City of Quincy, MA Planning and Community Development

West of Chestnut Surface Improvement Project

Bidding Documents

THE HONORABLE THOMAS P. KOCH,
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City of Quincy

APRIL 2016

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COMMITMENT & INTEGRITY DRIVE RESULTS

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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.

COMMONWEALTH OF MASSACHUSETTS
DAVID A. WHITE
CIVIL
No. 39880
REGISTERED PROFESSIONAL ENGINEER

David A. White, Jr., P.E.
Senior Principal
Woodard & Curran, Inc. (Engineer)

4/8/16
Date of Issue

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CITY OF QUINCY, MASSACHUSETTS
Planning and Community Development

Thomas P. Koch
Mayor

James J Fatseas
Planning Director

INVITATION TO BID

The Department of Planning and Community Development (PCD) for the City of Quincy, Massachusetts is seeking sealed bids for **West of Chestnut Surface Improvement Project** until **1:00 p.m**. local time **April 28, 2016**, in the offices of the Purchasing Agent, 1305 Hancock St., Quincy, Massachusetts 02169, at which time and place all bids will be publicly opened and read aloud.

The work under this contract consists of the construction of surface improvements to road and pedestrian ways that includes, but not limited to: site preparation and demolition of select site features, curb removal and installation, street lighting, roadway milling, asphalt paving and concrete walkways.

All work under this contract shall be completed and ready for final payment within Ninety (90) calendar days from the commencement of Contract Time.

Detailed specifications are available at no cost on-line at http://www.quincyma.gov/Government/PPD/PurchasingBidPage.cfm. 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. Bidding Documents are also available at the Office of the Purchasing Agent, Quincy City Hall, 1305 Hancock Street, Quincy, Massachusetts, 02169, between the hours of 8:30 AM and 4:30 PM for a refundable printing charge of $100.00 if returned 10 days within Bid opening and in unused condition.

Each Bid shall be accompanied by a Bid security in the amount of five percent (5%) of the total value of the Bid in the form of a Bid bond or certified/treasurer's check. Note- Refundable deposits is optional for MAc30 preference is to use non-refundable purchase price in standard invitation. Handling refundable deposits incur additional admin cost and potential risk.

The bidding and award of this Contract shall be in full compliance with Massachusetts General Laws, Chapter 30, Section 39M as last revised, all Federal, State and City of Quincy regulations when applicable in relation to Minority Business Enterprise, Women's Business Enterprise, Minority Work Force, Equal Employment Opportunity, and subject to the minimum wage rates set under the Massachusetts Prevailing Wage Law Chapter 149, §26 to 27H and/or any applicable federal rates. The City reserves the right to waive any informality in or to reject any or all Bids when such an action is deemed in the best interests of the City.
Non-responsive and/or unbalanced Bids may be rejected.

Thomas P. Koch, Mayor
James J Fatseas, Director of Planning and Community Development
Kathryn R. Hobin, Chief Procurement Officer

Advertise		**Req. No.**
Quincy Sun	April 14, 2016	
The Central Register	April 14, 2016	S041416

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

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACTS

Based on that prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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A Practice Division of the
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ARTICLE 1 – DEFINED TERMS

1.01 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

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

2.02 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.

2.03 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

3.01 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.

3.02 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

4.01 *Subsurface and Physical Conditions*

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

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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.

4.02 *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.

4.03 *Hazardous Environmental Condition*

A. Section 00 73 10 of the Additional Supplementary Conditions identifies any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.

B. Copies of reports and drawings referenced in in Section 00 73 10, if any, are included in the Bidding Documents as indicated in in Section 00 31 00. 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 4.06 of the Standard General and Supplementary 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.

4.04 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

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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.

4.05 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.

4.06 Reference is made to Article 7 of the Standard General and Supplementary Conditions and Section 00 73 10 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.

4.07 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;

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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.

