signs shall be posted a minimum of 48 hours in advance (not including weekends). Contractor shall document posting of No Parking signs by photographs submitted to the Engineer by email.

1.4 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

a. Remove temporary utilities, equipment, and facilities before Final Application for Payment inspection.

b. Remove temporary underground installations and grade Site as indicated. Clean and repair damage caused by installation or use of temporary utilities, facilities, and controls.

c. Restore existing facilities and areas used during construction to original condition. Restore permanent facilities used during construction to specified condition.

END OF SECTION
SECTION 01 51 38

TEMPORARY WATER BYPASS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Provide, test, operate and maintain temporary water bypass system in accordance with the Drawings, or as modified by Contractor and approved by Owner and Engineer. Temporary water bypass system is intended to maintain fire protection and water service impacted by the Project until permanent water service and fire protection is restored.

2. Provide public notification as specified in Section 01 11 00.

3. Provide temporary valves, temporary hydrants, and tap hole connections, in accordance with the Drawings, or as modified by the Contractor and approved by the Owner and Engineer.

4. Provide fire service connections, tap holes connections, domestic service corporations, service hoses and wye connections at hose bibbs, for each property requiring a temporary fire and domestic service. Close street side valve at meter after activating temporary domestic service connection.

5. Provide temporary hydrant for each siamese connection.

6. Bury temporary bypass water system at roadway crossings, pedestrian ramps, driveway crossings and areas required by Owner or Engineer to protect the temporary bypass system from damage and maintain public safety.

7. Provide temporary and permanent hot-mix asphalt in accordance with Section 32 12 16 for all temporary bypass water main system trenches.

B. Related Requirements

1. Section 32 12 16 – Asphalt Paving

2. Section 32 92 19 - Seeding

3. Section 33 01 10.58 – Disinfection of Water Utility Piping Systems

4. Section 33 14 11.01 – Water Utility Piping – Ductile Iron

5. Section 33 14 19 – Valves and Hydrants for Water Utility Service

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.
1.3 REFERENCES

A. Reference Standards

1. American National Standards Institute (ANSI)
   a. ANSI/NSF 61 - Drinking Water System Components – Health Effects
   b. ANSI/NSF 372 – Drinking Water Components – Lead Content

2. American Water Works Association (AWWA)
   a. AWWA C651 – Disinfecting Water Mains
   b. AWWA C800 – Underground Service Line Valves and Fittings
   c. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, ¾ In. (19 mm) Through 3 In. (76 mm), for Water Service

3. ASTM International (ASTM)
   a. ASTM A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
   b. ASTM A183 – Standard Specification for Carbon Steel Track Bolts and Nuts
   d. ASTM A536 – Standard Specification for Ductile Iron Castings
   e. ASTM B62 – Standard Specification for Composition Bronze or Ounce Metal Castings
   f. ASTM B584 – Standard Specification for Copper Alloy Sand Castings for General Applications
   g. ASTM D2737 – Standard Specification for Polyethylene (PE) Plastic Tubing
   h. ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
   i. ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter
   j. ASTM F1055 – Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing

4. Factory Mutual (FM)

5. Underwriters Laboratories Inc. (UL)
1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: in accordance with Division 01 General Requirements.

1.5 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

1. Submit a plan and schedule of the proposed temporary water bypass system including any alterations, at least 14 days prior to beginning installation of the temporary water bypass system.

2. Minimum contents of the plan and schedule:

   a. Revisions to the temporary water bypass system shown on the Drawings including: connections to existing hydrants, taps to existing water mains and fire services, street crossings, existing valves to be operated, and location of temporary hydrants, temporary valves, and temporary water bypass sampling locations.

   b. Description of connection procedures for domestic services, details and a description of installation procedures for tap hole connections to existing mains and fire services, including thrust restraint, and disinfection procedures

   c. A daily schedule outlining the locations where temporary water mains will be installed and notification procedures for business owners and residents

3. Emergency Contact List: to include name, address, home and mobile telephone numbers of at least 3 Contractor employed personnel, qualified to work on municipal water distribution systems and skilled in the operation, maintenance and repair of the temporary water bypass system in use.

   a. Each contact shall be knowledgeable of the temporary water bypass system in use, with specific knowledge of its operation and maintenance requirements and valve locations

   b. Each contact shall be available 24 hours per day/ 7 days per week, and able to respond to emergency repair calls within a maximum of 2 hours.

4. Sample connection/disconnection written notice intended for distribution to property owners

1.6 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.
1.7 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 TEMPORARY BYPASS WATER MAIN

A. Temporary water bypass pipe shall be constructed of high density polyethylene (HDPE) or galvanized steel with watertight joints and shall be capable of withstanding whatever forces, including traffic loads, they will encounter.

1. Pipe:
   a. High density polyethylene (HDPE) pipe in good condition; manufactured from high density, extra high molecular weight compound equaling a PE 3408 designation and conforming to ASTM D1248 and ASTM D3350, with a cell classification of 345434C; and shall meet ANSI/NSF 61 and ANSI/NSF 372 requirements.
   b. Hot dipped galvanized steel pipe: in good condition; manufactured to meet the requirements of ASTM A53, UL listed, FM approved; and shall meet ANSI/NSF 61 and ANSI/NSF 372 requirements.
   c. Other pipe materials shall not be permitted for the temporary bypass water system.

2. Working pressure: minimum 200 psi.

3. Wall Thickness: minimum, per table below.

<table>
<thead>
<tr>
<th>D</th>
<th>HDPE</th>
<th>Galva Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-</td>
<td>0.500</td>
<td>0.120</td>
</tr>
<tr>
<td>2-</td>
<td>0.264</td>
<td>0.109</td>
</tr>
</tbody>
</table>

4. Fittings and Couplings: victaulic restrained joint design, or approved equal; ductile iron conforming to ASTM A536; comply with ANSI/NSF 61 and ANSI/NSF 372; designed to resist flexure and torsion loads; UL listed, FM approved; minimum 300 psi working pressure; EPDM gaskets; heat-treated, plated carbon steel, trackhead bolts and nuts complying with ASTM A449 and ASTM A183.
2.2 TEMPORARY WATER SERVICE CONNECTIONS

A. Temporary water service connections: minimum 3/4-inch polyethylene or rubber hose tubing complying with ANSI/NSF 61 and ANSI/NSF 372 and bearing the imprint of the National Sanitary Foundation approval for potable water (NSF-PW).

2.3 TEMPORARY HYDRANTS AND VALVES

A. Temporary hydrants: ductile iron conforming to ASTM A536; comply with ANSI/NSF 61 and ANSI/NSF 372; 4 ½-inch pumper nozzle; acceptable to and supported by a means approved by the local Fire Department to prevent deflection of the hydrant or bypass piping system when the hydrant is in operation.

B. Temporary valves: watertight, butterfly, rubber seat type; operating nut controlled by standard wrench; arrow indicating open direction.

PART 3 – EXECUTION

3.1 GENERAL

A. Provide temporary water bypass system as shown on the Drawings and as specified. Submit alterations to the temporary water bypass system in accordance with Article 1.05 prior to beginning any Work on the Project.

B. Provide temporary water bypass main, hydrants, in-line valves, domestic and fire service connections, tap holes, service blow backs and permanent gate valves prior to beginning water main construction.

C. Interruption of water service or fire protection is not permitted during water main construction or bypass installation/removal.

1. Connect temporary bypass water mains to the existing distribution system at both ends to maintain continuity in the distribution system. “Dead-ending” of the temporary water bypass system is not permitted.

2. Take necessary measures, including tapping existing water mains and installing gate valves when existing hydrants and existing gate valves are unavailable for use, to assure continuous water service and fire protection.

D. Provide, maintain, and remove service hoses of approved size, to service all consumers from gated connections on the bypass pipe.

E. Provide separate temporary service connections for each domestic and fire service. Directly connecting one building to another is prohibited.

F. Where temporary water bypass system is not shown on the Drawing, meet the following minimum requirements.
1. Temporary main: Fire protection main shall be 4-inch unless otherwise approved in writing; domestic service main shall be minimum 2-inch diameter.

2. Temporary hydrants: Provide for each existing and proposed hydrant and at buildings with siamese connection. Provide additional temporary hydrants when required by the local Fire Department at no additional cost to the Owner.

3. Temporary valves: Provide watertight temporary valves at all hydrant connections, tap hole connections, branch lines to provide 3-way control, and at 800 linear foot increments. Provide additional temporary gate valves when directed at no additional cost to the Owner.

4. Temporary water bypass feeds: Connect fire protection main at each end to existing mains that will remain in service. Provide additional fire protection main connections, when directed, at no additional cost to Owner. Provide temporary valves at all hydrant connections. Locate temporary valve after temporary hydrant to ensure temporary hydrant remains live when temporary valve is closed.

5. Temporary service connections
   a. Fire service: Provide off fire protection main with minimum 4-inch connection.
   b. Domestic service: Minimum ¾-inch diameter as specified in Article 2.02.

G. Contact local Fire District Chief and Fire Alarm in writing upon installation of temporary water bypass system. Schedule site visit with District Chief to review system. Review District Chief comments with Engineer and make modifications required. Provide copy of notice to District Chief to Owner and Engineer.

H. Provide minimum inconvenience to property owners and water customers during connection and disconnection. Provide public notification as specified in Section 01 11 00.

3.2 PIPING

A. Temporary bypass pipe and other materials shall provide adequate watertightness. Exercise care throughout the installation of the temporary mains and service connections to avoid possible contamination of water mains or house services or contamination of the temporary bypass pipe itself. Flush, disinfect and test all temporary mains and services to prevent contamination in accordance with Section 33 01 10.58.
B. Lay temporary piping along the general lines of streets or roadways to cause minimum disruption and avoid damage. Unless otherwise directed by Owner, ramp 4-inch or smaller bypass piping with temporary bituminous pavement, cold patch, or other approved material on each side of the pipe at driveways and sidewalks. Bury bypass piping greater than 4-inch in diameter at driveway and sidewalk crossings.

1. Take additional precautions to minimize public inconvenience in areas where bypass and/or service pipe or hoses may be considered an obstruction to safe passage, including installation of additional ramping on both sides of the bypass pipe or burying the bypass pipe at building walkway entrances, at sidewalk crossings, and in other areas where the piping is considered an obstruction to safe passage.

2. At roadway, sidewalk and driveway crossings, cut a narrow trench in the existing pavement sufficiently wide and deep enough to allow placement of the bypass pipe just below the roadway surface. Place temporary hot-mix asphalt patch in accordance with Section 32 12 16. Make flush with the adjacent pavement. Compaction of temporary surfacing by vehicular traffic is not allowed. Upon removal of the bypass piping, backfill trench with gravel material, properly compacted, and restore to service with a permanent hot-mix asphalt patch.

3.3 OPERATION AND MAINTENANCE

A. Maintain 24 hours per day, 7 days per week until the Work has been completed and the bypass system has been removed.

B. Complete all sections of the Project in progress before the daily low temperature falls below 40 degrees Fahrenheit. Maintain all components of the bypass system impacted by freezing conditions, including service connections and take reasonable measures when scheduling Work as cold weather season approaches. Should it become necessary to stop Work and remove the bypass system due to freezing conditions, re-install, chlorinate, test, and return the temporary bypass system to service at no additional cost to the Owner.

3.4 REMOVAL

A. After the existing water mains have been replaced and new water mains put into service, remove components of the temporary bypass system immediately and restore disturbed areas.

END OF SECTION
SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY

A. This Section specifies general requirements for products, materials and equipment and applies to all Specifications and Drawings.

1. Provisions of this Section may supplemented in individual Specification sections.

B. Section Includes

1.2 SOURCE QUALITY CONTROL General

   Independent Testing Agency Certification Factory Testing

1.3 PRODUCT REQUIREMENTS General

   Transportation and Handling Storage and Protection

1.4 WARRANTIES

1.2 SOURCE QUALITY CONTROL

A. General

1. Subject material and equipment furnished under the Contract Documents to a complete factory testing program as specified.

2. Shop Drawings and submittals: reviewed by Engineer before initiating testing program.

3. Perform checks and tests in accordance with manufacturer's recommendations and referenced standards.

4. Evaluate test results and advise Owner immediately of any discrepancy between test results and test limits or the failure of any device or system under test. Include test limits for acceptability applicable to each test on the certified test records.

5. Record test information, including the evaluation of testing results, on forms approved by Owner and Engineer.
B. **Independent Testing Agency Certification**

1. If specified, furnish certificates from an independent testing agency.

2. Independent testing agency to certify that material and equipment components have been examined and tested and are in conformance with the requirements specified in the Contract Documents.

3. Take Samples in accordance with the requirements specified in the Contract Documents, as selected by Owner or independent testing agency. Furnish and ship at no additional cost to Owner.

C. **Factory Testing**

1. Provide 14 days prior written notice of factory inspections and tests to Owner and Engineer.

2. If failure to give proper written notice results in material and equipment being assembled or covered before a factory inspection or test, make material and equipment ready for inspection or test and reassemble or recover at no additional cost to Owner.

3. Owner may inspect any portion of material and equipment furnished at any reasonable time during manufacture and may witness testing of any portion of material and equipment wherever located. Owner and Engineer to witness tests only.

4. Furnish, set up and operate test equipment and facilities.

5. If facilities for conducting required tests are unavailable to the manufacturer, conduct tests elsewhere or have them performed by an independent agency approved by Owner.

6. Protect material and equipment after testing and checking to provide that subsequent testing of other equipment or systems does not disturb, damage or otherwise interfere with functional capability of material and equipment.

7. Assume responsibility for protection of material and equipment and safety of all personnel during factory testing program.

8. Grounds for rejection: failure to withstand tests; failure to meet ratings; failure to meet applicable standards.
9. In the event of failure
   a. Submit revisions of documents requiring approval for changes required for rectification.
   b. Obtain Owner's and Engineer’s approval before making such changes.
   c. Provide written details of any changes to be made not requiring approval.
   d. Notify Owner and Engineer in writing before retesting.
   e. Furnish new material and equipment which meets requirements of the Specifications if rejected material and equipment cannot be rectified to satisfaction of Owner and Engineer.
   f. Retest after rectification in presence of Owner or Engineer.

10. Assume responsibility for all costs, including, but not limited to: loss or damage to materials and equipment resulting from testing; retesting; rectification; new material and equipment to replace damaged or non-rectifiable material and equipment; removal, furnishing, transportation, unloading, and installation of replacement material and equipment; and witness of testing by Owner and Engineer including travel, lodging, meals, and payroll.

11. Submit certified test reports which define tests, list results, and are signed by Contractor's representative, and copies of raw data collected during tests. Submission of certified test reports does not relieve Contractor of responsibility for material and equipment meeting requirements of the Contract Documents after installation.

1.3 PRODUCT REQUIREMENTS

A. General

1. Products include new material and equipment incorporated into the Work and may also include existing material and equipment required for reuse. This does not include machinery and equipment used for preparation, fabrication, conveying, installation and erection of the Work.

2. Do not use materials and equipment removed from existing Work Site, except as specifically permitted.

3. Provide complete with accessories, trim, finished, safety guards, and other devices and details need for a complete installation and for the intended use or effect.
4. Provide standard products which have been produced and used successfully on other similar projects for similar applications. Provide products which are likely to be available to Owner in the future for items required for maintenance and repair or replacement work.

5. Furnish interchangeable components of the same manufacturer, for similar components.

B. Transportation and Handling

1. Transport and handle material and equipment in accordance with manufacturer's instructions.

2. Notify Engineer and Owner in writing upon acceptance of a shipment.

3. Promptly inspect shipments to assure that material and equipment comply with requirements, quantities are correct, and material and equipment are undamaged.

4. Furnish equipment and personnel to handle material and equipment by methods to prevent soiling, disfigurement, or damage.

5. Uncrate equipment and dispose of packing material properly.

C. Storage and Protection

1. Store and protect material and equipment in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive material and equipment in weather tight, climate controlled enclosures.

2. For exterior storage of fabricated material and equipment, place on sloped supports, above ground.

3. Provide for bonded off Site storage and protection when Site does not permit on Site storage or protection.

4. Cover material and equipment subject to deterioration with impervious sheet covering. Furnish ventilation to avoid condensation or potential degradation of material and equipment.

5. Store loose granular materials on solid flat surfaces in a well-drained area. Avoid mixing with foreign matter.

6. Furnish equipment and personnel to store material and equipment by methods to prevent soiling, disfigurement, or damage.
7. Arrange storage of material and equipment to permit access for inspection. Periodically inspect to assure material and equipment are undamaged and are maintained in acceptable conditions.

8. After receipt of material and equipment, assume responsibility for loss and damage including but not limited to breakage, corrosion, weather damage, and distortion.

1.4 WARRANTIES

A. Provide warranties for equipment and material in accordance with Paragraphs 6.19 and 14.03 of the Standard General and Supplementary Conditions, if any.

B. Provide extended or special warranties as indicated in individual Specification sections.

END OF SECTION
SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY

A. This Section specifies general execution requirements and startup/commissioning and performance testing for closeout of the Work and applies to all Specifications and Drawings

1. In certain Paragraphs, checked items indicate requirements applicable to the Project.

2. Provisions of this Section may be supplemented in the Specific Project Requirements and Procedures or other sections of Division 01.

B. Section Includes

1.2 OVERALL EXECUTION REQUIREMENTS Coordination

Existing Conditions Field
Engineering Field Record
Documents Cutting and Patching
Quality Assurance and Control of Installation
Manufacturers’ Field Services
Independent Testing
1.2 OVERALL EXECUTION REQUIREMENTS

A. Coordination

1. Conduct preconstruction and pre-installation meetings before commencing certain Work that requires coordination or has special requirements or approvals.

2. Comply with the required Work sequence and coordination as may be specified in Summary of Work and reflect in the Project scheduling.

3. Coordinate Work such that Work is completed with minimum disruption to residents and businesses.

4. Coordinate space requirements and installation of Work. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, and repairs.

5. Coordinate Work of the various Specifications with interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.

6. Coordinate related Work at the Site in accordance with Article 7 of the Standard General and Supplementary Conditions, if any.

7. Coordinate completion and cleanup of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.

8. After Owner occupancy of premises, coordinate access to Site for correction of defective Work and/or incomplete Work to minimize disruption of Owner's activities.

B. Existing Conditions

1. Paragraph 4.01 of the Standard General and Supplementary Conditions, if any, covers Availability of Lands.

2. Paragraph 4.02 of the Standard General and Supplementary Conditions, if any, covers Subsurface and Physical Conditions.

3. Pursuant to Paragraph 4.04 of the Standard General and Supplementary Conditions, if any, existence and location of Underground Facilities and other utilities and construction indicated as existing are not guaranteed. Before beginning Work investigate and verify the existence and location of Underground Facilities and other utilities and construction.

   a. Conduct test pits and other utility research and properly restore utilities interfered with or damaged during construction at no cost to the Owner.

   b. Engage a professional subsurface utility locator to verify the existence and location of underground utilities prior to starting Work.
4. Paragraph 4.05 of the Standard General and Supplementary Conditions, if any, covers Reference Points.

5. Paragraph 4.06 of the Standard General and Supplementary Conditions, if any, covers Hazardous Environmental Conditions at Site.

C. Field Engineering

1. Promptly report lost or destroyed reference points, benchmarks, or control points. Promptly report requirements relocate reference and control points due to changes in grades. Promptly replace lost or destroyed bounds or markers and control points based on the original survey control points utilizing the services of a professional land surveyor registered in the state where the Project is located. The cost of replacing markers disturbed by the Contractor's operations shall be at the Contractor's expense.

D. Record Documents

1. Provide Record Documents in accordance with Paragraph 6.12 of the Standard General and Supplementary Conditions, if any, and in accordance with the Payment and Administrative Procedures.

2. Store Record Documents separate from documents used for construction. Record information concurrent with construction progress.

3. Legibly mark each item to record description of actual equipment and material installed and actual construction on approved submittals, including the following.
   a. Manufacturer's name and equipment and material model and number
   b. Material and equipment substitutions or alternates utilized
   c. Approved changes
   d. Measured depths of foundations
   e. Measured horizontal and vertical locations of Underground Facilities and appurtenances, referenced to permanent surface improvements
   f. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work
   g. Field changes of dimension and detail
   h. Details not on original Contract Documents or Shop Drawings

E. Cutting and Patching

1. Employ skilled and experienced personnel to perform cutting and patching.

2. Submit written request in advance of cutting or alteration which affects:
   a. structural integrity of any element of Project;
b. integrity of weather exposed or moisture resistant elements;
c. efficiency, maintenance, or safety element;
d. safety, traffic, or hazard barriers;
e. visual qualities of sight exposed elements; and
f. work of Owner or separate contractor.

3. Execute cutting, fitting, and patching including excavation and fill to complete Work and to:
   a. fit materials together, to integrate with other work;
   b. uncover Work to install ill-timed Work;
   c. remove and replace defective or non-conforming Work;

F. **Quality Assurance and Control of Installation**

1. Monitor quality control of Subcontractors, Suppliers, manufacturers, material, equipment, services, Site conditions, and workmanship, to produce Work of specified quality. Conduct field quality control and testing specified.

2. Comply fully with manufacturers' installation instructions, including each step in sequence. If manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

3. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

4. Perform Work using persons qualified to produce workmanship of specified quality.

5. Install field Samples and mockups at the Site as required in Specifications for review. Acceptable Samples and mockups represent a quality level for the Work. Where field Sample or mockup is specified to be removed, clear area after field Sample or mockup has been accepted by Engineer or after Work is complete when mockup is to serve as a control reference.

6. Protect adjacent construction in accordance with Paragraph 6.13 of the Standard General and Supplementary Conditions, if any.

G. **Manufacturers' Field Services**

1. If required in the Specifications, arrange and pay for material or equipment Suppliers or manufacturers to provide qualified staff personnel (field representative) to perform the following services and services specified. Submit reports of activities, actions taken and test results to Engineer within 10 days of completion.

   a. Observe Site conditions, conditions of surfaces and installation, quality of workmanship.
b. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers’ written instructions.
d. Assist with field assembly as required.
f. Furnish, setup, and operate required test equipment and facilities.
e. Perform and record results of manufacturer recommended inspections and tests, and tests specified for material and equipment.
f. Be responsible for protection of material and equipment and safety of all personnel during testing.
g. Perform any other services normally provided by field representative's company.
h. Instruct operating personnel in proper use of material and equipment.
i. Instruct and supervise field repairs before acceptance by Owner.

**H. Independent Testing**

1. Employ and pay for specified services of an independent firm in accordance with Paragraph 13.03 of the Standard General and Supplementary Conditions to perform inspection and testing as may be specified except where responsibility for a specific inspection or test is expressly allocated to Owner in the Specifications or by Laws and Regulations.

2. Reports will be submitted by the independent firm to Owner, in duplicate indicating observations and results of tests and indicating compliance or noncompliance with Contract Documents.

3. Inspection, testing, and source quality control may occur on or off the Project Site.

4. Cooperate with independent firm. Furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.

5. Notify Owner and independent firm 24 hours before expected time for operations requiring services.

6. Make arrangements with independent firm and pay for additional Samples and tests required for Contractor's use.

7. Retesting required because of nonconformance to specified requirements will be performed by the same independent firm if instructed by Owner. Payment for retesting will be charged to Contractor by deducting inspection or testing charges from the Contract Price.

8. Testing or inspecting does not relieve Contractor from performing Work in accordance with requirements of the Contract Documents.

**END OF SECTION**
SECTION 02 61 05
REMOVAL AND DISPOSAL OF CONTAMINATED SOIL AND WATER

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes
1. Provide removal and disposal of contaminated soil and water generated during normal requirements for excavation including associated handling, stockpiling and transportation in accordance with this Section and applicable reference standards listed in Article 1.03.

2. Remove, treat and/or dispose of contaminated water generated during dewatering including associated handling, containment, transportation, and disposal/discharge of contaminated water in conformance with Laws, Regulations, and applicable discharge permits.

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

B. Conduct Work in this Section only after agreed upon scope of work and issuance of Change Order.

C. Excavation beyond that which is required to install and backfill the water main as specified and shown on the Drawings or as required by the Response Action Performance Standards in the Massachusetts Contingency Plan shall not be considered part of this work unless authorized by the Owner and/or Engineer. Costs for excavation, soil/water handling and management, sampling, and transportation/disposal of soil and water for work that is not authorized and is conducted beyond that which is required by the Drawings or Massachusetts Contingency Plan shall not be considered for payment.

D. Delay claims related to unexpected and undocumented subsurface conditions shall not be considered for payment.

E. Costs for additional equipment, materials, and supplies not included in the change order price submitted and necessary to respond to known environmental conditions shall not be considered for payment.

1.3 REFERENCES

A. Reference Standards
1. Massachusetts Department of Environmental Protection (MassDEP)
a. 310 CMR 30.000 Hazardous Waste Regulations  
b. 310 CMR 40.0000 Massachusetts Contingency Plan  
2. Environmental Protection Agency (EPA)  
a. Remediation General Permit  
3. Occupational Safety and Health Administration (OSHA)  
b. OSHA 29 CFR 1926, Construction Safety  
4. City of Quincy  
b. Stormwater Management Regulations  

B. Definitions  
1. Emergency discharge is a result of remediation or dewatering activities conducted in response to a public emergency which requires immediate authorization to avoid imminent endangerment to human health, public safety, or the environment, or to reestablish essential public services.  
2. On-Site material: suitable material from on-Site excavation.  

1.4 ADMINISTRATIVE REQUIREMENTS  
A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.  

1.5 SUBMITTALS  
A. Submit in accordance with Division 01 General Requirements.  
B. Provide qualifications for Licensed Site Professional (LSP) to Owner and Engineer for review and approval.  
C. Provide the appropriate federal or state environmental reports signed by LSP documenting the plan, status, and completion/close-out of work to remove treat and/or dispose of contaminated soil, material, and water generated during excavation and dewatering activities including associated handling, containment, stockpiling/live-loading, transportation, disposal of contaminated soil/material, and disposal/discharge of contaminated water.  
D. Provide all environmental permits necessary to conduct excavation activities in contaminated areas.
E. Provide Contactor’s Health and Safety Plan, OSHA HAZWOPER (29 CFR 1910.120) original 40-hour certificate, the most recent 8-hour annual HAZWOPER refresher certificate, and medical monitoring letter indicating staff are fit for duty.

F. Provide Contractor’s certificate of completion for Construction Safety Training (OSHA 29 CFR 1926).

G. Provide electronic copies for all soil, material, and water laboratory reports. Laboratory reports shall appropriately characterize waste for disposal facility acceptance criteria and for compliance with applicable Laws and Regulations.

H. Where disposal or discharge of water is required to support excavation activities, provide electronic copies of all water laboratory reports and discharge monitoring reports. Reports shall appropriately characterize the water for disposal facility acceptance criteria and for discharge in compliance with applicable Laws and Regulations.

I. Provide electronic copies of all executed waste profiles, facility acceptance, transport and/or disposal documentation including bills of lading (BOLs), disposal facility receipts, hazardous waste manifests, or other documents necessary to manage contaminated soil, material, and water.

J. Provide copies of field logs/notes and field screening data during excavation activities.

K. Closeout and maintenance material submittals: per Division 01 General Requirements.

1.6 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

B. The selected and Owner-approved LSP shall be in good standing and have completed at least 3 Utility-Related Abatement Measures since the 2014 changes to the MCP in urban areas where historic fill was with releases of oil and/or hazardous materials that were released to the environment.

C. Handle, transport and dispose of contaminated soil, material, and water in accordance with applicable Laws and Regulations and disposal facility acceptance criteria.

D. Perform work in accordance with Response Action Performance Standards identified in the Massachusetts Contingency Plan and other federal, state, and local Laws and Regulations.

E. Provide workers that are OSHA certified in accordance with Article 1.03 and Articles 1.04 E and F above.
1.7 DELIVERY, STORAGE, AND HANDLING
A. Provide in accordance with Division 01 General Requirements.

1.8 SITE CONDITIONS
A. Existing conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 GROUNDWATER TREATMENT AND SOIL MANAGEMENT
A. Provide groundwater treatment system(s) capable of treating and disposing of groundwater in compliance with all federal, state and local Laws and Regulations.
B. Complete, file and obtain all permits required for groundwater treatment and discharge or disposal.
C. Provide all labor, tools, equipment and materials required to manage and dispose of soils in accordance with the Massachusetts Contingency Plan and all federal, state and local Laws and Regulations.
D. Complete, file and obtain all permits required for soil management and disposal.

2.2 SOURCE QUALITY CONTROL
A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.1 GENERAL
A. Work shall be conducted under the direction of a Licensed Site Professional (LSP) approved by the Owner, licensed in the state where the Project is located and in good standing with the Board of Registration of Hazardous Waste Site Cleanup Professionals (LSP Board).
B. Review Work plan, including but not limited to, temporary and central stockpile and container locations, soil management plan, groundwater treatment and discharge plan, permitting and disposal facilities prior to beginning Work.
C. Perform Work in accordance with current standards of practice including environmental policies, guidance documents, and regulations. Schedule and complete Work in a manner that will minimize delays and construction costs.
D. Review available boring and test pit logs, records of explorations and other publicly available (municipal and state environmental records) and pertinent data for the Project. Use this information to prepare an accurate change order price for Work.
E. Notify the Owner and Engineer immediately of unexpected and undocumented environmental subsurface conditions that will impact the quality and installation of the Work. Owner and Engineer will inspect the conditions and evaluate options with Contractor. If directed, discontinue Work in impacted area and proceed with other Project Work. Claims associated with delays or mobilization to other area of Work shall not be considered for payment.

F. If notification conditions under applicable Laws and Regulations are required, LSP shall notify the Owner or Engineer immediately such that the Owner or their designee can notify DEP within the appropriate regulatory timeframe.

G. Perform Work where contaminated materials are discovered over consecutive Work days unless precipitation and severe weather prevent the safety of the Work or exacerbates site conditions. Do not perform work during severe weather (i.e., thunder and lightning). In the event that precipitation occurs during conduct of Work that would present safety concerns or exacerbate site conditions, cease Work immediately and cover soil/material stockpiles, and soil/material storage locations with polyethylene liners.

H. Manage, handle, transport and dispose of contaminated soil, material, and water in accordance with applicable Laws and Regulations.

I. Reuse soils and materials to the extent allowable by Laws and Regulations. When Laws and Regulations permit reuse of soils and materials, maximize reuse as approved and directed by Owner.

3.2 CONTAMINATED SOIL AND MATERIAL MANAGEMENT

A. Provide all labor, equipment, materials, and supplies necessary for the proper excavation, handling, and management, of contaminated soil and materials, temporary stockpiling or storage of contaminated soil and materials in containers, laboratory characterization, loading, transportation, and disposal of contaminated soil and materials in each area of Work.

B. Temporary and Central Stockpile Location and Management

1. The approved LSP shall coordinate sampling and analysis of soil and materials stockpiled or stored in containers.

2. Coordinate and schedule Work such that the movement of soil and materials at the Work zone and between the Work zone and central stockpile/storage location is minimized. Revise soils management practices at no additional cost to the Owner, if, in the Owner’s opinion, more efficient management practices can be implemented.

3. Cover contaminated soil and material stockpiles and storage containers at the end of each day, during periods of non-use, and when transported on public ways to minimize release of dust, or erosion from storm events.
4. Place stockpiled contaminated soil and materials on polyethylene sheeting of at least 6 mils in thickness. Immediately cover stockpiles with polyethylene sheeting of at least 6 mils in thickness or other suitable impermeable material with physical properties capable of resisting tearing. Properly secure cover at the base and across the stockpile to protect the pile from the elements and prevent wind from moving the cover.

5. Provide stockpile slopes that comply with OSHA Regulations and local codes and Laws and Regulations.

6. Place contaminated soil and materials generated from each area of Work into separate stockpiles at the central stockpile location. Mark each stockpile and storage container with location where contaminated soil and materials were removed.

7. Maintain stockpiles and containers at the temporary and central storage locations. Check stockpiles and storage containers daily during normal working hours and repair, replace or re-secure the protective coverings to the satisfaction of the Engineer and Owner. Improperly constructed or maintained stockpiles and storage containers shall be replaced or repaired at no additional cost to the Owner.

C. Arrange for legal disposal of the contaminated soil and material at an authorized facility in accordance with Laws and Regulations.

D. Transport contaminated soil and material to the approved disposal facility within the timeframes provided in Laws and Regulations.

3.3 CONTAMINATED WATER MANAGEMENT

A. LSP shall coordinate sampling and analysis of water accumulated in excavations and appropriately characterize and measure thickness of any non-aqueous phase liquid.

B. Contractor shall provide a groundwater extraction, management, and treatment system necessary to meet applicable discharge requirements, permits, Laws and Regulations. Replace or repair equipment at no additional cost to the Owner.

C. When necessary, provide oil and hazardous material-resistant pumps and hoses that are intrinsically safe for use in the transfer of contaminated water. Ensure pumps and hoses are well maintained and allow examination by the Engineer. Replace or repair leaking pumps and hoses at no additional cost to the Owner.

D. Off-Site Water Disposal

1. Manage contaminated water in accordance with applicable Laws and Regulations.
2. Pump contaminated water into either a vacuum truck operated by a licensed hazardous waste transporter (for volumes of water up to 3,000 gallons) or into portable, bulk liquid storage tank(s) for larger volumes and transport to an approved off-Site location for disposal.

3. Coordinate and prepare necessary documentation for legal disposal of the contaminated water at an authorized facility in accordance with Laws and Regulations.

4. Transport contaminated water to the selected disposal facility under the proper documentation within the timeframes and requirements provided in Laws and Regulations.

E. On-Site Water Treatment and Disposal

1. Manage contaminated water in accordance with applicable Laws and Regulations.

2. Provide for on-Site handling, treating and disposing of contaminated water removed from excavations. Obtain an emergency Remediation General Permit or temporary sewer discharge permit for the disposal of treated water to a storm drain or waterway, if required.

3. Treat contaminated water by approved means to comply with applicable permits, Laws and Regulations.

4. Test effluent as required to ensure compliance with applicable permits, Laws, and Regulations.

3.4 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

3.5 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 31 00 00

EARTHWORK

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Excavating, filling, backfilling, stockpiling, bedding, compacting, grading, hauling, disposal of on-Site soils, processing of on-Site soils for reuse, testing of soils, engaging an independent Geotechnical Testing Agency to perform required quality assurance and quality control inspection and testing in accordance with this Section, the Drawings and applicable reference standards listed in Article 1.03.

B. Related Sections

1. Section 31 10 00 – Site Clearing
2. Section 31 50 00 – Excavation Support and Protection

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. American Association of State Highway and Transportation Officials (AASHTO)

a. AASHTO M 85 Standard Specification for Portland Cement

b. AASHTO M 295 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete


d. AASHTO T 27 Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates

e. AASHTO T 96 Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
2. ASTM International (ASTM)
   b. ASTM D422 Standard Test Method for Particle-Size Analysis of Soils
   c. ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³))
   d. ASTM D1556 Density and Unit Weight of Soil in Place by the Sand-Cone Method
   e. ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
   f. ASTM D2167 Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
   g. ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
   h. ASTM D2922 Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)
   i. ASTM D2937 Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method
   j. ASTM D3017 Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
   k. ASTM D3740 Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
   l. ASTM D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
   m. ASTM E329 Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
   n. ASTM C131 / AASHTO T-96 (Los Angeles Abrasion Test)
3. MassDOT Standard Specifications and Supplements and Construction Details


5. On-Site material: suitable material from on-Site excavation.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

1. Pre-installation conference: conduct at Project Site at least 30 days prior to start of Work.

a. Required attendees: Owner and Engineer, Owner’s independent testing firm and geotechnical consultant, Contractor’s Superintendent, Support of Excavation (SOE) Installer, Dewatering Installer and Contractor’s independent testing firm.

b. Review methods and procedures related to earthmoving including, but not limited to, the following.