4.08 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

5.01 A pre bid conference will not be held.

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

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7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to the Issuing Office, attention Kathryn R. Hobin, Purchasing Agent, via fax 617-376-1074 or email (khobin@quincyma.gov) with a copy to Kim Trillcott (kimtrillcott@quincyma.gov).

7.02 **The deadline for questions is 4:00 p.m. on April 22, 2016**. Only answers in the 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.

7.03 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

8.01 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.

8.02 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.

8.03 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.

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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

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

12.02 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.

12.03 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.

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

ARTICLE 13 – PREPARATION OF BID

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

13.02 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.

13.03 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.

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13.04 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.

13.05 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.

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

13.07 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.

13.08 All names shall be printed in ink below the signatures**.**

13.09 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

14.01 Bid Pricing

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed on the Unit Prices Form in Section 00 43 22. 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 Choose an item. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General and Supplementary Conditions, if any.

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

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between prices written in words and prices written in figures will be resolved in favor of prices written in words.

14.02 *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.

14.03 *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

15.01 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. Bidders shall also submit a scanned version of the hardcopy, signed original of the above documents saved in Portable Document Format (PDF) format and submit on CD or diskette.

15.02 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.

15.03 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.

15.04 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

16.01 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.

16.02 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

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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 Advertisement for Bids 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

19.01 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 responsible or eligible 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.

19.02 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.

19.03 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.

19.04 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.

19.05 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 with the Contract Documents.

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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.

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

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

20.01 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.

20.02 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 21 – SIGNING OF AGREEMENT

21.01 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 precedent and provide requested information. 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.

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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

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SECTION 00 22 13

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

The following supplement or modify the Instructions to Bidders pursuant to Article 27 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.

1.01 Applicable Laws for Bid and Award; General

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

1.02 Additional Defined Terms

A. *Bid security* – Also "bid deposit" as used in MGL Chapter 30, Section 39M.

B. *Lowest Responsible and Eligible Bidder* –the Bidder: whose Bid is the lowest of those Bidders possessing the skill, ability and integrity necessary for the faithful performance of the Work; who shall certify its ability to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work; who shall certify 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 who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee (if awarded a Contract); and who obtains within 10 days of the Notice of Award, the bonds required by the Standard General and Supplementary Conditions and the Additional Supplementary Conditions (consistent with the security by bond required under Chapter 149 Section 29), 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 Owner and if there is more than 1 surety company, the surety companies shall be jointly and severally liable, in accordance with the provisions of Chapter 30, Section 39M.

1.03 Requirements of the MGL Applicable to the Project

A. **Foreign Corporations**: The provisions of *MGL Chapter 30, Section 39L, Public construction work by foreign corporations; restrictions and reports* apply to this Project. If a Bidder is a foreign corporation, it shall provide with its Bid, a certificate of the state secretary stating that the corporation has complied with requirements of Section 15.03 of subdivision A of Part 15 of 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. See Section 00 45 05 of the Bidding Requirements.

B. **Debarment:** Bidders shall not be debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of *MGL Chapter 129, Section 129F, 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.

C. **Labor Preferences and Work Hours**

1. The provisions of *MGL Chapter 149, Section 26 Public works; preference to veterans and citizens; wages* apply to this Project whereby employment in the construction of public works is subject to preference being given to citizens of the Commonwealth of Massachusetts, service-disabled veterans, and citizens of the United States.

2. The provisions of *MGL Chapter 149, Sections 27 to 27D*, as amended, covering minimum wage rates as determined by the Commissioner of Department of Workforce Development, 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. See Additional 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 which regulate work hours for public construction.

4. The provisions of *MGL Chapter 149, Section 179A Preference to citizens in awarding public work contracts, violations* apply to this Project whereby award of contracts for public work is subject to preference shall be given to persons who are citizens of the United States.

D. **Sales Tax Exemption:** *MGL Chapter 64H, Section 6 Exemptions, paragraph (f)* exempts from Commonwealth of Massachusetts sales tax, building materials and supplies to be used in the Project, 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.

E. **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*.

1.04 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.