1) Work hours

2) Personnel and equipment needed to maintain proposed construction schedule and avoid delays

3) Work procedures

4) Establishing and maintaining Site access

5) Coordination of Work with utility locator service

6) Stockpiling area and temporary access points

7) Site logistics for hauling and stockpiling

8) Coordination of Work and equipment movement with support of excavation systems installation
9) Construction phasing anticipated daily and weekly progress and conformance to construction schedule

10) Methodology for field quality control

2. Make provisions for observations and testing of Work by Owner’s independent testing and inspection agency and geotechnical consultant.

1.5 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

B. Product Data

1. Provide the following for each on Site and borrow soil material or aggregate:

a. Name of each material Supplier, specific type and source of each material.

b. Bills of Lading documenting materials source, including Supplier name and relationship to source, location where materials were obtained, including street, city/town, lot and block, state and country. Include present and past usage of source Site.

c. Suppliers statement that material is not contaminated and is free of extraneous debris and solid waste, and description of steps taken to confirm.

d. Product weight shipping tickets certified by Supplier.

C. Samples and Mockups: as specified in Article 1.06.

D. Certifications

1. Certification stating materials are virgin materials from a commercial or non-commercial source.

E. Design data and submittals

1. Material gradation

F. Source and field quality control submittals

1. Field compaction testing.

2. Material testing reports for each on Site and borrow soil material proposed for fill and backfill in accordance with ASTM D1557.
3. Laboratory compaction curve in accordance with ASTM D1557.
4. Backfill moisture density relationships.
5. Submit daily field reports documenting earthwork activity and field testing for each day. At a minimum, reports shall include:
   a. A description of the day’s activities.
   b. The results of in-place density testing including in-place dry density, moisture content, percent compaction, elevation of test and a description of the soil.
   c. A sketch indicating the extent of each day’s work and the location of testing.
6. Daily records of over-excavated volumes including:
   a. Beginning and end station of over-excavation.
   b. Proposed elevation of subgrade.
   c. Actual elevation of subgrade.
   d. Calculated volume of additional excavation in bank cubic yards (BCY).

G. Qualifications Statements
1. Contractor’s independent testing agency qualified for testing specified in ASTM E329 and ASTMD3740.

H. Closeout and maintenance materials submittals: per Division 01 General Requirements.

1.6 QUALITY ASSURANCE
A. Provide in accordance with Division 01 General Requirements.
B. Qualifications: per Division 01 General Requirements and as follows for geotechnical testing:
C. Independent Testing

1. Provide the services of geotechnical testing agency to test and monitor various phases of earthwork operations as specified and as required by Owner. Services shall include but not be limited to:

a. Observation during earthwork and dewatering activities.

b. Sampling, laboratory testing and analysis of fill materials as specified herein and required by Owner. Submit analysis results to Owner for review.

c. Recommend corrective actions necessary to remedy earthwork activities that fail to meet specification requirements.

d. Retest corrected areas and submit results to Owner. All costs, including cost of testing agency, related to retesting shall be the responsibility of the Contractor and shall not be submitted for payment.

D. Samples

1. Provide a minimum 50 pounds of on-site, borrow and aggregate material to approved testing laboratory at minimum 14 days prior to beginning Work.

2. Submit additional material samples at least every 500 cubic yards throughout the course of Work, if requested by the Owner, to evaluate consistency of source or process.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

B. Waste Management and Disposal:

1. Legally dispose of excess or unsuitable material at no additional cost to Owner.

1.8 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

B. Prior to submitting a Bid, conduct an on-Site visit to assess existing Site conditions, equipment access, potential interferences with intended equipment, location of existing structures and utilities, geologic features and materials.

C. Review available logs of borings and test pits, records of explorations and other pertinent data for the site. After obtaining Owner's permission, make additional
subsurface explorations deemed necessary to bid the project at no expense to the Owner.

D. Subsurface information made available is for general information and accurate only at the specific locations and times the subsurface explorations were made. It is the Contractor's responsibility interpret and to draw conclusions as to the character of materials to be encountered and impact these materials may have on the proposed Work based on his/her experience, knowledge of the area and expert knowledge of earthwork techniques.

E. Notify Owner of unexpected subsurface conditions that will impact the quality and installation of the Work. Discontinue Work in said area and work on other areas of the Project until otherwise directed by the Owner. Delay claims related to unexpected subsurface conditions shall not be considered for payment.

F. Verify subsurface utilities have been marked by Dig Safe and local utilities prior to performing any Work.

PART 2 – PRODUCTS

2.1 MATERIALS

A. General

1. Obtain approval of Owner and Engineer for changes in material sources.

2. Off-Site sources of materials and testing of materials to verify compliance with Specifications may be inspected by Owner.

3. Unsuitable materials: Very soft or soft clay or silt, organic clays or silts, peats, debris, concrete, pavement, stones or boulders over 6 inches in greatest dimension, wet or frozen material, and material, which in the opinion of the Owner or Engineer, will not provide a suitable foundation or structural support for the pipe and associated structures, and is unsuitable for use in backfill.

4. On-Site Material: Material from on-Ssite earthwork activities meeting suitable requirements of the Specifications and deemed suitable for use by the Owner or Engineer. Provide additional suitable material as required to completely backfill trenches at no additional expense to the Owner.

B. Materials from Off-Site

1. Crushed stone: 3/4-inch sized, durable, clean angular rock fragments obtained by breaking and crushing rock material meeting MassDOT M2.01.4 criteria, free of ice, snow, sand, silt, clay, loam, shale, or other deleterious matter.
2. Sand: clean inert, hard, durable grains of quartz or other hard durable rock, free from loam or clay, surface coatings and deleterious materials.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
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<tbody>
<tr>
<td>1-inch</td>
<td>100</td>
</tr>
<tr>
<td>3/4-inch</td>
<td>90-</td>
</tr>
<tr>
<td>1/2-inch</td>
<td>10-</td>
</tr>
<tr>
<td>3/8-inch</td>
<td>0-20</td>
</tr>
<tr>
<td>#4</td>
<td>0-5</td>
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</tbody>
</table>

3. Suitable backfill: well-graded granular material. Retain at least 25 percent by weight on #4 sieve and contain less than 35 percent finer than a #200 sieve by weight, predominantly free from organic matter, man-made materials, ice, snow or other deleterious material.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
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<tbody>
<tr>
<td>3/8-inch</td>
<td>100</td>
</tr>
<tr>
<td>#4</td>
<td>95-100</td>
</tr>
<tr>
<td>#16</td>
<td>50-85</td>
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<td>10-30</td>
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<tr>
<td>#100</td>
<td>2-10</td>
</tr>
<tr>
<td>#200</td>
<td>0-3</td>
</tr>
</tbody>
</table>

4. Gravel borrow for trench backfill: hard, durable stone and course sand inert material, free from loam and clay, surface coatings and deleterious material, MassDOT Division III, subsection M1.03.0, Type b. Gradation requirements: AASHTO T11 and T27.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
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<tbody>
<tr>
<td>1/2 inch</td>
<td>50-85</td>
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<tr>
<td>#4</td>
<td>40-75</td>
</tr>
<tr>
<td>#50</td>
<td>8-28</td>
</tr>
<tr>
<td>#200</td>
<td>0-10</td>
</tr>
</tbody>
</table>

Type b: maximum stone size = 3-inches in largest dimension
5. Dense graded crushed stone: crusher-run coarse aggregates of crushed stone and fine aggregates of natural sand or stone screenings, uniformly pre-mixed with a predetermined quantity of water.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
</tr>
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<tbody>
<tr>
<td>2 inch</td>
<td>100</td>
</tr>
<tr>
<td>1/2 inch</td>
<td>70-100</td>
</tr>
<tr>
<td>3/4 inch</td>
<td>50-85</td>
</tr>
<tr>
<td>#4</td>
<td>30-55</td>
</tr>
<tr>
<td>#50</td>
<td>8-29</td>
</tr>
<tr>
<td>#200</td>
<td>3-10</td>
</tr>
</tbody>
</table>

6. Drainage stone: 1-1/2-inch crushed stone per MassDOT Section M2.01.1 of durable, clean angular rock fragments obtained by breaking and crushing rock material.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 inch</td>
<td>100</td>
</tr>
<tr>
<td>1-1/2</td>
<td>95 -</td>
</tr>
<tr>
<td>1 inch</td>
<td>35 -</td>
</tr>
<tr>
<td>3/4 inch</td>
<td>0 -</td>
</tr>
</tbody>
</table>

7. Controlled density fill (CDF): excavatable and used to limit settlement, lateral movement, undermining, washout and other hazards created by earthwork operations as shown on Drawings and when excavating around structures, utilities, sidewalks, pavements, and other facilities. Batch CDF at concrete plant.

   b. Fly ash: AASHTO M 295. Class F
   c. Sand: MassDOT M4.02.02.
   d. Water: MassDOT M4.02.04.
   e. Air entraining admixture: MassDOT M4.02.05.
   f. Compressive strength: 28 day = 30-80 psi, 90 day = 100 psi.
   g. Slump: 10 - 12 inches.

8. Riprap stone: sound, durable rock that will not disintegrate due to exposure to water or weather, angular in shape such as rough, unhewn quarry stone or fragments obtained by blasting, breaking or crushing natural rock. Do not use rounded boulders or cobbles; flat, platy
stones; shale or slate rock with its largest length dimension 3 times greater than its shortest dimension.

9. Riprap gradation: stone size corresponding to inch dimension indicated on Drawings. D_{50} stone size represents 50 percent of stone passing D_{50} dimension sieve screen. D_{20} stone size, 20 percent passing: 1/2 D_{50} dimension. Maximum size limit: D_{100}: twice the D_{50} stone size dimension.

2.2 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verification of Conditions

1. Check and verify governing dimensions and elevations before starting Work. Survey condition of adjoining properties with Engineer. Take digital video recording of any prior settlement or cracking of structures, pavements and other improvements. Provide list of damages, verified and signed by Contractor and Engineer.

2. Coordinate survey. Establish exact elevations at fixed points to act as benchmarks. Identify benchmarks and record existing elevations. Locate datum level used to establish benchmark elevations so it will not be affected by excavation operations.

3.2 PROTECTION

A. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost. Remove temporary protection before continuing Work.

D. Prevent surface water and groundwater from entering excavations, ponding on prepared subgrades, and flooding Project Site and surrounding area.

E. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Excavation will occur below water level. Complete Work in-the-dry to maintain undisturbed condition of bearing soil.

2. Reroute surface water runoff away from excavated area. Do not allow water to accumulate in excavations to ensure bottoms and sides of excavations remain firm and stable throughout construction operations. Do not use excavated trenches as temporary drainage ditches.
3. Install a dewatering system to keep subgrades dry and convey groundwater away from excavations. Maintain until dewatering is no longer required.

4. Recharge water from excavations on-site avoiding injury to public health, public and private property, existing Work, Work to be completed or in progress, roads, walks and streets, or causing any interference with the public.

F. Do not place concrete or fill in excavations containing water.

3.3 GENERAL EXCAVATION

A. Ensure sequence of excavation operations provides efficient use of excavated materials into embankments and minimum use of borrow.

B. Dispose of excavated materials including unsatisfactory soil materials, cobbles, boulders, rails and obstructions and replace with suitable backfill materials. Urban fill may be screened to remove unsatisfactory material and used provided requirements for suitable backfill are met.

C. Remove and legally dispose of pavements, curbing and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, and other materials encountered that are not classified as rock excavation or unauthorized excavation. Legally dispose of surplus materials resulting from excavation not needed for use on Project as determined by Engineer. Obtain necessary permits for legal disposal of surplus material.

D. Unclassified excavation: excavating to subgrade elevations regardless of surface and subsurface conditions.

E. Classified excavation: excavating to subgrade elevations. Material excavated: classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Engineer.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.

Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated on the drawings.
F. Remove materials encountered to limits shown on Drawings, as specified or required Owner or Engineer.

G. Do not perform excavation below normal grade to remove and replace unsuitable materials until approved by Owner or Engineer.

H. Unauthorized excavation: removal of materials beyond indicated subgrade elevations or dimensions without specific direction.

1. Refilling Unauthorized Excavation
   a. Trenches: use compacted gravel borrow Type b as directed by the Engineer.
   b. Excavation below normal grade
      1) Notify Engineer to observe conditions when excavation has reached required subgrade elevations. Carry excavations deeper and replace excavated material with compacted gravel borrow Type b if unsuitable materials are encountered at required subgrade elevations as directed.

2. Excavation Above Normal Grade
   a. Remove from Site and dispose of legally if unsuitable materials are encountered above normal grade. Do not use unsuitable materials as backfill on any portion of Project.
   b. Use approved suitable stockpiled material to replace unsuitable material to backfill trenches to dimensions as shown on Drawings.

I. Site Clearing
   1. Clear site in accordance with Section 31 10 00.

J. Material Storage
   1. Stockpile and maintain suitable surplus excavated materials for re-use as approved by the Engineer and in accordance with all applicable regulations.

3.4 EXCAVATION IN ASPHALT PAVEMENT AREAS

A. Saw cut or mill to full depth through existing pavement for pipe or structure placement prior to excavation. Minimize disturbance of remaining pavement.

B. Use shoring and bracing where sides of excavation will not stand without undermining pavement.

C. Remove and legally dispose of existing pavements during course of Work. Avoid mixing existing pavement material with excavation material intended for backfill.
3.5 **EXCAVATION FOR TRENCHES**

A. Excavate to widths shown on Drawings or required by field conditions.
B. Produce an evenly graded flat trench bottom at subgrade elevation required for installation of pipe and bedding material.
C. Load excavated material directly into trucks unless otherwise approved.
D. Place backfill material directly into trench or excavation. Do not stockpile material to be used as backfill in traffic areas.

3.6 **EXCAVATION FOR STRUCTURES**

A. Excavate to indicated elevations and dimensions within tolerance of plus or minus 1 inch. Extend excavations sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and inspections.

3.7 **ROCK REMOVAL**

A. Notify Engineer immediately of change in classification. Expose bedrock surface to allow Engineer to perform an elevation survey and take cross-sectional measurements if bedrock is encountered above trench bottom grade or above subgrade elevation.
B. Perform rock excavation by mechanical methods only. Blasting is not allowed.
C. Remove or partially remove boulders exposed on sides or bottom of excavations in accordance with the Contract Drawings or as directed by the Engineer.
D. Refill depressions resulting from removal of boulders and rock with approved compacted bedding material.

3.8 **SHORING AND BRACING**

A. Provide in accordance with Section 31 50 00.

3.9 **BACKFILL AND FILL**

A. General

1. Suspend operations when weather conditions are unsatisfactory for placing backfill and avoid disturbing placed material and approved excavations.
2. Remove and replace excavation or material previously placed that have softened or eroded, soft and yielding material, or other unsuitable or damaged areas with compacted backfill as specified.
3. Do not backfill excavations and trenches until new utilities and structures have been inspected and tested satisfactorily for conformance with Drawings and Specifications unless directed. Place soil material in layers to required elevations as shown on Drawings or specified. Fill, backfill, and compact to produce minimum subsequent settlement of material. Provide support for surface treatment or structure to be placed on material. Place material in approximately horizontal layers beginning at lowest area, maintaining drainage. Replace frozen or saturated soil with suitable soil material.

B. Placement
1. Place backfill and fill materials in layers of maximum 6 inches in loose depth for material compacted by heavy compaction equipment or hand-operated tampers. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

2. Place backfill and fill materials evenly, adjacent to structures, to required elevations. Prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift.

C. Backfilling Excavations
1. Backfill excavations promptly as Work permits and after completion of the following.
   a. Inspection and recording locations of underground utilities and structures
   b. Removal of concrete formwork
   c. Removal of shoring and bracing, and backfilling of voids with satisfactory materials
   d. Removal of trash and debris

2. Where directed or required by utility, backfill under existing utility pipes crossed by new utility pipes with CDF. Extend CDF continuously from bedding of new pipe to utility pipe crossed, including a 6-inch thick envelope around existing utility pipes.

D. Backfilling Trenches
1. Place pipe and structure bedding, and gravel bedding to extent and dimensions shown on Drawings so pipes and structures have complete and uniform bearing.

2. Grade, compact, and shape pipe and structure bedding so full length of pipe barrel has complete and uniform bearing. Dig bell holes and depressions for joints after bedding has been graded and compacted, at proper clearance for jointing pipes.

3. Carefully hand place and compact additional approved bedding to limits shown on Drawings following inspection and approval of pipe installation by Engineer. Perform hand or mechanical tamping on sides of pipe.
4. Restore surface of trenches in cross-country runs to pre-existing conditions as shown on Drawings.

3.10 COMPACTION

A. Use approved methods that produce required degree of compaction throughout entire depth of material placed without damage to new or existing facilities. Adjust moisture content of soil as required. Remove and replace material that is too wet to compact to required density. Compact each layer as Work progresses.