B. Bidders shall certify compliance with the requirements set forth in Section 00 73 37 regarding Equal Employment Opportunity, Anti-discrimination, and Affirmative Action Programs and submission of information required in Section 00 43 40.

END OF SECTION

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SECTION 00 41 01

BID FORM

ARTICLE 1 – DEFINED TERMS

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

ARTICLE 2 – BID RECIPIENT

2.01 This Bid is submitted to:

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

2.02 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

3.01 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 Standard General and Supplementary Conditions and Additional 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.

3.02 This Bid will remain subject to acceptance for 90 days after the Bid opening or for such longer period of time that Bidder may agree to in writing upon request of Owner.

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3.03 Bidder acknowledges receipt of the following Addenda.

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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

ARTICLE 4 – BASIS OF BID

4.01 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 BID PRICE (based on Unit Prices Form)

_____

_____

_____ Dollars and _____/100
(Use words)

$_____
(Use figures)

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

4.03 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 above, as provided in the General Conditions and Supplementary Conditions, if any.

ARTICLE 5 – TIME OF COMPLETION

5.01 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

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Conditions, if any, on or before the dates or within the number of calendar days indicated in the Agreement.

5.02 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 _____

00 43 22 Unit Prices Form

00 43 36 Proposed Subcontractors Form

00 43 37 Proposed Suppliers 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

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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: _____

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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.)

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A Partnership

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: _____

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SUBMITTED ON:
EIN/FEIN:

Communications concerning this Bid shall be addressed to:

Name: _____

Title: _____

Business Address: _____

_____

Phone & Facsimile Nos: _____

Email address: _____

END OF SECTION

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SECTION 00 43 13
BID SECURITY FORM

Based on EJCDC C-430 Bid Bond (Penal Sum Form) prepared by the Engineers Joint Contract Documents Committee

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)*:
City of Quincy
1305 Hancock Street
Quincy, Massachusetts 02169

BID
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	**SURETY**
_____ (Seal)	_____ (Seal)
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. Discrepancies between prices written in words and prices written in figures will be resolved in favor of prices written in words. Discrepancies between the multiplication of estimated quantities and unit prices will be resolved in favor of the unit prices.

Item No.	Unit or Lump Sum Price in Written Words	Estimated Quantity	Unit Bid Price	Extended Cost Figures
1	Full Depth Roadway Reconstruction by Reclamation and Pavement Installation @ _____Dollars and _____Cents PER SQUARE YARD	2,125 SY		
2	Roadway Milling (Cold Plane), Asphalt Leveling and Asphalt Overlay Pavement Installation @ _____Dollars and _____Cents PER SQUARE YARD	950 SY		
3	Tree Protection @ _____Dollars and _____Cents PER EACH	6 EA		
4	Cement & Bituminous Concrete Sidewalk Demolition, Remove and Dispose @ _____Dollars and _____Cents PER SQUARE YARD	1,330 SY		
5	Removal & Storage or Disposal of Surface Features @ _____Dollars and _____Cents PER LUMP SUM	1 Lump Sum		

Item No.	Unit or Lump Sum Price in Written Words	Estimated Quantity	Unit Bid Price	Extended Cost Figures
6	Controlled Density Fill @ _____Dollars and _____Cents PER CUBIC YARD	40 CY		
7	Vertical Granite Curb Type VA-3 – Straight and Curved (New) @ _____Dollars and _____Cents PER LINEAR FOOT	240 LF		
8	Vertical Granite Driveway Curb Returns (New) @ _____Dollars and _____Cents PER EACH	2 EA		
9	Remove, Stack, Relocate and Reset Granite Curb @ _____Dollars and _____Cents PER LINEAR FOOT	805 LF		
10	Remove, Stack and Reset Driveway Granite Curb Returns @ _____Dollars and _____Cents PER EACH	6 EA		
11	Cement Concrete Driveway @ _____Dollars and _____Cents PER SQUARE YARD	63 SY		
12	Bituminous Concrete Driveway @ _____Dollars and _____Cents PER SQUARE YARD	25 SY		