<table>
<thead>
<tr>
<th>Compaction Method</th>
<th>Maximum Stone Size</th>
<th>Maximum Loose Lift Thickness</th>
<th>Minimum Number of Passes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Below Pavement</td>
<td>Less Critical Areas</td>
</tr>
<tr>
<td>Hand-operated vibratory plate or light roller in confined areas</td>
<td>4 inches</td>
<td>6 inches</td>
<td>8 inches</td>
</tr>
<tr>
<td>Hand-operated vibratory drum rollers weighing at least 1,000 pounds in confined areas</td>
<td>6 inches</td>
<td>10 inches</td>
<td>12 inches</td>
</tr>
<tr>
<td>Light vibratory drum roller minimum weight at drum 5,000 pounds, minimum compaction force 10,000 pounds</td>
<td>8 inches</td>
<td>6 inches</td>
<td>18 inches</td>
</tr>
<tr>
<td>Medium vibratory drum roller min. weight at drum 10,000 pounds, minimum compaction force 20,000 pounds</td>
<td>8 inches</td>
<td>6 inches</td>
<td>24 inches</td>
</tr>
</tbody>
</table>
B. Degree of Compaction

<table>
<thead>
<tr>
<th>Fill and Backfill Location</th>
<th>Minimum Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 3 feet under pavement grade</td>
<td>95 percent of</td>
</tr>
<tr>
<td>Below slabs and foundations</td>
<td>95 percent of</td>
</tr>
<tr>
<td>Below top 3 feet under pavement</td>
<td>95 percent of</td>
</tr>
<tr>
<td>Pipe Bedding</td>
<td>92 percent of</td>
</tr>
<tr>
<td>Beside structure foundation walls</td>
<td>95 percent of</td>
</tr>
<tr>
<td>Maximum density</td>
<td>ASTM D698,</td>
</tr>
<tr>
<td>Field density tests</td>
<td>ASTM D1556 (sand cone) or ASTM D6938</td>
</tr>
</tbody>
</table>

3.11 GRADING

A. Uniformly grade areas, including adjacent transition areas. Smooth finished surface within specified tolerances. Compact with uniform levels or slopes between points where elevations are shown, or between points where elevations are shown and existing grades.

B. Grade areas adjacent to structure lines to drain away from structures and prevent ponding.

C. Finish surfaces: free from irregular surface changes and as follows.

  Grade lawn or other unpaved areas to receive topsoil, plus or minus 1 inch above or below subgrade elevation.
  1. Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than plus or minus 1 inch above or below required subgrade elevation.

3.12 RIPRAP

A. Place riprap to full depth of 1.5D50 in one operation without special handwork, measured perpendicular to face of slope to obtain uniform appearance true to line and grade. Place larger stones at bottom of slope. Place stones in close contact with interlocking of face stones and backing stones. Fill openings between stones with smaller stones. Embed, re-orient or discard loose stones or excessively large stones projecting above surface.

3.13 EROSION CONTROL

A. Provide erosion control measures in accordance with Section 01 50 00.

3.14 PROTECTION

A. Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Scarify surface, re-shape, and compact to required density prior to further construction where completed compacted areas are disturbed by subsequent construction operations or adverse weather. Immediately repair any subsequent settling and provide maintenance for remainder of Work.
C. Remove soft or unsuitable material and replace with suitable backfill material prior to paving on sub-grade. Bring low sections, holes, or depressions to required grade with approved material. Shape sub-grade to line, grade, and cross section, and thoroughly compact.

D. Keep roads free of debris. Use watertight vehicles for hauling wet materials over roads and streets. Promptly clean materials dropped or spread by vehicles or when directed by Engineer.

3.15 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

B. Owner may engage a qualified special inspector to perform the following special inspections in addition to the Contractor’s independent testing.

1. Confirm specified fill and backfill are used.

2. Confirm preparation of Site.

3. Observe removal of existing unsuitable foundation materials.

4. Confirm compliance of fill material and maximum lift thickness.

5. Confirm compliance of in-place density of compacted fill with required frequency.

6. Confirm suitability of excavated soils for reuse as fill, including reuse of on-Site soils.

C. Engage an independent testing agency to test compaction of soils in place in accordance with ASTM D1556, ASTM D2167, ASTM D2922, and ASTM D2937.

1. Tests

a. Paved and structure areas: at subgrade and each compacted fill and backfill layer, at least 1 test for every 2,000 square feet or less of paved area or concrete slab, with minimum 3 tests.

b. Foundation walls backfill: at each compacted backfill layer, at least 1 test for every 100 feet or less of wall length, with minimum 2 tests.

c. Trench backfill: at each compacted initial and final backfill layer, at least 1 test for every 150 feet or less of trench length, with minimum 2 tests.

d. Trench pavement subbase: minimum of 1 field density test for every 150 feet or less of trench length, with minimum of 2 tests.
2. Scarify and moisten or aerate or remove and replace soil materials to depth required when testing agency reports subgrades, fills, or backfills have not achieved degree of compaction specified. Re-compact and re-test until specified compaction is obtained.

3. Determine actual in-place densities using field tests as directed.

4. Perform additional Work to obtain proper compaction if in-place densities do not meet specified densities. Retest if directed by Engineer.

3.16 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
PART 1 – GENERAL

1.01 SUMMARY

Section Includes

1. Provide Site clearing and grubbing in accordance with this Section and applicable reference standards listed in Article 1.03.

Related Requirements

1. Section 32 92 19 – Seeding

1.02 PRICE AND PAYMENT PROCEDURES

Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

Definitions

1. Clearing: cutting and disposing of trees, downed timber, stubs, brush, bushes, snags, rubbish, debris, and other objectionable matter and materials and the removal of fences, signs, walks, guard rails, curbs and other items to be restored.

2. Grubbing: removal and disposal of stumps, roots, duff, foundations and other objectionable matter and materials to a minimum of 6 inches below original ground surface.

3. Topsoil: friable loam surface soil found in a depth of not less than 4 inches from the original ground surface.

1.04 ADMINISTRATIVE REQUIREMENTS

Coordination, sequencing, and scheduling: per Division 01 General Requirements.

1.05 SUBMITTALS

Submit in accordance with Division 01 General Requirements.

Closeout and maintenance material submittals: per Division 01 General Requirements.
1.06 QUALITY ASSURANCE

Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE AND HANDLING

Provide in accordance with Division 01 General Requirements.

Store cobblestone walk sections, granite and stone curbs, fences, signs, guard rails and other items removed at approved locations for subsequent reinstallation.

C. Do not obstruct roads, driveways, sidewalks, gutters and drainage ditches, swales and channels with stored materials.

1.08 SITE CONDITIONS

Existing conditions: per Division 01 General Requirements.

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

3.01 EXAMINATION

Verification of Conditions

1. Verify Site conditions. Trees, plantings, vegetation, sidewalks, curbs and other living and nonliving item locations shown on Drawings were determined by actual surveys and conditions may have changed

2. Verify limiting boundaries, such as permanent and temporary easements, property lines, rights-of-way and grading limits, have been located and marked.

3. Verify pipeline routings and other items of Work have been located and marked.

3.02 PREPARATION

A. Mark all trees, plantings and other objects which are to be removed, trimmed, cut, or removed and preserved. Inspect these items with the Engineer prior to start of Work. Do not remove or trim unmarked items unless approved by Engineer.

Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.
C. Protect existing objects not indicated to be removed. Avoid interference with the use of, and passage to and from, adjacent buildings, facilities, driveways, walks, drainage systems and road.

Saw-cut pavements required to be removed in advance, including highways, driveways and walks, but do not remove until the Work is ready to be installed.

Remove highway signs, guard rails and other control, safety and warning devices just prior to the installation of the Work.

Do not remove fences until the property owners affected are notified at least 14 calendar days in advance. Do not remove fencing more than 48 hours in advance unless written permission from property owner is received and authorized by the Engineer.

3.03 IMPLEMENTATION

A. General

1. Use of explosives for clearing and grubbing operations is not allowed.

2. Limit clearing and grubbing to preserve plantings and natural vegetation. Perform Work so that present growth will blend with the limits of construction and a natural appearance will be attained.

3. Confine clearing and grubbing operations to:
   a. areas where Work will be performed but to minimum extent possible to allow proper installation of Work;
   b. within grading limits as shown on the Drawings; and
   c. within Owner easements and property lines of lands owned by Owner.

4. Employ measures to avoid erosion.

5. Do not disturb property markers unless absolutely necessary. If necessary to disturb or remove a property marker, comply with Division 01 General Requirements and employ a registered land surveyor to establish the property marker location, mark area, and replace property marker as soon as possible.

B. Stripping Topsoil

1. Strip topsoil within limits as designated on Drawings or as required to prevent mixing with underlying subsoil or objectionable material.

2. Prevent damage to main root systems of trees indicated to be left standing.

3. Stockpile topsoil in storage piles in areas shown or where directed and provide for drainage of surface water. Protect storage piles to prevent windblown dust and erosion.
4. Surplus loam and topsoil not required for completion of the Work shall remain the property of the Owner, unless otherwise directed. Stockpile surplus material on-Site and maintain and protect until Work is complete.

C. Trees and Plantings

1. Remove only those items marked for removal in grassed, planted and open areas.

2. Trees
   a. Notify Property Owner 14 calendar days in advance of tree trimming.
   b. Remove or trim trees in wooded areas only as required. Minimize damage to trees that are to be left standing. Immediately remove and legally dispose of debris.
   c. Trim trees evenly to achieve neat appearance with the least possible damage to the tree.
   d. Apply wet burlap to prevent drying out where roots are cut or damaged.

D. Pavements, Walks, Curbs and Guard Rails

1. Remove existing pavements, walks, and curbs to the limits shown on Drawings, or if not shown, to the minimum extent possible.


3. Carefully remove cobble, slate and flagstone walks, granite and stone curbs and guard rails to the minimum extent possible. Terminate removals at a joint or guard rail post. Store and protect for reuse.

E. Walls, Fences, and Other Obstructions

1. Carefully remove walls, fences, signs, sheds and other obstructions encountered and store for subsequent replacement after verification with Owner and Engineer.

2. Protect all existing structures to remain during the work.

Promptly remove and legally dispose of materials not specified to be stored or re-used. Do not burn debris unless approved and required permits are obtained.

Replant and restore surfaces. Comply with requirements of Section 32 92 19.

Replace and restor items and materials removed to the original condition, as approved by the Owner.
FIELD QUALITY CONTROL

Provide in accordance with Division 01 General Requirements.

3.05 CLOSEOUT ACTIVITIES

Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 31 50 00

EXCAVATION SUPPORT AND PROTECTION

PART 1 – SUMMARY

A. Section Includes

1. Provide excavation support and protection in accordance with this Section and applicable reference standards listed in Article 1.03.

B. Related Requirements

1. Section 02 61 05 – Removal and Disposal of Contaminated Soil and Water
2. Section 31 00 00 – Earthwork

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. American Institute of Steel Construction (AISC)
   a. Steel Construction Manual
2. ASTM International (ASTM)
   a. ASTM A36 Standard Specification for Carbon Structural Steel
   b. ASTM A307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength
   c. ASTM A328 Standard Specification for Steel Sheet Piling
   d. ASTM A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
   e. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
   f. ASTM A690 Standard Specification for High-Strength Low-Alloy Nickel, Copper, Phosphorus Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments
   g. ASTM A992 Standard Specification for Structural Steel Shapes
3. American Welding Society (AWS)
   a. D1.1 - Structural Welding Code, Steel

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

B. Pre-installation Conference

1. Review existing utilities and subsurface conditions.
2. Review coordination for interruption, shutoff, capping, and continuation of utility services.
3. Review instrumentation and monitoring program, and dewatering program. Confirm coordination with instrumentation and monitoring, and dewatering activities.
4. Review proposed excavations and equipment, monitoring of excavation support and protection system and abandonment or removal of excavation support and protection system.

1.5 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

1. Do not begin excavation requiring support until submittals are approved.

B. Product Data

1. Include construction details, material descriptions, performance properties, dimensions of individual components and profiles, and calculations for excavation support and protection system for each type of product.

C. Shop Drawings

1. Plans, elevations, sections, and details for excavation support and protection system, by professional engineer licensed in Massachusetts.
2. Arrangement, locations, and details of soldier piles, sheet piling, lagging, tiebacks, bracing, and other components of excavation support and protection system.
3. Written plan for excavation support and protection, including sequence of construction of support and protection coordinated with progress of excavation.
D. Calculations and analysis data for excavation support and protection system by professional engineer licensed in Massachusetts.

E. Closeout and maintenance material submittals: per Division 01 General Requirements.

1. Identify locations and depths of capped utilities, abandoned-in-place support and protection systems, and other subsurface structural, electrical, or mechanical conditions on record documents.

1.6 QUALITY ASSURANCE
A. Provide in accordance with Division 01 General Requirements.

B. Qualifications: per Division 01 General Requirements for Installer and professional engineer.

1.7 DELIVERY, STORAGE, AND HANDLING
A. Provide in accordance with Division 01 General Requirements.

1.8 SITE CONDITIONS
A. Existing conditions: per Division 01 General Requirements.

B. Perform test borings and conduct other exploratory operations necessary for excavation support and protection.

C. Verify dimensions and elevations before starting Work. Survey condition of adjoining properties with Engineer. Take photographs, recording any prior settlement or cracking of structures, pavements, and other improvements. Prepare list of existing damages, verified by dated photographs, signed by Contractor, Engineer and others conducting the investigation.

D. Survey adjacent structures and improvements, establishing exact elevations at fixed points to act as benchmarks. Identify benchmarks and record existing elevations. Locate datum level where it will not be affected by excavation operations.

E. Interruption of Existing Utilities

1. Do not interrupt any utility serving facilities without Owner's written permission. Provide temporary utility if required.

2. Provide minimum 5 days’ advance notice of proposed interruption of utility.
PART 2 – PRODUCTS

2.1 MATERIALS

A. Provide shoring and bracing materials, in serviceable condition and adequate for intended purpose.

B. Steel sheet piling and shapes: continuous interlocking type; section modulus, type of section specified, in accordance with ASTM A328, ASTM A572, and ASTM A690, with continuous interlocks.

C. Provide movable box where shoring system is required, and where sheet piling is not specified.

D. Bracing members: wood timbers or steel members in accordance with ASTM A36.

E. Provide bolts in accordance with ASTM A307.

F. Provide structural steel in accordance with ASTM A36, ASTM A690, and ASTM A992.

G. Wood lagging: lumber, mixed hardwood, pressure-treated.

H. Provide reinforcing bars in accordance with ASTM A 615, Grade 60, deformed.

2.2 DESIGN CRITERIA

A. Provide services by professional engineer licensed in Massachusetts, including preparation of Shop Drawings.

B. Design excavation support system in accordance with earth pressures and other criteria indicated, for construction of permanent structures without excessive movement or settlement of adjacent buildings, roadways, structures, or utilities, as shown on Drawings and as specified. Include analysis by professional engineer.

C. Earth support design: coordinated dewatering design incorporating lowest anticipated excavation depths and full differential water head during dewatering.

D. Consult official records of both surface and subsurface existing utilities and connections to verify existing conditions and limitations as they apply to this Work and its relation to other construction work. Proceed with caution in areas of utility facilities. Excavate by hand, or other methods acceptable to utility owner. Protect existing utilities to remain within and adjacent to Work area in accordance with requirements of authorities having jurisdiction.

2.3 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.
PART 3 – EXECUTION

3.1 GENERAL

A. Anchor and brace system to resist earth and hydrostatic pressures, including surcharges from surface loads. Support excavation to prevent undermining or disturbance to foundations of existing structures and utilities, or of ongoing or previously completed Work. Shore, support, and protect utilities encountered.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or adjacent occupied or used facilities without approval. Provide alternate routes around closed or obstructed traffic ways if required.

C. Maintain shoring and bracing while excavation is open.

D. Check base stability.

E. Prevent surface water from entering excavations.

F. Monitor vibrations, settlements, and movements to ensure stability of excavations and constructed slopes to prevent damage to permanent structures.

3.2 STEEL SHEET PILING

A. Install 1-piece sheet piling lengths and interlock vertical edges to form a continuous barrier before starting excavation.

B. Place piling using templates and guide frame unless otherwise specified by sheet piling manufacturer. Limit vertical offset of adjacent sheet piling to 60 inches. Align exposed faces of sheet piling to vary not more than 2 inches from a horizontal line, and not more than 1:120 out of vertical alignment.

C. Remove steel sheet piling following completion of Work where shown on Drawings or directed by Engineer. Obtain approval for steel sheet piling to be left in place.

3.3 BRACING

A. Locate bracing to clear columns, floor framing construction, and other permanent Work. Install new bracing before removing original brace if moved. Do not place bracing where it will be cast into permanent concrete Work unless approved by Engineer.
B. Install internal bracing if required to prevent spreading or distortion of braced frames.

C. Maintain bracing until structural elements are supported by other bracing, or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.4 REPAIR/RESTORATION

A. Remove excavation support and protection systems in stages to avoid disturbing underlying soils and rock, or damaging structures, pavements, facilities, and utilities.

B. Fill voids immediately with approved backfill compacted to density specified in accordance with Section 31 00 00.

C. Repair or replace adjacent Work damaged or displaced by removing excavation support and protection systems.

3.5 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

B. Resurvey benchmarks weekly during installation of excavation support and protection systems, excavation progress, and for as long as excavation remains open. Maintain accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Engineer if changes in elevations or positions occur, or if cracks, sags, or other damage is evident in adjacent construction.

C. Promptly correct detected bulges, breakage, or other evidence of movement to ensure that excavation support and protection system remains stable.

D. Promptly repair damages to adjacent facilities caused by installation or faulty performance of excavation support and protection systems.

3.6 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 32 12 16

ASPHALT PAVING

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Furnish and install Hot Mix Asphalt (HMA) pavement binder and surface courses, saw cutting, gravel for pavement sub-base, temporary trench paving, permanent trench paving, structure protection and adjustments, sidewalks, driveways, bituminous concrete berm and curb, and miscellaneous patching in accordance with this Section and applicable reference standards listed in Article 1.03.

2. Remove and legally dispose of existing pavements and pavement sub-bases. Pavements include, but are not limited to, bituminous, concrete and cobblestone pavements. Pavement sub-bases may include, but are not limited to macadam.

3. Limit area of pavement removed to those shown on Drawings. Pavement removed for Contractor’s convenience shall not be considered for payment.

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. American Association of State Highway and Transportation Officials (AASHTO)

a. AASHTO M320 Standard Specifications for Performance-Graded Asphalt Binder

b. AASHTO T166 Standard Method of Test for Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface-Dry Specimens

c. AASHTO T209 Standard Method of Test for Theoretical Maximum Specific Gravity (Gmm) and Density of Hot Mix Asphalt (HMA)

d. AASHTO TP 68 Standard Method of Test for Density of In-Place Hot-Mix Asphalt (HMA) Pavement by Electronic Surface Contact Devices
2. MassDOT
   a. Standard Specifications and Supplements, and Construction Standard Details

1.4 ADMINISTRATIVE REQUIREMENTS
A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

1.5 SUBMITTALS
A. Submit in accordance with Division 01 General Requirements.
   B. Certificates: manufacturer's certificate verifying conformance.
   C. Mix design: for each grade of pavement used, at least 20 days prior to start of paving.
   D. Source and field quality control submittals
      1. Certified weigh slips for each truck load of bituminous material if required by Owner.
      E. Closeout and maintenance material submittals: per Division 01 General Requirements.

1.6 QUALITY ASSURANCE
A. Provide in accordance with Division 01 General Requirements.
   B. Comply with road opening permits.
   C. Establish and control pavement (aggregate or asphalt base course and asphalt surface course) alignments, grades, elevations, and cross sections as shown on Drawings.

1.7 DELIVERY, STORAGE, AND HANDLING
A. Provide in accordance with Division 01 General Requirements.

1.8 SITE CONDITIONS
A. Existing conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 BITUMEN FOR TACK COAT
A. Provide in accordance with MassDOT Section 460 and Section M3.
2.2 HOT Poured Rubberized Asphalt Sealant
A. Provide in accordance with MassDOT Section 460, Section M3 and Supplemental Specifications.

2.3 Hot Mix Asphalt Surface Course Standard Top
A. Provide in accordance with MassDOT Section 460, Section M3 and Supplemental Specifications.

2.4 Hot Mix Asphalt Binder Course
A. Provide in accordance with MassDOT Section 460, Section M3 and Supplemental Specifications.

2.5 Bituminous Concrete Berm
A. Provide in accordance with MassDOT Section 470, Section M3 and Supplemental Specifications.

2.6 Hot Mix Asphalt for Miscellaneous Work
A. Provide in accordance with MassDOT Section 472, Section M3 and Supplemental Specifications.

2.7 Source Quality Control
A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.1 General
A. Minimize area of pavement removed to suitable width for installation of Work. Legally dispose of existing pavements.

B. Place hot mix asphalt between April 1 and November 15, unless otherwise authorized by the Owner and Engineer.

C. Do not place mix on wet or damp surfaces, or when ambient temperature is 40 degrees F and falling, unless otherwise specified by Owner.
D. Utilize approved dial type thermometer and infrared piston thermometer for each paving machine. Retain thermometer upon completion of Project.

1. Fahrenheit or Celsius selectable
2. Portable and battery operated
3. Repeatability: plus or minus 5 degrees F.
4. LCD display: to nearest 1 degree.
5. Accuracy: plus or minus 2 percent.
6. Emissivity: present at 0.95.
7. Temperature operation range: 0 degrees F to 750 degrees F.

3.2 INSTALLATION

A. Place hot mix asphalt base and top courses on roadways, sidewalks and other areas to maintain traffic access and egress to properties abutting Work, and for safe passage of pedestrian and vehicular traffic in accordance with MassDOT Section 460, Supplemental Specifications, Construction Standard Details and the Contract Drawings.

1. Provide minimum compacted thickness depth of hot mix asphalt base course indicated on Drawings or as directed by Engineer to achieve necessary base course grade in support of finish grade pavement elevations.

2. Apply tack coat at a rate of 0.07 gallons per square yard over milled areas immediately prior to installation of top course, as shown on Drawings or directed by Engineer. Clean surface of sand and foreign matter, and dry before applying tack coat.

3. Apply tack coat at a rate of 0.05 gallons per square yard over hot mix asphalt base course immediately prior to installation of top course, as shown on Drawings or directed by Engineer. Clean surface of sand and foreign matter, and dry before applying tack coat.

4. Provide minimum compacted thickness depth of hot mix asphalt surface course indicated on Drawings or as directed by Engineer to achieve finish grades.
5. Apply hot poured rubberized asphalt sealant to longitudinal and transverse joints.

6. Remove and replace defective mix not conforming to specified mix formula within stipulated tolerances on basis of testing. Samples of mixture in use will be taken as many times daily as necessary, and mixtures maintained uniform as specified. Owner may suspend further approval of plant mixtures in related Work if mixtures are not uniformly furnished as specified, until necessary changes have been made so mixtures conform to specified requirements.

7. Irregularities which may develop before completion of rolling, and while material is still workable, may be remedied by loosening surface mixture and removing or adding material as necessary. If irregularities or surface defects remain after final compaction, defective Work will be corrected by minor surface projections, joints, and minor honeycombed surfaces ironed out smoothly to grade, and as directed.

8. If any soft, imperfect places or spots develop on surface before final acceptance of Work, remove and replace with new materials and compact until edges of new Work seamlessly connect with old Work.

B. Install hot poured rubberized asphalt sealer on roadway cracks less than or equal to 1-inch width. Clean and dry crack to minimum depth of twice the crack width with a high-pressure air blast prior to placing sealer. Apply sealer according to manufacturer’s recommendations.

C. Install hot mix asphalt for miscellaneous Work and handwork on roadway surfaces that cannot be installed mechanically, or as directed by Engineer, in accordance with MassDOT Section 472, Supplemental Specifications, Construction Standard Details and the Contract Drawings.

D. Set manhole covers and gate boxes flush with finish grade of top course.

E. Vehicular traffic or loads are not permitted on newly completed pavement until adequate stability has been attained and material has cooled sufficiently to prevent distortion or loss of fines. If climatic or other conditions warrant it, time-period for opening to traffic may be extended at discretion of the Engineer.

3.3 BITUMINOUS CONCRETE BERM

A. Provide foundation for bituminous concrete berms as shown on Drawings or as directed by Engineer, conforming to requirements for type of berm.

B. Place mixture and compact with machine approved by the Owner for type of berm required.
3.4 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

B. Perform in-place density testing of applicable hot mix asphalt pavement courses. using 6-inch diameter cores in accordance with AASHTO T166 or AASHTO TP 68.

C. Test plane of base and binder course finished surfaces, and top course of compacted mixtures with a 16-foot straightedge. Use of a 10-foot straight edge is allowed on vertical curves. Apply straightedge immediately after first compaction by rolling, and as necessary until and after final compaction of material in place. Hold straightedge in successive positions parallel to road centerline in contact with road surface, and check entire area from 1 side of pavement to the other. Correct irregularities which vary 1/4-inch from true surface in base or binder course.

3.5 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 32 16 14

GRANITE CURBS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes
   1. Remove and reset, or provide new granite curbs in accordance with this Section and applicable reference standards listed in Article 1.03.

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards
   1. ASTM International (ASTM)
      a. ASTM C144 Standard Specification for Aggregate for Masonry Mortar
      b. ASTM C150 Standard Specification for Portland Cement
      c. ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes
      d. ASTM C615 Standard Specification for Granite Dimension Stone
   2. Massachusetts Department of Transportation – Highway Division (MassDOT)
      a. MassDOT Standard Specifications: Section 500
      b. MassDOT Supplemental Specifications: Section 501 and Section 580.
      c. MassDOT Construction Standard Details

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

1.5 SUBMITTALS

A. Submit in accordance with the Division 01 General Requirements.

B. Product data
C. Certificates: manufacturer's certification that products meet Specification requirements.

D. Manufacturer instructions

E. Closeout and maintenance material submittals: per Division 01 General Requirements.

1.6 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

B. Storage and protection

1. Protect curb against staining, chipping, and other damage. Cracked, badly chipped, or stained units will not be accepted.

1.8 SITE CONDITIONS

A. Existing conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 GRANITE CURBS

A. Provide Type VA-4 in accordance with MassDOT Standard and Supplemental Specifications Section M9.

2.2 MORTAR

A. Provide according to MassDOT Section M4.02.15 and MassDOT Supplemental Specifications.

2.3 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.
PART 3 – EXECUTION

3.1 INSPECTION
A. Verify that earthwork is completed to correct line and grade.
B. Confirm subgrade is smooth, compacted, and free of frost or excessive moisture.

3.2 REMOVAL AND RESETTNG
A. Remove and reset curbs, curb inlets and curb corners at locations where required in accordance with MassDOT Section 580, MassDOT Supplemental Specifications, MassDOT Construction Standard Details and the Contract Drawings. Incorporate existing curbs, curb inlets and curb corners before installation of new curb.
B. Remove existing curb in areas indicating remove, stack and reuse, and reinstall prior to installation of curb delivered to Site.

3.3 INSTALLATION
B. Install ends of curbs vertically forming a flush joint when 2 curb stones are placed adjacent to each other.
   1. Maximum joint space; not to exceed 3/4 inches.
   2. Top 6 inches of curb stone: uniform thickness and surface finish.
   3. Radii of curved curb stone: per Drawings.

3.4 FIELD QUALITY CONTROL
A. Provide in accordance with Division 01 General Requirements.

3.5 CLOSEOUT ACTIVITIES
A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Provide pavement markings in accordance with this Section and applicable reference standards listed in Article 1.03.

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. Massachusetts Department of Transportation – Highway Division (MassDOT)
   b. MassDOT Standard Specifications – Section M9
   c. MassDOT Supplemental Specifications

2. Federal Highway Administration (FHWA)
   a. Manual on Uniform Traffic Control Devices (MUTCD)

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

1.5 SUBMITTALS

A. Submit in accordance with the Division 01 General Requirements.

1. Product Data

2. Manufacturer Instructions

B. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.
1.6 QUALITY ASSURANCE
   A. Provide in accordance with Division 01 General Requirements.

1.7 DELIVERY, STORAGE, AND HANDLING
   A. Provide in accordance with Division 01 General Requirements.

1.8 SITE CONDITIONS
   A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 PAVEMENT MARKINGS
   A. Provide in accordance with MassDOT: Section 860, Section M9 and Supplemental Specifications.
   B. Provide thermoplastic reflectorized type conforming to M7.01.03 White and M7.01.04 Yellow.

2.2 SOURCE QUALITY CONTROL
   A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.1 INSTALLATION
   A. Apply and install pavement markings in accordance with FHWA MUTCD, MassDOT Section 860, MassDOT Supplemental Specifications and the Contract Drawings.

3.2 FIELD QUALITY CONTROL
   A. Provide in accordance with Division 01 General Requirements.

3.3 CLOSEOUT ACTIVITIES
   A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 32 92 19

SEEDING

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Provide loam borrow, topsoil, seeding, and supporting materials in accordance with this Section and applicable reference standards listed in Article 1.03.

B. Related Requirements

1. Section 31 11 00 – Site Clearing

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. Association of Official Agricultural Chemists (AOAC)

2. ASTM International (ASTM)

a. ASTM D75 Standard Practice for Sampling Aggregates

b. ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

3. Massachusetts Department of Transportation – Highway Division (MassDOT)

a. Standard Specifications Section 751, Section 765 and Section 766

b. Standard Specifications Section M1 and Section M6

c. Supplemental Specifications

4. United States Department of Agriculture (USDA)

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.
1.5 **SUBMITTALS**

A. Submit in accordance with Division 01 General Requirements.

B. **Certificates**

1. Submit manufacturers or vendors certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.

2. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity germination, and weed seed for each grass seed species.

C. **Samples**

1. Submit Sample of topsoil material from the on-Site stockpile and all off-Site sources to be used for approval by Engineer.

2. Submit proposed schedule indicating dates seeding work is proposed. Work shall be scheduled during typical growing season for Site location. Coordinate with specified maintenance periods to provide maintenance from date of substantial completion. Once accepted, revise dates only as approved in writing, after documentation of reasons for delays.

D. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.

1.6 **QUALITY ASSURANCE**

A. Provide in accordance with Division 01 General Requirements.

B. **Analysis and Standards:** Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

C. **Samples:** Submit following to certified laboratory for analysis.

1. Provide 1 cubic foot representative sample for each 1,000 cubic yards of loam borrow and 1 cubic foot representative sample for each 500 cubic yards of on-Site loam stockpiles. Test in accordance with ASTM D75.

D. **Testing:** Submit samples to a certified laboratory and to complete analysis for gradation, organic content, soil chemistry and pH. Provide results to Owner. Include the following tests:
1. Sieve analysis in compliance with ASTM D6913. Provide computer generated gradation curve from certified laboratory for each sample.

2. Percent organics determined by the loss on ignition of oven-dried samples. Test samples shall pass the #10 sieve and oven dried to constant weight at a temperature of 450°F.

3. Chemical analysis for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, extractable Aluminum, Lead, Zinc, Cadmium, Copper, Soluble Salts, pH and buffer pH. A conductivity meter shall be used to measure Soluble Salts in 1:2 soil/water (v/v). Nutrient test shall be for available nutrients.

4. Provide analysis by certified laboratory for other materials in accordance with AOAC, where applicable.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

B. Packing, shipping, handling and unloading

1. Deliver approved materials in original containers. Package products with manufacturer’s certified analysis including seed mixture, percentage of pure seed, year of production, net weight, date of packaging, and location of packaging.

2. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

3. Remove damaged packages from Site immediately and replace with new, undisturbed material.

1.8 SITE CONDITIONS

A. Existing conditions: per Division 01 General Requirements.

B. Proceed Work as rapidly as portions of Site become available, working within seasonal limitations. Cease Work when conditions detrimental to growth are encountered.

C. Locate underground utilities. Perform Work in a manner that will avoid damage.

D. Install materials during normal planting seasons for Site location.
PART 2 – PRODUCTS

2.1 LOAM BORROW
A. Use suitable topsoil stockpiled for re-use as specified in Section 31 10 00.

2.2 PROCESSED PLANTING MATERIAL
A. Processed planting material shall be from commercial processing facilities specializing in the manufacture of loam and shall comply with MassDOT Section M1.06.1.

2.3 TOPSOIL BORROW
A. Top soil borrow shall consist of fertile, friable, natural topsoil, reasonable free of stumps, roots, stiff clay, stones large than 1-inch diameter, noxious weed, stick brush or other objectional materials and shall conform to MassDOT Section M1.07.0.

2.4 SOIL AMENDMENTS
A. Lime: Natural limestone containing not less than 90 percent total carbonates, ground, so that not less than 98 percent passes a 20-mesh sieve and not less than 40 percent passes a 100-mesh sieve.
B. Fertilizer
1. Bone meal: commercial, raw or steamed, finely ground; minimum of 4 percent nitrogen and 20 percent phosphoric acid.
2. Superphosphate: commercial, phosphate mixture, soluble; minimum of 20 percent available phosphoric acid.
3. Commercial grade: complete fertilizer of neutral character, consisting of fast and slow release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition.
   a. Nitrogen, phosphorous and potassium in amounts recommended in topsoil analysis reports from a qualified soil testing agency.
   b. Minimum 1 pound per 1,000 square feet of actual nitrogen, 4 percent phosphorous and 2 percent potassium by weight.
2.5 EROSION AND SEDIMENTATION CONTROL

A. Anti-erosion mulch: clean, seed-free threshed straw of wheat, rye, oats, or barley. Hay is not permitted.

B. Erosion control mesh: uniform, open-weave jute matting or flexible vinyl mat equivalent to Mira Mat erosion control.

2.6 GRASS MATERIALS

A. Grass Seed: Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analyst of North America. Do not use seed that has become wet, moldy, or damaged. All seed mixtures listed are proportions by weight.

1. Germination: not less than 85 percent

2. Purity: not less than 85 percent

3. Weed content: not more than 1 percent

B. General Lawn Seed Mix: Seed shall be furnished and delivered premixed in the proportions specified below. All seed shall comply with State and Federal seed laws.

1. 60% Kentucky Bluegrass

2. 20% Perennial Ryegrass

3. 20% Chewing Fescue

2.7 MISCELLANEOUS LANDSCAPE MATERIALS

A. Erosion control mesh: Uniform, open weave jute matting or flexible vinyl mat equal to Mira Mat erosion control, and revegetation mat as manufactured by TenCate Mirafi.

2.8 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.1 PREPARATION

A. Protect existing utilities, buildings and private property from damage. Immediately report damage to Owner and Engineer.
B. Prepare subgrade to receive topsoil. Remove contaminated subsoil, foreign materials, plants, roots, weeds, stones, and debris from Site. Do not bury foreign material. Legally dispose of materials removed.

C. Install during typical growing seasons for Site locality.

D. Preparation for Planting Grass

1. Loosen subgrade of grass areas to a minimum of 3-inches. Remove stones over 1-1/2 inches in any dimension, sticks, roots, rubbish and other extraneous matter. Limit preparation to areas that will be planted promptly after preparation.

2. Spread top soil to minimum depth of 4-inches and carefully prepare by spading or harrowing and raking with iron rakes. Remove large, stiff clods, lumps, stones over 1-1/2 inches, brush, roots and other objectional materials. Add specified soil amendments and mix thoroughly into upper 4- inches of topsoil.

3. Use hand roller weighing between 75 and 100 pounds per foot of width and lightly roll to compact. Fill depressions with additional material, re-grade and roll until reasonably smooth and even finish is provided at required grade. Grade to assure positive drainage away from buildings.

4. Take care to ensure debris from hauling operations is minimized. Immediately clean and remove loam or other dirt from surfaces to Owner’s satisfaction.

E. Where seed is to be sown in areas that have not been altered or disturbed by construction operations, prepare soil by tilling to a depth of not less than 6-inches to achieve a homogenous mixture of fine texture, free of lumps, clods, stones greater than 2-inches, roots and other extraneous materials. Rake, lightly roll, remove high areas, fill in depressions and assure positive drainage away from buildings. Apply soil amendments and initial fertilizers as specified.