Item No.	Unit or Lump Sum Price in Written Words	Estimated Quantity	Unit Bid Price	Extended Cost Figures
13	Accessible Curb Ramp (ACR) @ _____Dollars and _____Cents PER EACH	10 EA		
14	Cement Concrete Sidewalk @ _____Dollars and _____ Cents PER SQUARE YARD	700 SY		
15	Bituminous Concrete Sidewalk @ _____Dollars and _____Cents PER SQUARE YARD	500 SY		
16	Branch Electrical Services & Connections @ _____Dollars and _____Cents PER LUMP SUM	1 LS		
17	Electrical Pullbox @ _____Dollars and _____Cents PER EACH	17 EA		
18	Street Lighting and Bases @ _____Dollars and _____ Cents PER EACH	14 EA		

Item No.	Unit or Lump Sum Price in Written Words	Estimated Quantity	Unit Bid Price	Extended Cost Figures
19	Pavement Markings @ _____Dollars and _____Cents PER LUMP SUM	1 LS		
20	Sign Posts @ _____Dollars and _____ Cents PER EACH	20 EA		
21	Street Name Sign @ _____Dollars and _____ Cents PER EACH	4 EA		
22	Permanent Traffic Management Sign (MUTCD) @ _____Dollars and _____ Cents PER EACH	36 EA		
23	Traffic Police Details Forty Thousand Dollars and Zero Cents	1 Contingency	$40,000.00	$40,000.00
24	Mobilization / Demobilization @ _____Dollars and _____Cents PER LUMP SUM	1 Lump Sum		

END OF SECTION

SECTION 00 43 36

PROPOSED SUBCONTRACTORS FORM

The following Subcontractors, other persons and organizations are proposed to be employed to furnish portions of the Work. Attach additional sheets as necessary.

CONSTRUCTION

Name	Address	Type of Construction/ Area of Responsibility	% of Total Contract

DESIGN PROFESSIONALS

Name	Address	Area of Responsibility	% of Total Contract

END OF SECTION

SECTION 00 43 37

PROPOSED SUPPLIERS FORM

The following Suppliers are proposed to furnish the identified products, material and equipment to be incorporated into the Work. Attach additional sheets as necessary.

Name	Address	Product, Material, Equipment

END OF SECTION

This page intentionally left blank

SECTION 00 43 40

INFORMATION, SCHEDULES AND DATA

INFORMATION REQUIRED BY CITY OF QUINCY

Submit the names and addresses of any individuals currently employed by the Bidder who Bidder intends to employ on the Project.

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.

PROJECT MANAGEMENT INFORMATION

- 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.

SCHEDULE

Provide a proposed Project Schedule based on a Notice to Proceed on approximately May 23, 2016, Substantial Completion Date within 60 days and final completion within 90 days. 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 shall include:

- milestones related to submittal schedules, procurement, construction, and checkout & functional testing;
- sequencing to limit impacts from construction.

END OF SECTION

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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 Security Form

OR

- ☐ Required Bid security in the form of _____
- ☐ 00 43 22 Unit Prices Form
- ☐ 00 43 36 Proposed Subcontractors Form
- ☐ 00 43 37 Proposed Suppliers Form
- ☐ 00 43 40 Information, Schedules and Data
- ☐ 00 45 05 Bidder’s Representations and Certifications
- ☐ 00 45 13 Bidder's Qualifications
- ☐ 00 45 19 Non-collusion Affidavit

Bidder to identify any Attachments below submitted by Bidder that are to be made part of its Bid. (list items below or indicate "None")

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

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.

1.01 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 Additional 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 Additional Supplementary Conditions Paragraph 4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, 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 General Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to General 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.

1.02 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. The Bid is in all respects bona fide, fair and made without collusion or fraud with any other person. "Person" here means any natural person, joint venture, partnership, corporation or other business or legal entity.

E. Bidder will comply with the requirements of the Equal Employment Opportunity, Anti-discrimination, and Affirmative Action Program 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.

F. 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.

G. Bidder has filed 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 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 <u>if Bidder is a foreign corporation</u>. Bidder certifies it will provide such certificate for each Subcontractor that is a foreign corporation if it receives a Notice of Award.

H. Bidder has filed a certificate of good standing with respect to all returns due and taxes from the Secretary of State of the Commonwealth of Massachusetts certifying Bidder has complied with all laws of the 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.

I. 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.

J. 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.

K. Bidder is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of Massachusetts General Laws Chapter 129, Section 129F, 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.

SUBMITTED ON:
By:
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 the projects Bidder's organization has completed within the last 5 years which are **similar in type, character and magnitude** to that required by the Contract.

Client/Owner Name/Address	Project Name/Location	CURRENT Contact Name, Phone, Email	Time Period

Client/Owner Name/Address	Project Name/Location	CURRENT Contact Name, Phone, Email	Time Period

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).

Name	Title	Years of Experience

Attach detailed resumes of qualifications, previous employers and experience for each.

E. The following design professionals and surveyors are to be employed by the Bidder and available for assignment to the Project.

Name	Area of Responsibility	Years of Experience

Attach detailed resumes of qualifications, previous employers and experience for each.

F. Bidder and Subcontractor(s) current licenses including Professional Engineers and Surveyors.

Name	State	Type	License number

G. Describe Bidder's 24 hour/7 days per week emergency response and communication capabilities.

H. Following is a list of equipment which is available for use on the Project. Indicate whether owned by Bidder's organization or rented. Attach additional sheets as necessary.

Type of Equipment	Size or Capacity	Owned or Rented

I. 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.

Name	Address	Telephone No.

J. Following is a list of all projects Bidder has undertaken in the last five years which have resulted in partial or final settlement of the contract by arbitration or litigation.

Name of Client and Project	Contact Name/ Telephone No.	Original Contract Amount	Total Claims	Arbitrated or Litigated Amount of Settlement of Claims

K. Reference is hereby made to the following bank or banks as to the financial responsibility of the Bidder.

Name of Bank	Address	Contact Name and Telephone No.

L. Following is a list of safety citations issued to the Bidder over the last 3 years.

Name of Client and Project	Contact Name/ Telephone No.	Type of Citation	Issued by

M. Following is a list of labor disputes the Bidder has been the subject of, or otherwise been involved in, during the past 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.

Name and Location of the Project	
Nature of the Dispute	
Duration and dates during which the dispute took place	
How the dispute was resolved	
Name and Location of the Project	
Nature of the Dispute	
Duration and dates during which the dispute took place	
How the dispute was resolved	

END OF SECTION

SECTION 00 45 19

NON-COLLUSION AFFIDAVIT

_____, 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 this 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 this 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 this 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

SECTION 00 51 00
NOTICE OF AWARD

Date: _____

Project: West of Chestnut Surface Improvement Project	
Owner: City of Quincy, Massachusetts; Department of Planning and Community Development	Owner's Contract No.:
Contract: West of Chestnut Surface Improvement Project	Engineer's Project No.:
Bidder:	
Bidder's Address: *[send Notice of Award Certified Mail, Return Receipt Requested]*	

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 *[Indicate total Work, alternates, or sections of Work awarded]* subject to the following conditions being met *and subject to *_____* and *required reviews* *required approvals .

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

[Insert appropriate data if unit prices are used. Change language for cost-plus contracts.]

You must comply with the following conditions precedent **<u>within 10 days</u>** of the date you receive this Notice of Award.