F. Moisten prepared areas before seeding if soil is dry. Water thoroughly and allow surface moisture to dry before seeding. Prevent muddy soil condition.

G. Restore grassed areas to specified condition if eroded or otherwise disturbed after fine grading and prior to planting.

3.2 SEEDING NEW AREAS

A. Sow seed using a spreader or seeding machine. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over entire area by sowing equal quantity in 2 directions at right angles to each other. Do not sow immediately following rain or when ground is too dry.
B. Seed application rate
   1. All others: 1 pound per 1,000 square feet.
C. Rake seed lightly into top 1/8-inch of soil, roll lightly, and water with a fine spray.

3.3 HYDROSEEDING NEW AREAS
   A. Mix specified seed, limestone, fertilizer and pulverized mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogenous slurry suitable for hydraulic application.
   
   B. Apply slurry using an approved machine capable of maintaining mixture in an agitated state to keep mixture uniformly suspended in water. Spraying equipment shall be designed such that the slurry uniformly distributed with specified quantities of limestone, fertilizer and grass seed.
   
   C. Provide certified statement, prior to start of work, as to the number of pounds of limestone, fertilizer, and grass seed, per 100 gallons of water.

3.4 PROTECTION OF SEEDED SLOPES
   A. Protect seeded slopes against erosion with erosion netting or other methods acceptable to the Engineer.
   
   B. Spread specified lawn mulch after completion of seeding operations to form a continuous blanket not less than 1-1/2-inches loose measurement over seeded areas.
   
   C. Anchor mulch by spraying with asphalt emulsion at the rate of 10 to 13 gallons per 1000 square feet. Take precautions to prevent damage or staining of construction or other plantings adjacent to mulched areas.
   
   D. Cover seeded slopes where grade is 3:1 or greater, unless otherwise noted, with jute matting. Roll matting down over slopes without stretching or pulling.
   
   E. Lay matting smoothly on soil surface, burying top end of each section in narrow 6- inch trench. Leave 12-inch overlap from top roll over bottom roll. Leave 4-inch overlap over adjacent section.
   
   F. Staple outside edges and overlaps at 36-inch intervals.
   
   G. Lightly dress slopes with topsoil to ensure close contact between matting and soil.
   
   H. In ditches, unroll matting in direction of flow. Overlap ends of strips 6 inches with upstream section on top.

3.5 RECONDITIONING EXISTING GRASSED AREAS
   A. Repair all grassed areas disturbed during performance of Work.
B. Recondition existing lawn areas damaged by operations and existing lawn areas where minor re-grading is required.

C. Provide fertilizer, seed, or sod, and soil amendments as specified for new lawns and as required to provide a satisfactorily reconditioned lawn. Provide new topsoil as required to fill low spots and meet new finish grades.

D. Cultivate bare and compacted areas thoroughly to provide a satisfactory planting bed.

E. Remove diseased and unsatisfactory lawn areas. Do not bury into soil. Remove topsoil containing foreign materials resulting from Contractor’s operations.

F. Water newly planted areas and keep moist until new grass is established.

3.6 MAINTENANCE

A. Begin maintenance immediately after seeding.

B. Maintain grassed areas for not less than 60 days after substantial completion, and longer as required to establish an acceptable growth.

C. If seeded in fall, and not given full 60 days of maintenance, or if not considered acceptable at that time, continue maintenance during the following spring until acceptable growth is established.

D. Maintain grass by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, re-grading, and replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas.

3.7 CLEANUP AND PROTECTION

A. Keep surfaces clean. Maintain protection during installation and maintenance periods.

B. Restore surfaces, grassed areas and planted areas damaged during execution of Work.

3.8 INSPECTION AND ACCEPTANCE

A. Work may be inspected for acceptance in parts agreeable to Owner, provided Work offered for inspection is complete, including maintenance.

B. Replace rejected Work and continue specified maintenance until re-inspected by Owner or Engineer and found to be acceptable.

3.9 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.
3.10 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 33 01 10.58
DISINFECTION OF WATER UTILITY PIPING SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY
A. Section Includes
1. Provide disinfection of water utility piping systems by a certified independent third party in accordance with this Section and applicable reference standards listed in Article 1.03.

1.2 PRICE AND PAYMENT PROCEDURES
A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES
A. Reference Standards
1. American Water Works Association (AWWA)
   a. AWWA B300 Hypochlorites
   b. AWWA C651 Disinfecting Water Mains
   c. AWWA C655 Field Dechlorination
2. NSF International (NSF)
   a. NSF/ANSI 60 Drinking Water Treatment Chemicals – Health Effects
   b. NSF/ANSI 61 Drinking Water System Components – Health Effects

1.4 ADMINISTRATIVE REQUIREMENTS
A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.
B. Perform disinfection after completing preliminary flushing of water utility piping systems, and after pressure and leakage testing of water utility piping systems are complete and approved by Engineer.
C. Coordinate final flushing with Owner.
1.5 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

B. Product data: Safety Data Sheets (SDS).

C. Certificates

1. Certificate of compliance verifying independent commercial laboratory performing bacteriological sampling analyses is certified with the state Department of Environmental Protection for analyzing public drinking water supplies.

2. Certified bacteriological test results

D. Source and field quality control submittals

1. Disinfection procedures, including flushing locations, rates of flushing, discharge locations, chlorine form, method of chlorination, procedures for measuring potable water supply, procedures for measuring free chlorine residual, sampling locations and number and frequency of samples for bacteriological tests.

2. Dechlorination plan

3. Free chlorine residual test results

E. Qualification statements: names and qualifications of firm performing disinfection and dechlorination work.

F. Closeout and maintenance material submittals: per Division 01 General Requirements.

1.6 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

B. Qualifications: per Division 01 General Requirements and as follows.

1. Certified, independent, third party firm with minimum 5 years’ experience with disinfection and dechlorination of water utility piping systems.

C. Regulatory approvals

1. Chemicals in contact with raw or drinking water meet NSF 60 Drinking Water Treatment Chemicals – Health Effects.

2. Products in contact with raw or drinking water meet NSF 61 Drinking Water System Components – Health Effects.
D. Independent testing: bacteriological analyses by an independent commercial laboratory certified by the State Department of Environmental Protection for analyzing public drinking water supplies.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.8 SITE CONDITIONS

A. Existing conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Chlorine: liquid sodium hypochlorite or granular calcium hypochlorite conforming to AWWA B300.

2.2 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.1 DISINFECTION

A. Disinfect new water utility piping systems utilizing continuous-feed method in accordance with AWWA C651 before being placed into service.

B. Utilize potable water from existing distribution system or other sources of supply approved by Owner.

C. Prevent contaminated or highly chlorinated water from entering existing, new or previously disinfected water utility piping systems.

D. Provide chemical feed pumps for chlorine solutions to provide accurate measurement of chlorine being introduced.

E. Provide sampling taps to allow for sampling in accordance with AWWA C651. At a minimum, sampling taps shall be provided at each end of the new main, at 1,200 linear foot intervals, and disinfected branch line greater than 18 feet, unless otherwise shown on the Drawings or required by Owner. Hoses and fire hydrants shall not be considered acceptable sampling locations.

F. Disinfect final connections to existing mains in accordance with AWWA C651.
3.2 FINAL FLUSHING

A. Flush new water utility piping systems in accordance with AWWA C651 following a minimum 24-hour disinfection retention period with a free chlorine residual of not less than 10 mg/l. Prevent contaminated or highly chlorinated water from entering existing, new or previously disinfected piping systems and the environment.

B. After the retention period described above, flush the heavily chlorinated water using water from the existing main. Coordinate flushing with Owner and take necessary measures to prevent damage or flooding. Continuously flush heavily chlorinated water until background conditions are restored.

C. Neutralize chlorine residual of disposed flushing water by chemical dechlorination in accordance with AWWA C655. Provide equipment to dechlorinate at flushing rates indicated.

D. Comply with Federal, State and local regulations for disposal of flushing water.

3.3 BACTERIOLOGICAL TESTS

A. Collect samples at each sampling location in accordance with AWWA C651 after final flushing and before water utility piping systems are placed into service.

B. Perform sampling in accordance with Option A of AWWA C651, Section 5.1.1.1.

C. Passing laboratory results: absence of any coliform bacteria and heterotrophic plate count (HPC) less than 500/ml in both sets of samples.

A. Re-flush and re-sample water utility piping systems if either set of samples fails to produce passing results in accordance with AWWA C651. If resampling results fail, re-chlorinate, re-flush and re-sample in accordance with AWWA C651 until passing results are obtained.

3.4 REPAIR/RESTORATION

A. Remove temporary blow-off and sample lines down to corporation stop once water utility piping system has been accepted and placed into service.

3.5 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

B. Provide certified, independent third-party firm to perform field testing of free chlorine residuals to ensure appropriate concentrations are being achieved during disinfection in accordance with AWWA C651, and during flushing water disposal in accordance with AWWA C655.
3.6 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 33 01 10.73
LINE STOPS

PART 1 - GENERAL

1. Provide line stops, fittings and associated installation, including excavation in accordance with this Section and applicable reference standards listed in Article 1.03.

2. Excavation, shoring, bracing, backfill, compaction, preparation of pipe, tapping of pipe, stopping flow and thrust restraint.

B. Related Requirements

1. Section 01 50 00 – Temporary Facilities and Controls
2. Section 02 61 05 – Removal and Disposal of Contaminated Soil and Water
3. Section 31 00 00 – Earthwork
4. Section 31 50 00 – Excavation Support and Protection
5. Section 33 14 11.01 - Water Utility Piping – Ductile Iron

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. ASTM International (ASTM)


   b. ASTM A193 – Standard Specification for Alloy-Steel and Stainless-Steel Bolting for High Temperature or High-Pressure Service and Other Special Purpose Applications.

   c. ASTM A194 – Standard Specification for Carbon Steel, Alloy Steel, and Stainless-Steel Nuts for Bolts for High
Pressure or High Temperature Service, or Both.


f. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs 60,000 PSI Tensile Strength.


h. ASTM D2000 – Standard Classification System for Rubber Products in Automotive Applications.

2. American Water Works Association (AWWA)

a. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pressure Pipe and Fittings.


c. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

d. AWWA C115 - Standard for Flanged Ductile-Iron Pipe with Threaded Flanges

e. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds for Water or Other Liquids.


g. AWWA C213 – Fusion-Bonded Epoxy Coatings and Linings for Steel Water Pipe and Fittings

h. AWWA C223 – Fabricated Steel and Stainless-Steel Tapping Sleeves.

i. AWWA C228 – Stainless-Steel Pipe Flange Joints for Water Service – Sizes 2 In. Through 72 In. (50 mm Through 1,800 mm)
j. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.

k. AWWA C651 - Disinfecting Water Mains

3. American National Standards Institute (ANSI)
   b. ANSI B16.42 – Ductile Iron Pipe Flanges and Flanged Fittings

   a. MSS-SP-60 – Connecting Flange Joints between Tapping Sleeves and Tapping Valves.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, sequencing and scheduling: per Division 01 of the General Requirements.

B. Unless directed by Owner, do not operate valves required to isolate the Work.

C. Obtain necessary dewatering permits at no additional cost to the Owner. Dewater access pits and existing water mains in accordance with permit requirements and local Conservation Commission bylaws.

1.5 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

B. Product data: manufacturer’s product data and installation instructions for each product specified.

C. Shop Drawings

D. Sample and Mockups: as specified in Article 1.06.

E. Certificates: notarized manufacturer's certificate of conformance with the standards and specification requirements.

F. Design Data and Submittals

1. Provide concrete thrust restraint designed by a professional engineer licensed in Massachusetts to counteract thrust forces encountered at each line stop location. Submit thrust restraint
calculations and dimensions for review with materials submittals.

2. Schedule for pre-excavation of access pit locations and method of supporting and covering access excavations during non-working hours.

G. Closeout and maintenance material submittals: per Division 01 General Requirements.

1. Record depth and take ties for Conformed to Construction Records.

1.6 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

B. Comply with Owner requirements.

C. Comply with AWWA C223, AWWA C600, AWWA C651 including Section 4.3, for cleanliness, NSF 61 and NSF 372.

D. Provide services of a licensed subcontractor specializing in installation of line stops. Licensed subcontractor shall have successfully completed at least 3 line-stop installations of the sizes proposed on Drawings in the past 10 years. Submit line stop subcontractor qualifications with materials submittal for review.

1.7 DELIVERY, STORAGE AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

B. Packing, Shipping, Handling, and Unloading

1. Each shipment to include manufacturer’s certificate of conformance.

C. Acceptance at Site

1. Inspect upon delivery and reject materials that do not conform to the specified requirements or show signs of damage during shipping. Mark and immediately remove damaged or rejected materials from the Site and dispose of legally.

1.8 SITE CONDITIONS

A. Existing conditions: per Division 01 General Requirements.
PART 2 - PRODUCTS

2.1 GENERAL

A. Products in contact with drinking water must meet NSF/ANSI 61 and NSF/ANSI 372.

B. Materials shall comply with the requirements of the Safe Drinking Water Act and U.S. Environmental Protection Agency

2.2 TAPPING SLEEVE

A. Body: ASTM A536 ductile iron or Type 304 stainless steel in conformance with AWWA C223; full circumferential seal; sized appropriately for the point of installation. Measure outside diameter of pipe at installation location prior to ordering materials.

B. Outlet Flange: ductile iron or Type 304 stainless steel meeting or exceeding the requirements of AWWA C228; compatible with ANSI B16.1, class 125 and B16.42, class 150; recessed for tapping valve in accordance with MSS- SP-60.

C. Completion Plug: ductile iron conforming to ASTM A536; fusion bonded epoxy finish meeting AWWA C213; designed for use with tapping and stopping equipment.

D. Cover Plate: carbon steel conforming to ASTM A283C; compatible with ANSI B16.1, class 125 and B16.42, class 150; designed for pressure sealing application.

E. Test Plug: 3/4-inch NTP Type 304 stainless steel; hex head; threads coated to prevent galling.

F. Gaskets

1. O-ring; Nitrile (Buna-N) per ASTM D2000, compounded to resists water, oil, acids, alkalies and other chemicals.

2. Cover: Styrene-Butadiene (SBR) “Red Rubber”; full face ANSI B16.1, class 125 and B16.42, class 150; compounded to resist water, oil, acids, alkalies and other chemicals.

G. Welds and Hardware

1. Welds: accomplished by qualified welders utilizing GMAW weld process.

2. Set screw: carbon steel; socket head cup point; designed to engage
and retain completion plug.

3. Flange plug: carbon steel; 3/4-inch NPT socket head, designed to seal flange pressure.

4. Bolts nuts, washers: type 304 stainless steel; rolled threads; coated to prevent galling.

H. Working Pressure: 200 psi.

2.3 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate Work with Owner.

B. Perform excavation and backfill in accordance with Section 31 00 00. Support trenches in accordance with Section 31 50 00.

C. Coordinate and schedule Work required to be performed outside of normal business hours per Contract Drawings or per direction of Owner with Owner and Engineer.

3.2 INSTALLATION

A. Field verify line stop location with Owner and Engineer.

B. Confirm outside pipe diameter, inside pipe diameter, design pressure and operating pressure prior to ordering line stop materials.

C. Confirm range marked on line stop sleeve with pipe diameter prior to installation to ensure installation of appropriately sized sleeve.

D. Excavate trench to size and dimensions required by line stop sub-contractor for access and installation of Work. Thoroughly clean pipe surface to remove all dirt, rock, scale and foreign material in area where line stop sleeve is to be installed.

E. Provide timbers and cribbing required for temporary support of pipe and materials.

F. Install line stop sleeve in accordance with manufacturer’s installation instructions and pressure test to minimum 1.5 times pipeline pressure.
G. Pour concrete support and thrust restraint. Provide 5,000 psi high early concrete unless otherwise required by line stop sub-contractor and approved by Engineer. Allow concrete to cure 24-hours before installing line stop equipment.

H. Schedule line stop insertion with Owner. Line stop insertion shall be scheduled as noted on the Contract Drawings or required by Owner.

I. Mount temporary tapping valve to line stop fitting. Mount tapping machine, open temporary valve and pressure tap pipe. Retract cutter, close temporary valve and remove tapping machine. Provide coupon to Owner being careful to keep coupon intact.

J. Mount line stop machine, open temporary valve and insert line stop head into main. Test for shutdown at drain nozzle, hydrant or other blow-off point. Provide blow-off point as necessary at no additional cost to Owner.

K. Cut downstream main and install valves and fittings as proposed.

L. Retract line stop head, close temporary valve and remove line stop machine.

M. Install completion machine, open valve and insert completion plug. Remove completion machine and temporary valve open insertion of completion plug.

N. Install blind flange in accordance with manufacturer’s specifications and backfill in accordance with Contract documents.

### 3.3 THRUST AND SUPPORT BLOCKING

A. Submit thrust restraint design calculations for line stops to Owner for review at least five (5) working days in advance of mounting temporary valve and pressure tapping machinery. Thrust restraints shall be designed and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. Concrete thrust and support blocking shall be installed in accordance with reviewed submittal. Blocking shall reach a minimum cure strength specified by submittal before any valves or machinery shall be mounted onto the line stop fitting.

### 3.4 CUTTING OPERATION

A. Drilling equipment: in good condition, and equipped with power drive to insure smooth cutting and to minimize shock and vibration. Cutting equipment shall be carbide tipped and capable of being renewed without removal from Site.
3.5 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

3.6 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.
SECTION 33 14 11.01
WATER UTILITY PIPING - DUCTILE IRON

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Provide ductile iron water utility piping, fittings, couplings and joint restraints in accordance with this Section and applicable reference standards listed in Article 1.03.

B. Related Requirements

1. Section 01 50 00 – Temporary Facilities and Controls
2. Section 01 51 38 – Temporary Water Bypass
3. Section 02 61 05 – Removal and Disposal of Contaminated Soil and Water
4. Section 31 00 00 – Earthwork
5. Section 31 50 00 – Excavation Support and Protection
6. Section 32 12 16 – Asphalt Paving
7. Section 32 16 14 – Granite Curbs
8. Section 32 92 19 – Seeding
9. Section 33 01 10.58 – Disinfection of Water Utility Piping Systems
10. Section 33 14 19 – Valves and Hydrants for Water Utility Service
11. Section 33 13 21 – Water Service Connections - Copper

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. ASTM International (ASTM)

a. ASTM A536 Standard Specification for Ductile Iron Castings
2. American Water Works Association (AWWA)
   a. AWWA C104 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
   b. AWWA C110 Ductile-Iron and Gray-Iron Fittings
   c. AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
   d. AWWA C151 Ductile-Iron Pipe, Centrifugally Cast
   e. AWWA C153 Ductile-Iron Compact Fittings
   f. AWWA C600 Installation of Ductile-Iron Mains and Their Appurtenances
   g. AWWA C651 Disinfecting Water Mains
   h. AWWA M41 Ductile-Iron Pipe and Fittings
3. NSF International (NSF)
   a. NSF/ANSI 61 Drinking Water System Components-Health Effects
4. Underwriters Laboratories (UL)
5. Factory Mutual (FM)

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

1.5 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.
B. Product data: manufacturer’s data including dimensions, coatings, and installation instructions for each product.
C. Manufacturers’ certificates verifying conformance
D. Source and field quality control submittals: inspection and testing logs, and test results.
E. Closeout and maintenance material submittals: per Division 01 General Requirements.
1. Record depth and take ties as directed by Engineer for construction records.
1.6 **QUALITY ASSURANCE**

A. Provide in accordance with Division 01 General Requirements.

B. Regulatory approvals

1. Comply with state and local plumbing codes. If there are conflicts, apply the more stringent code.

C. Comply with the requirements of AWWA C600, and Section 4.8 of AWWA C651 for cleanliness.

D. Comply with requirements of NSF/ANSI 61 and 372.

1.7 **DELIVERY, STORAGE, AND HANDLING**

A. Provide in accordance with Division 01 General Requirements.

B. Packing, shipping, handling, and unloading

1. Comply with manufacturer’s recommendations for loading, unloading and storage.

2. Protect flanges and fittings from moisture and dirt by storing inside or package with durable, waterproof wrapping.

3. Unload and string pipe. Lift pipe off truck and place on ground according to manufacturer’s recommendations. Do not roll pipe off the truck or drop. Stack pipe maximum 3 layers high with proper blocking between layers.

C. Acceptance at Site

1. Confirm each shipment of pipe, fittings, and appurtenances includes manufacturers’ Certificate of Conformance.

2. Inspect upon delivery and reject pipe not in conformance with specified requirements, or damaged beyond repair. Mark and immediately remove damaged pipe from Site and dispose of legally.

1.8 **SITE CONDITIONS**

A. Existing conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 **GENERAL**

A. Pipe, fittings and joint restraints: in accordance with NSF 61.

B. Furnish products manufactured in the United States.
2.2 DUCTILE IRON PIPE

A. Performance/Design Criteria
1. Conform to AWWA C151.
2. Thickness: Class 52.
3. Diameter: as shown on Drawings.
4. Joint type: rubber gasketed, push-on according to AWWA C111.
5. Pipe lubricant: suitable for use in potable water supply.
6. Interior lining: double thickness cement mortar lining and asphaltic seal coat conforming to AWWA C104.
7. Exterior: factory applied bituminous coating in accordance with AWWA 151.

B. Manufacturers
1. U.S. Pipe
2. American Cast Iron Pipe Company
3. McWane Ductile
4. Or equal

2.3 FITTINGS

A. Performance/Design Criteria
1. Ductile iron fittings: in accordance with AWWA C110 or AWWA C153.
2. Rated working pressure: 350 psi for 3-inch through 24-inch diameter and 250 psi working pressure for 30-inch through 48-inch diameter.
4. Interior lining: double thickness cement mortar lining and asphaltic seal coat conforming to AWWA C104.
5. Exterior: Factory applied bituminous coated in accordance with AWWA C151.

B. Manufacturers
1. U.S. Pipe
2. American Cast Iron Pipe Company
3. Tyler Union
4. Or equal

2.4 **SOLID SLEEVE COUPLINGS**

A. Performance/Design Criteria
   1. Type: restrained solid sleeve.
   2. Conform to AWWA C153.
   3. Rated working pressure: 350 psi for 3-inch through 24-inch diameter and 250 psi working pressure for 30-inch through 48-inch diameter.

B. Manufacturers
   1. U.S. Pipe
   2. American Cast Iron Pipe Company
   3. Tyler Union
   4. Or equal

2.5 **JOINT RESTRAINT**

A. Concrete thrust blocks: 3,000 psi concrete minimum and sized according to thrust block schedule shown on Drawings.

B. Mechanical Joint Restraint
   1. Type: mechanical joint restraint gland with multiple gripping wedges and torque limiting twist off nuts.
   2. Materials: grade 65-45-12 ductile iron conforming to ASTM A536 for gland body, wedge and wedge actuating components.
   3. Wedges: heat treated to hardness range of 370 to 470 BHN.
   4. Rated working pressure: 350 psi for 3-inch to 16-inch diameter and 250 psi for 18-inch to 48-inch diameter.
   5. Coating: fusion bonded epoxy.
   6. Manufacturers
      a. EBAA Iron Inc
b. Ford Meter Box Company
c. Tyler Union
d. Smith-Blair
e. Or equal

C. Push-on joint restraint
1. Type: rubber gasket with stainless steel locking segments compatible with pipe.
2. Conform to AWWA C111.
3. Rated working pressure: 350 psi up to 24-inch diameter.
4. Manufacturers
   a. U.S. Pipe
   b. American Cast Iron Pipe Company
   c. McWane Ductile
   d. Or equal

2.6 SOURCE QUALITY CONTROL
A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.1 GENERAL
A. Coordinate Work with Owner.
B. Perform excavation and backfill according to Section 31 00 00. Support trenches in accordance with Section 31 50 00.
C. Install according to manufacturer’s installation instructions, AWWA C600, AWWA C651, as shown on Drawings and as specified.

3.2 INSTALLATION
A. Make joints in dry trench according to manufacturer's recommendations and best practices for class of exterior pipe laid. Wipe ends of pipe clean with dry cloth before making joint.
B. Lay pipe to line and grades shown on Drawings and to the satisfaction of the Owner. Line and grade may be adjusted by Engineer to meet field conditions.

C. Install pipe with minimum 5 feet of cover, measured from pipe crown to finished grade, as shown on Drawings or approved by Engineer.

D. Use off-sets or joint deflection according to allowances specified to transition from existing pipe elevation to new pipe elevation with less than 5 feet of cover.

1. Insulate pipe within 3 feet of culvert or with less than 5 feet of cover with minimum 4-inch, 40-pound density Styrofoam material. Extend insulation the width of the trench, minimum 4 feet above pipe envelope and on vertical sides of trench bottom from bottom to above pipe envelope.

2. Joint deflection: according to AWWA C600 or maximum allowable deflection permitted by manufacturer.

3. Install pipe beginning at stub end unless otherwise approved by Engineer. Clean interior of pipe length before laying next length. Cover pipe end with construction cap when Work is stopped temporarily or for extended period. Keep trench free from water. Do not lay or test pipe in a wet trench. Do not cover or backfill trench until approved by Engineer.

E. Pipe Cutting

1. Pipe may be cut to provide shorter sections for construction using a saw or milling process recommended by pipe manufacturer.

2. Cut end of pipe square to the axis of the pipe, grind any rough edges smooth, and bevel where being used for push-on joints.

F. Thrust Restraint

1. Provide for water utility piping where bends, tees, plugs, reducers, couplings, hydrants, or valves are installed.

2. Utilize both concrete thrust blocks and restrained joints.

3. Cast concrete against undisturbed earth and place support to not interfere with making joints. Protect bolts with #15 roofing felt.

4. Length of restrained joints: according to AWWA M41. Anticipate and install restraints prior to bend or valve.

G. Repair clamps are not considered permanent repairs. Cut out defective sections and replace using solid sleeve couplings.

H. Lay pipe to point directed where connecting pipe or structures have not yet been installed. Plug or cap end. Identify terminal point with stake extending above
ground, marked to indicate size and service. Provide temporary thrust restraint as required.

I. Vertical Separation from Sanitary Sewer at Crossings

Where possible, install water main a minimum of 18 inches above the top of the sewer main or services at crossings. Align a 20-linear foot pipe section with the center of the sewer crossing so water main joints will be equidistant and as far from the sewer as possible.

J. Vertical Separation from Storm Drain at Crossings

1. Where possible, install water main a minimum of 18 inches above or below storm drain.

3.3 FILLING AND PRELIMINARY FLUSHING

A. Fill and flush new water utility piping system according to AWWA C600 and AWWA C651 prior to performing water main testing. Prevent contaminated water from entering existing, new or previously disinfected piping systems.

B. Preliminary flushing: Prior to disinfecting the new main, flush using water from existing main in accordance with AWWA C651. Fill the main in a manner that will remove air pockets and flush with velocities sufficient to remove particulates. Refer to Section 33 01 10.58 and AWWA C651 for disinfection requirements.

C. Coordinate flushing with Owner and take necessary measures to prevent damage or flooding.

3.4 WATER MAIN TESTING

A. Perform pressure and leakage tests according to AWWA C600 and requirements below after preliminary flushing, witnessed by Engineer. Pressure and leakage testing shall be completed by a certified, independent, third party testing firm.

1. Hydrostatic testing: minimum of 2 hours. Test pressure: 1.5 times working pressure at lowest point, not less than 150 psi. Do not allow test pressure to exceed rated working pressure for any joint, restraint, valve, fitting, or connected appurtenance.

2. Determine allowable leakage for ductile iron pipe as follows.

\[ L = \frac{SDP^{\frac{1}{2}}}{148,000} \]

*Where L is allowable leakage in gallons per hour, S is length of pipe in feet, D is nominal diameter in inches, and P is average test pressure in psi.*
a. Recommended Allowable Leakage Per 1,000-Feet of Pipeline in Gallons per Hour

b. Allowable leakage will be the sum of computed leakage for each size if pipeline under test contains sections of various diameters.

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3.5 ABANDONED UTILITIES

A. Close open ends of abandoned underground utilities not designated for removal. Provide closure to withstand hydrostatic or earth pressure which may result after ends of abandoned utilities have been closed acceptable to Engineer.

3.6 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

3.7 REPAIR/RESTORATION

A. Repair leaks and defective Work and retest until installation is accepted.

B. Restore disturbed surface areas as follows.

1. Paved areas, including bituminous curbing and bituminous sidewalks: per Section 32 12 16.

2. Sidewalks: per Section 32 12 16.


4. Lawn areas: per Section 32 92 19.
C. Replace materials and items removed for performance of Work and restore disturbed areas to original conditions.

3.8 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 33 14 19

VALVES AND HYDRANTS FOR WATER UTILITY SERVICE

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

Provide valves, hydrants, and appurtenances in accordance with this Section and applicable reference standards listed in Article 1.03.

B. Related Requirements

1. Section 01 51 38 – Temporary Water Bypass

Section 02 61 05 – Removal and Disposal of Contaminated Soil and Water

Section 31 00 00 – Earthwork

Section 32 12 16 – Asphalt Paving

Section 32 92 19 – Seeding

Section 33 14 11.01 – Water Utility Piping – Ductile Iron

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. American Society of Mechanical Engineers (ASME)

ASME B16.1 Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250

2. ASTM International (ASTM)

ASTM A536 Standard Specification for Ductile Iron Castings

3. American Water Works Association (AWWA)

AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C502 Dry-Barrel Fire Hydrants
AWWA C509 Resilient-Seated Gate Valves for Water Supply Service
AWWA C515 Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service
AWWA C550 Protective Interior Coatings for Valves and Hydrants
AWWA C600 Installation of Ductile-Iron Mains and Their Appurtenances
AWWA C651 Disinfecting Water Mains Manufacturers

4. Standardization Society (MSS)
MSS SP-60 Connecting Flange Joints Between Tapping Sleeves and Tapping Valves

5. NSF International (NSF)
   NSF/ANSI 61 Drinking Water System Components - Health Effects
   NSF/ANSI 372 Drinking Water System Components – Lead Content

6. Underwriters Laboratories (UL) Factory Mutual (FM)

1.4 ADMINISTRATIVE REQUIREMENTS
A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

1.5 SUBMITTALS
A. Submit in accordance with Division 01 General Requirements.
B. Product data: manufacturer’s product data and installation instructions for each product specified.
C. Shop Drawings
D. Certificates: manufacturer’s notarized certificate, certifying conformance with specified standards and requirements to accompany shipments.
E. Closeout and maintenance material submittals: per Division 01 General Requirements.
1.6 QUALITY ASSURANCE
A. Provide in accordance with Division 01 General Requirements.
B. Comply with requirements of AWWA C600, and Section 4.8 of AWWA C651 for cleanliness.
C. Comply with requirements of NSF/ANSI 61 and 372.

1.7 DELIVERY, STORAGE, AND HANDLING
A. Provide in accordance with Division 01 General Requirements.
B. Packing, shipping, handling and unloading
   1. Each shipment to include manufacturer’s certificate of conformance.
      Comply with manufacturer’s recommendations for loading, unloading and storage.
      Inspect upon delivery and reject pipe not in conformance with specified requirements, or damaged beyond repair. Mark and immediately remove damaged pipe from Site and dispose of legally.

1.8 SITE CONDITIONS
A. Existing conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 GENERAL
A. Products in contact with raw or drinking water must meet NSF/ANSI 61 and NSF/ANSI 372.
B. Materials provided shall be new, approved for use and purchased specifically for the Project.

2.2 GATE VALVES
A. Resilient wedge of non-rising stem (NSR) type meeting AWWA C515, with a 2-inch square AWWA operating nut opening RIGHT (CLOCKWISE), UL listed, and FM approved and with smooth, round, unobstructed flow way.
B. Ductile iron valve body, bonnet, disc, stuffing box and operating nut.
C. Wedge: ductile iron, fully encapsulated EPDM Rubber.
D. Stem and stem nut: silicon bronze stem and ductile iron nut.
E. Stem seals: triple O-rings, 2 above thrust collar, 1 below.

F. Stuffing box and bonnet sealing: nitrile O-rings.

G. Exterior nuts and bolts: Type 304 or 316 stainless steel.

H. Maximum working pressure: 350 psi.

I. Standard mechanical joint ends in accordance with AWWA C111.

J. Interior and exterior surfaces coated with fusion bonded epoxy coating in accordance with AWWA C550, and certified per NSF/ANSI 61.

K. Manufacturers

1. Mueller Corporation
2. U.S. Pipe Valve & Hydrant, LLC
3. American Cast Iron Pipe Company
Or equal

2.3 VALVE BOXES

A. Heavy duty cast iron, two-piece slide type in accordance with ASTM A48, and manufactured in the United States. Telescoping, adjustable heavy-pattern type, inside diameter minimum 5-1/4 inches, designed to prevent transmission of traffic loads, adjustable through minimum 6 inches vertically without reduction of lap between sections to less than 4 inches, and length necessary to suit ground elevation. Covers: close fitting, dirt-tight, with WATER cast-in. Top of cover: flush with top of box rim.

2.4 INSERTION VALVES

A. Insertion valves shall consist of a tapping sleeve and a valve assembly capable of providing an effective shut-down of water service on existing water main.

B. The tapping sleeve shall meet the following requirements:

1. Sleeve shall be fabricated to assure a 360° seal around the pipe under working pressures up to 150 psi and test pressures up to 225 psi.

2. Sleeve shall be designed to accommodate the equipment and fixtures necessary to drill and ream the pipe and install the insertion valve without any interruption in water service.

3. Sleeve shall be ASTM A-36 steel, coated with fusion-bonded epoxy to 10-12 mils. Epoxy shall meet requirements of AWWA C-213.
4. A special flange and neck shall be used that mates with the valve installation equipment and insertion valve, ensuring proper alignment, support and sealing.

5. Lugs on the sleeve shall be configured to properly align the sleeve halves during installation, provide a bolting surface and assure a $360^\circ$ seal.

6. Bolts and nuts shall be high strength low alloy steel bolts and nuts meeting AWWA standard C-111.

7. All gaskets shall be made of Styrene Butadiene Rubber (SBR) compounded for potable water service in accordance with ASTM D2000 3 BA715. The gaskets shall provide a positive $360^\circ$ seal on the pipe and assure a tight, durable and resilient seal at the pipe sleeve — valve insert junction.

C. The valve assembly shall meet the following requirements:

1. The valve assembly, when installed in the sleeve, shall perform as a water control device with an effective shutoff of the flow of water. The valve is installed in the open position, under water pressure without any interruption of water service. The valve shall provide an unobstructed full flow waterway after installation.

2. The insert shall consist of a ductile iron casting coated with SBR rubber compounded for water service with a durometer of 55 Shore A. The insert shall seal on the inside diameter of the sleeve neck and the lower half of the water main.

3. The stem and nut assembly shall meet the requirements of AWWA C-500, of latest revision.

4. A flange made of ASTM A-36 steel shall be used. The flange shall hold the valve assembly together and act to seal against the valve sleeve flange.

5. The valve flange gasket shall be made of SBR rubber, compounded for water service in accordance with ASTM D2000 3 BA715, with a durometer of 70 Shore A. The gasket shall act as the sealing interface between the valve flange and the sleeve flange.