1. Deliver the Contract security (Bonds) as specified in the Standard General and Supplementary Conditions and Additional Supplementary Conditions (Articles 2 and 5);
2. Deliver the insurance certificates indicating coverages as specified in the Standard General and Supplementary Conditions and Additional Supplementary Conditions (Articles 2 and 5);
3. Deliver the following completed and executed certifications and documents:
    a. Pursuant to MGL Chapter 30, Section 39R *Definitions; contract provisions; management and financial statements; enforcement:*
        - A statement by management on internal accounting controls;
        - A statement prepared by an independent certified public accountant; and
        - An audited financial statement for the most recent completed fiscal year.
    b. From each Subcontractor:
        - Certificate of good standing from the Secretary of State with respect to all returns due and taxes per Section 00 22 13.
        - Certification from the Secretary of State for foreign corporations per Section 00 22 13

based on EJCDC C-510 Notice of Award
Prepared by the Engineers Joint Contract Documents Committee and endorsed by the Construction Specifications Institute.

c. Other conditions precedent:

LIST OTHERS IF ANY

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

SAMPLE LETTER FROM CONTRACTOR REGARDING ACCOUNTING CONTROLS
Pursuant to MGL Chapter 30, Section 39R

TO BE SUBMITTED ON CONTRACTOR'S LETTERHEAD

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]

SAMPLE LETTER FROM CPA REGARDING CONTRACTOR ACCOUNTING CONTROLS
Pursuant to MGL Chapter 30, Section 39R

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]

SECTION 00 52 10

AGREEMENT FORM

THIS AGREEMENT is by and between the City of Quincy, Massachusetts, acting through the Department of Planning and Community Development ("Owner") and _____ ("Contractor"). Owner and Contractor hereby agree as follows

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as West of Chestnut Surface Improvement Project and includes the following principal features: construction of surface improvements to road and pedestrian ways that includes, but not limited to: site preparation and demolition of select site features, curb removal and installation, street lighting, roadway milling, asphalt paving and concrete walkways.

A.

ARTICLE 2 – THE PROJECT

2.01 The Project under the Contract Documents is generally described as "West of Chestnut Surface Improvement Project".

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Woodard & Curran, 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

4.01 *Time of the Essence*

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

4.02 *Substantial Completion and Final Payment*

A. The Work shall be substantially complete within 60 calendar days from the commencement of Contract Times as provided in Paragraph 2.03 of the Standard General Conditions and completed and ready for final payment, in accordance with Paragraph 14.07 of the Standard General Conditions, 90 calendar days from the commencement of Contract Times.

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4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial 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 **$1,200.00** 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 **$1,200.00** for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents 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 54 00.

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

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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.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *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.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 21st 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); 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 Conditions 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 Conditions and Supplementary Conditions, if any.

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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.

6.03 *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

8.01 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

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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.

8.02 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 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

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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;

C. 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;

D. 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;

E. 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;

F. 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 for the most recent completed fiscal year

G. 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

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement

2. Items listed in Section 00 54 00

3. Forms listed in 00 60 00

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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

10.01 *Terms*

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

10.02 *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.

10.03 *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.

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10.04 *Severability*

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

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IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

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

OWNER:
CITY OF QUINCY, MASSACHUSETTS

By: _____

Thomas P. Koch, Mayor

By:_____
James J Fatseas, Planning and Community Development Director

By:_____
Kathryn Hobin, Chief Procurement Officer

Attest: _____

Address for giving notices:

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

CONTRACTOR:

By:

Title
License No.

Attest:
Title
Address for giving notices:

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

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Approved as to Form by:

_____
James S. Timmins, Esq., City Solicitor

Date: _____

Pursuant to MGL c.44, s31C, I certify that an appropriation has been made in the total amount of the Agreement.

_____
Mark Cavanagh
Director of Municipal Finance

Date: _____

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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.