6. Bolts and nuts shall be grade 3 alloy steel, zinc plated for corrosion protection.

2.5 HYDRANTS

A. For standardization, hydrants shall be Mueller Super Centurion, Model 250 (with or without AquaGrip System) as manufactured by Mueller Co., or Darling B-62-B as manufactured by American Valve & Hydrant, or approved equal.
B. Dry barrel type meeting or exceeding requirements of AWWA C502 with full flow openings, compression type main valve capable of opening and closing against inlet pressure and draining system.

C. Hydrant shall have a bronze operating nut and shall open RIGHT (CLOCKWISE) with an arrow and the word OPEN cast into body or bonnet of hydrant to indicate turn direction.

D. Working pressure: 200 psi.

E. Ductile iron upper barrel, lower barrel, base and housing.

F. Below grade nuts and bolts: non-metric, Type 304 stainless steel.

G. Provide with the following.

   Traffic type at ground line 5-1/2 foot bury

   6-inch mechanical joint shoe with fusion bonded epoxy coating 5-1/4-inch valve opening

   Two, 2-1/2-inch NST hose nozzles

   One, 4-1/2-inch NST steamer nozzle

   One operating nut - pentagon shape

   6-inch minimum inside barrel diameter

   Paint: Factory coated epoxy primer and two coats epoxy top coating per Article 2.05.

   At the Owner’s option, provide permanently mounted hydrant flag approved by Owner.

H. Manufacturers

   1. Mueller Corporation American Flow Control Or equal
2.6 HYDRANT PAINT

A. Thoroughly clean hydrants and apply 2 coats of epoxy paint for top coating, either shop applied, or field applied, in accordance with AWWA C502 and paint manufacturer’s installation instructions. Verify paint colors with Owner prior to paint application.

Barrel: OSHA yellow.

2. Bonnet

16-inch Water Main: Blue b. 12-inch Water Main: Green

8-inch Water Main: Grey d. 6-inch Water Main: Orange

B. Hydrants delivered with Owner’s standard color shall receive 1 field applied coat of matching alkyd gloss enamel. Hydrants not delivered with the Owner’s standard color shall receive 2 field applied coats of matching alkyd gloss enamel. Colors shall be as indicated above.

C. Hydrant paint shall be manufactured by Sherwin Williams, Tnemec Company, Inc., or Minnesota Mining and Manufacturing Co. (3M), or approved equal.

D. Alkyd gloss enamel: 801 DTM by Sherwin-Williams, 2H-Tneme by Tnemec; or approved equal. Reflective paint: Scotchlite #7211 by 3M.

2.7 THRUST RESTRAINT

A. Provide thrust restraint at valves and hydrants in accordance with Section 33 14 11.01.

2.8 TAPPING SLEEVES AND VALVES

A. Tapping Sleeve
1. ASTM A536 Grade 65-45-12 ductile iron rated for 250 psig maximum working pressure with end joint accessories and split glands to assemble sleeve to pipe.

Asphaltic varnish coating in accordance with NSF/ANSI 61.

3. Side flange seals: O-ring type, round, oval or rectangular in cross-sectional shape.

4. 12-inch and smaller: capable of working on Class ABCD pipe diameters without changing either half of sleeve.

Greater than 12-inch: field measured to determine class required.

Outlet flange dimensions and drilling in compliance with ASME B16.1, class 125 and MSS SP-60.

Provide 7/4-inch national pipe thread (NPT) test plug.

B. Tapping Valve

Conform to Gate Valves requirements specified.

Provide with inlet flange conforming to ASME B16.1 Class 125 and MSS SP-60, and mechanical joint outlet end with dimensions complying with AWWA C111.

Designed to connect directly to flanged end of tapping sleeve.

2.9 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.1 GENERAL

A. Perform excavation and backfill in accordance with Section 31 00 00. Support trenches in accordance with Section 31 50 00.

B. Install in accordance with manufacturer’s installation instructions, AWWA C509, AWWA C515, AWWA C600, as shown on Drawings, and as specified.

3.2 INSTALLATION

A. Valve and Valve Box

Provide that valves bear no stresses due to loads from adjacent pipe.

Inspect valves before installation, clean and lubricate prior to installation.
Install valve with stem in vertical position.

B. Hydrant

Secure valves to water main with retainer glands.

Set valve box centered directly over operating nut in true vertical alignment. Brace valve box to ensure it remains in true vertical alignment and centered on operating nut during and after backfilling.

Maintain proper alignment and height of valve box until final acceptance and adjust to finish grade as required.

Prior to issuing request for Substantial Completion, remove any dirt or debris from each valve box installed and operate valve in the presence of Owner and Engineer.

Provide hydrants have drains.

Restrain joints in hydrant lateral from main to hydrant. Install hydrant gate on hydrant tee.

Set hydrant in true vertical alignment with solid concrete block support.

Embed hydrant within crushed stone material from bottom of excavation to 12 inches above hydrant drains. Cover crushed stone with either plastic polyethylene sheet barrier, minimum 6 Mil, 4 oz. non-woven filter fabric or 15 lb. roofing felt.

Engineer to inspect hydrant installation prior to backfilling.

Paint hydrant with rust inhibiting paint in color scheme selected by Owner.

Prior to issuing request for Substantial Completion, operate each hydrant installed in the presence of the Owner and Engineer.
C. Tapping Sleeve and Valve and Insertion Valves

After installation, pressure test joints before tapping.

Verify actual pipe size and material to be tapped.

Remove dirt and scale on exterior of water main to be tapped.

Clean and disinfect pipe exterior tapping saddle and valve, drilling and cutting tools.

Pipe shall be adequately supported such that machinery used to tap the main does not put undo stress on the pipe. Support of pipe may include construction of a concrete pad to distribute the load. Additional payment will not be made for construction of a concrete support pad.

3.3 THRUST RESTRAINT

A. Provide thrust restraint at valves, tees and hydrants in accordance with Section 33 14 11.01.

3.4 REPAIR/RESTORATION

A. Repair defective work and retest until installation is accepted.

B. Repair leaks.

C. Restore disturbed surface areas as follows.

Paved areas, including bituminous curbing and bituminous sidewalks: in accordance with Section 32 12 16.

Curbing: in accordance with Section 32 16 14.

Concrete sidewalks: in accordance with Section 32 12 16.

Lawn areas: in accordance with Section 32 92 19.

D. Replace other materials and items removed, restore disturbed areas to original conditions and Owner’s satisfaction.

3.5 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

3.6 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION
SECTION 33 14 21

WATER SERVICE CONNECTIONS – COPPER

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Provide copper water service connections in accordance with this Section and applicable reference standards listed in Article 1.03.

B. Related Requirements

1. Section 01 50 00 – Temporary Facilities and Controls
2. Section 02 61 05 – Removal and Disposal of Contaminated Soil and Water
3. Section 31 00 00 – Earthwork
4. Section 32 12 16 – Asphalt Paving
5. Section 32 16 14 – Granite Curbs
6. Section 32 92 19 – Seeding
7. Section 33 14 11.01 – Water Utility Piping – Ductile Iron

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.3 REFERENCES

A. Reference Standards

1. ASTM International (ASTM)

b. ASTM A240 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
c. ASTM A536 Standard Specification for Ductile Iron Castings
d. ASTM B62 Standard Specification for Composition Bronze or Ounce Metal Castings
e. ASTM B88 Standard Specification for Seamless Copper Water Tube
f. ASTM B584 Standard Specification for Copper Alloy Sand Castings for General Applications

2. American Water Works Association (AWWA)
   a. AWWA C230 Stainless-Steel Full-Encirclement Repair and Service Connection Clamps for 2 in. Through 12 in. Pipe
   b. AWWA C600 Installation of Ductile-Iron Mains and Their Appurtenances
   c. AWWA C800 Underground Service Line Valves and Fittings

3. NSF International (NSF)
   a. NSF/ANSI 61 Drinking Water System Components – Health Effects
   b. NSF/ANSI 372 Drinking Water System Components – Lead Content

4. Uni-Bell PVC Pipe Association
   a. Uni-Bell Tapping Guide for PVC Pressure Pipe

5. Unified Number System (UNS) for Copper and Copper Alloys
   a. UNS C89520
   b. UNS C89833

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

1.5 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

B. Product data: manufacturer's product data and installation instructions for each product specified.

C. Shop Drawings

D. Certificates: notarized manufacturer's certificate of conformance with the standards and specification requirements.
E. Closeout and maintenance material submittals: per Division 01 General Requirements.

1. Record depth and take ties as directed by Engineer for conformed to construction records.

1.6 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

B. Comply with AWWA C651 including Section 4.3 for cleanliness, AWWA C800, NSF 61 and NSF 372.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

B. Packing, shipping, handling, and unloading

1. Each shipment to include manufacturers’ certificate of conformance.

C. Acceptance at Site

1. Inspect upon delivery and reject pipe not in conformance with specified requirements, or damaged beyond repair. Mark and immediately remove damaged materials from Site and dispose of legally.

1.8 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.1 GENERAL

A. Products in contact with drinking water must meet NSF/ANSI 61 and NSF/ANSI 372.

B. Comply with the United States of America Safe Drinking Water Act and the U.S. Environmental Protection Agency.

2.2 SERVICE TUBING

A. Copper tubing: Type K, soft copper tubing in accordance with ASTM B88 and AWWA C800.

2.3 CORPORATION STOPS

A. Materials
1. Provide in accordance with AWWA C800, NSF/ANSI 61 and NSF/ANSI 372.

2. The letters NL cast into the main body for lead free identification.

3. Brass in contact with potable water: no-lead brass conforming to UNS Copper Alloy No. C89520 or C89833 in accordance with ASTM B584 and AWWA C-800.

4. Brass not in contact with potable water shall be 85-5-5-5 brass per UNS Copper Alloy C83600 in accordance with ASTM B62, ASTM B584 and AWWA C-800.

B. Type: ball type; 360 degree turning radius; solid, one-piece body; solid one-piece stem and operating head; 300 psig working pressure; straight through/full port design, blow-out proof, double O-ring stem seals, brass ball coated with fluorocarbon coating.

C. Inlet threads: AWWA CC threads in accordance with AWWA C800.

D. Outlet connection: compression outlet for copper tube size (CTS) outside diameter (OD) tubing.

E. Capable of being installed using a standard tapping machine.

F. Conform to AWWA C800.

G. Manufacturers

1. Mueller Corporation

2. A.Y. McDonald

3. Ford Meter Box

4. Or equal

2.4 CURB STOPS

A. Materials

1. Conform to AWWA C800, NSF/ANSI 61 and NSF/ANSI 372.

2. The letters NL cast into the main body for lead free identification.

3. Brass in contact with potable water: no-lead brass conforming to UNS Copper Alloy No. C89520 or C89833 in accordance with ASTM B584 and AWWA C-800.
4. Brass not in contact with potable water shall be 85-5-5-5 brass per UNS Copper Alloy C83600 in accordance with ASTM B62, ASTM B584 and AWWA C-800.

B. Type: ball, open right, quarter turn check with no drain; brass ball with fluorocarbon coating, blow-out proof, double O-ring type stem seals, straight-through/full port design.

C. Positive shut-off in either direction.

D. Pressure rating: 300 psig for ball type.

E. Inlet connection: compression connection.

F. Outlet connection: compression connection.

G. Conform to AWWA C800.

H. Manufacturers

1. Mueller Corporation

2. A.Y. McDonald

3. Ford Meter Box

4. Or equal

2.5 SERVICE BOXES

A. Materials: heavy cast iron in accordance with ASTM A48; asphaltic bituminous coating; manufactured in the United States.

B. Style: 2-1/2-inch Buffalo style.

C. Type: two-piece, slide type.

D. Cover: heavy duty, flush fit, locking type, brass pentagon head bolt, with word WATER cast-in.

E. Base: arch style, enlarged base for 1-1/2 inch and 2-inch diameter water services.

2.6 SERVICE SADDLES

A. Materials: ductile iron body according to ASTM A536 with Type 304 stainless steel double strap; 300 psi working pressure.

1. Wraparound design with wide skirt, heavy tapping boss; fusion bonded epoxy coating in accordance with AWWA C213 or nylon coated.
2. Studs: Type 304 stainless steel per ASTM A276; rolled threads. Nuts: Type 304 stainless steel per ASTM A194 and coated to prevent galling. Washers: Type 304 stainless steel per ASTM A240.

3. Straps: Type 304 stainless steel per ASTM A240 or ASTM A276.

4. Gasket: nitrile or EPDM O-ring per ASTM D2000; compounded to resist water, oil, natural gas, alkalies and other chemicals.

B. Provide according to AWWA C800, NSF/ANSI 61 and NSF/ANSI 372.

C. Manufacturers
   1. Ford Meter Box
   2. Smith-Blair, Inc.
   3. Mueller Corporation
   4. Or equal

2.7 REPAIR CLAMPS

A. Materials
   2. Gaskets: gridded Nitrile (Buna-N) or Styrene Butadiene Rubber (SBR) face gasket with tapered ends.
   3. Lugs: ductile iron per ASTM A536; finish epoxy applied.
   4. Armor: ASTM A240 Type 304 heavy gauge stainless steel, mold bonded into the gasket to insure uniform compression against the pipe.
   5. Nuts and bolts: Type 304 stainless steel per ASTM A193 and ASTM A194; CC (AWWA) threads.

B. Comply with AWWA C230, NSF/ANSI 61 and NSF/ANSI 372.

C. Pressure rating: maximum 150 psi working pressure.

D. Manufacturers
   1. Romac Industries, Inc.
   2. Smith-Blair, Inc.
   3. Mueller Corporation
   4. Or equal
2.8 ACCESSORIES
A. Service Fittings
1. Materials: cast, no-lead UNS Copper Alloy No. C89520 or C89833 brass in accordance with ASTM B584 and AWWA C800.
2. Pressure rating: minimum 300 psig.
3. Inlet connection: compression type.
5. Manufacturers
   a. Mueller Corporation
   b. A.Y. McDonald
   c. Ford Meter Box
   d. Or equal

2.9 SOURCE QUALITY CONTROL
A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION
3.1 GENERAL
A. Perform excavation and backfill in accordance with Section 31 00 00. Support trenches in accordance with Section 31 50 00.
B. Install utility service connections in accordance with manufacturer’s installation instructions, as shown on Drawings, and as specified. Provide after disinfection, flushing and bacteriological testing of water utility piping systems are complete and accepted by Engineer.

3.2 INSTALLATION
A. Corporation Stops
1. Install 1-inch corporation stops for 1-inch and smaller services. Install 2-inch corporations for greater than 1-inch through 2-inch services.
2. Install direct tapped connections with tapping machine for services 1-inch in diameter and smaller in accordance with AWWA C600, manufacturer’s instructions, and as shown on Drawings.
3. Install service saddles for services larger than 1-inch in diameter.
4. Install wet tap connections with tapping machine.
5. Install taps on customer side of water main.
6. Cut through water main wall completely when drilling. Clean tapped threads and remove any remnants of water main materials.
7. Wrap threaded end with Teflon tape prior to installation.
8. Ensure service taps are water tight.

B. Water Service Tubing
1. Provide 1-inch tubing for services 1-inch and smaller. Provide 2-inch tubing for services greater than 1-inch through 2-inch.
2. Extend as indicated on Drawings or directed by Owner.
3. Install in a single piece without joints between corporation and curb stop.
4. Install in accordance with AWWA C600 and in a straight path from corporation stop to curb stop.
5. Avoid kinks, joints, gouges or crimps.
6. Install with a goose neck at the corporation stop.
7. Connect to corporation stop, curb stop, and existing water service tubing.
8. Connect to existing water service with service fitting.
9. Install with minimum 5-feet of cover measured from top of service tubing to finished grade, as shown on Drawings, or approved in writing by Owner.
10. Insulate service tubing with less than 5 feet of cover with minimum 4-inch, 40-pound density styrofoam material. Extend insulation the width of the trench, minimum 4-feet above pipe envelope and on vertical sides of trench bottom, from bottom to above pipe envelope.
11. Remove and legally dispose of existing water service tubing.

C. Curb Stop and Box
1. Install 1-inch curb stop for services 1-inch and smaller. Install 2-inch curb stop for services greater than 1-inch through 2-inch.
2. Install in trench on precast solid concrete block support at elevation to provide minimum cover of 5-feet.

3. Perform operational testing of curb stops by opening and closing under water pressure to insure proper operation and release any air in the water service tubing.

4. Pressure test utility service connections under active line pressure prior to backfilling.

5. Provide a service box for each curb stop.

6. Set and brace curb box to ensure it remains in a vertical position centered on the curb stop during and after backfilling. Maintain proper alignment and height of curb box until completion of Project.

7. Install curb box so cover is flush with existing grade.

8. Remove and legally dispose of existing curb stop and box.

3.3 REPAIR/RESTORATION

A. Repair defective service taps with stainless steel split sleeve repair clamps.

B. Install repair clamps in accordance with AWWA C230. Do not re-tap water main within 12 inches of repair clamp.

C. Replace defective water service tubing with a single piece of tubing extending from corporation stop to curb stop.

D. Repair defective Work and retest until installation is accepted.

E. Repair leaks.

F. Repair customer indoor plumbing problems that occur as a result of Work performed.

G. Restore disturbed surface areas as follows.

1. Paved areas, including bituminous curbing and bituminous sidewalks in accordance with Section 32 12 16.

2. Granite curbing in accordance with Section 32 16 14

3. Concrete sidewalks in accordance with Section 32 12 16

4. Lawn areas in accordance with Section 32 92 19.
H. Replace other materials and items removed, restore disturbed areas to original conditions.

3.4 FIELD QUALITY CONTROL
A. Provide in accordance with Division 01 General Requirements.

3.5 CLEANING
A. Clean and flush piping after Work is completed, before final acceptance.

3.6 CLOSEOUT ACTIVITIES
A. Provide in accordance with Division 01 General Requirements.

END OF SECTION