- **Items submitted with Bid:**
  - Certificate from the Secretary of State for foreign corporations
  - Certificate of good standing with respect to all returns due and taxes
  - Unit Prices Form (00 43 22)
  - Proposed Subcontractors Form (00 43 36)
  - Proposed Suppliers Form (00 43 37)
  - Information, Schedules and Data (00 43 40)
    - Proposed Project Schedule
    - Proposed Work Plan
  - Bidder's Qualifications(00 45 13)

- 00 61 13.13 Performance Bond
- 00 61 13.16 Payment Bond
- Insurance certificates

- **Certifications**
  - Subcontractor certificates of good standing from the Secretary of State with respect to all returns due and taxes
  - Subcontractor certification from the Secretary of State for foreign corporations
  - A statement by management on internal accounting controls
  - A statement prepared by an independent certified public accountant
  - An audited financial statement for the most recent completed fiscal year

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Notice to Proceed (C-00 55 00)

Date: _____

Project: West of Chestnut Surface Improvement Project	
Owner: City of Quincy, Massachusetts	Owner's Contract No.:
Contract:	Engineer's Project No.:
Contractor:	
Contractor's Address: *[send Certified Mail, Return Receipt Requested]*	

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:

Describe the limits of the Work covered

*A Notice to Proceed for the remaining Work will follow. *

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 Standard General and Supplementary Conditions, and additional 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:

_____ *[add other requirements]*.

	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 and Supplementary Conditions, Additional 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.

Performance Bond Form (C-00 61 13.13)
Payment Bond Form (C-00 61 13.16)
Application for Payment Certificate 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 06 63)
Notice of Substantial Completion Form (C-00 65 15)
Certificate of Substantial Completion Form (C-00 65 16)
Certificate of Completion Form (C-00 65 19)
Final Release and Waiver of Liens (C-00 65 19.15)

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EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND (Form C-0061113.13)

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

_____
Print Name

_____
Title

Attest:_____
Signature

_____
Title

SURETY

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

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

_____
Print Name

_____
Title

Attest:_____
Signature

_____
Title

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

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

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

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

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

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

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

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

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

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

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

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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

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

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

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

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

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

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

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

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

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

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

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within

two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

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

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

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

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

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

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

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

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

16. Modifications to this Bond are as follows:

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EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PAYMENT BOND (Form C-0061113.16)

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

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

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

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

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

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

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

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner 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:

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EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

FORM C-006276

Contractor's Application for Payment No. _____

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

Application For Payment

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE..... $ _____

2. Net change by Change Orders..... $ _____

3. Current Contract Price (Line 1 ± 2)..... $ _____

4. TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate)..... $ _____

5. RETAINAGE:

a. X _____ **Work Completed**..... $ _____

b. X _____ **Stored Material**..... $ _____

c. Total Retainage (Line 5a + Line 5b)..... $ _____

6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)..... $ _____

7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)..... $ _____

8. AMOUNT DUE THIS APPLICATION..... $ _____

9. BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above)..... $ _____

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.

By:	Date:

Payment of: $ _____
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____ _____
(Engineer) (Date)

Payment of: $ _____
(Line 8 or other - attach explanation of the other amount)

is approved by: _____ _____
(Owner) (Date)

Approved by: _____ _____
Funding Agency (if applicable) (Date)

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Progress Estimate - Lump Sum Work

FORM C-006276

Contractor's Application

For (Contract):	Application Number:
Application Period:	Application Date:

			Work Completed		E	F		G
A		B	C	D				
Specification Section No.	Description	Scheduled Value ($)	From Previous Application (C+D)	This Period	Materials Presently Stored (not in C or D)	Total Completed and Stored to Date (C + D + E)	% (F / B)	Balance to Finish (B - F)
	Totals							

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Progress Estimate - Unit Price Work

FORM C-006276

Contractor's Application

For (Contract):	Application Number:
Application Period:	Application Date:

A				B	C	D	E	F		
Item		Bid Item Quantity	Unit Price	Bid Item Value ($)	Estimated Quantity Installed	Value of Work Installed to Date	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F / B)	Balance to Finish (B - F)
Bid Item No.	Description									
	Totals									

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Stored Material Summary FORM C-006276

Contractor's Application

For (Contract):	Application Number:
Application Period:	Application Date:

A		B	C		D		E		F		G
					Stored Previously				Incorporated in Work		
Bid Item No.	Supplier Invoice No.	Submittal No. (with Specification Section No.)	Storage Location	Description of Materials or Equpment Stored	Date Placed into Storage (Month/Year)	Amount ($)	Amount Stored this Month ($)	Subtotal Amount Completed and Stored to Date (D + E)	Date (Month/ Year)	Amount ($)	Materials Remaining in Storage ($) (D + E - F)

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REQUEST FOR INTERPRETATION/INFORMATION (Form C-006313)

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:

From: _____ Tel No: _____ Fax: No: _____

Initial: _____ E-mail: _____

RFI REPLY:

Possible Cost Effect Yes: ☐ No: ☐ **Possible Schedule Effect** Yes: ☐ No: ☐

From: _____ Reply Date: _____ xc: _____

Initial: _____ _____

Based on: CASE Form B-1999

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Field Order (C-006336)

No. _____

Date of Issuance: _____ Effective Date: _____

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

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:

	Engineer:

Receipt Acknowledged by Contractor:	Date:

Copy to Owner

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Work Change Directive (Form C-006349)

No. _____

Date of Issuance: _____ Effective Date: _____

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

Contractor is directed to proceed promptly with the following change(s):

Item No.	Description

Attachments (list documents supporting change):

_____

_____

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:

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CHANGE REQUEST (FORM C-006360)
(Design Changes/Deviations/Substitutions)

CR NO.
DATE

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 (☐ <u>documentation attached)</u>

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: *Signature* *Date*	☐ Approved by Owner (no schedule or cost impact) ☐ 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*	

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Change Order (Form C-006363)

No. _____

Date of Issuance: _____ Effective Date: _____

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

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments (list documents supporting change):

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price: $_____	Original Contract Times: ☐ Working days ☐ Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: $_____	[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: 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: _____

Pursuant to MGL c.44, s31C, I certify that an appropriation has been made in the total amount of the Change Order

_____ Owner's Auditor/Accountant (Name)

Date: _____

Change Order

Instructions

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.

FORM 006363A

CITY OF QUINCY, MASSACHUSETTS
Department of Public Works

City of Quincy
DPW

Thomas P. Koch
Mayor
Daniel G. Raymondi
Commissioner

CHANGE ORDER/AMENDMENT NO.

Made in Quintuplicate this day _____between the City of Quincy, Massachusetts, a Municipal Corporation, within the County of Norfolk, Party of the First Part and:

Insert Name
Insert Address

Party of the Second Part.

WITNESSETH: That for and in consideration of the following mutual covenants contained herein the parties Agree to amend Contract 12-307 dated June 11, 2012 between the same parties as follows:

ARTICLE I: In Article I, we are INCREASING/ DECREASING by $_____ amount.

Because: (insert Justification).

ARTICLE II: In Article II, of the Contract, for

Between the same parties, strike out the words and figures:

(Insert figures)
(Insert words)

and substitute the words and figures:

(Insert figures)

(Insert words)

CITY OF QUINCY

_____
MAYOR

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

_____
CITY SOLICITOR

_____
DIRECTOR OF MUNICIPAL FINANCE

_____
PURCHASING AGENT

_____
VENDOR SIGNATURE

DEPT.:_____

P.O. # : _____

_____
DIRECTOR OF POLICY

CODE: _____

PROJECT NAME:

CONTRACT NUMBER:

CHANGE ORDER NUMBER:
ORIGINAL CONTRACT AMOUNT: $

PREVIOUS CHANGE ORDERS (#1 & #2): $

CURRENT CONTRACT AMOUNT: $

CHANGE IN CONTRACT PRICE (this change order): $

TOTAL ADJUSTED CONTRACT PRICE: $
(include all change orders):

Reason for Change Order:

(1) Additional Work _____ (3) Change in Bid Quantities ____ _____

(2) Field Change ____ _____ (4) Change in Schedule ____ _____

(5) Other: _____

(a) Time to complete the work is extended by _____ calendar days.

(b) Extended completion date is _____

Reason & Description of Change:

Supporting Documents (list or attached, as necessary):

This Change Order has been requested by: ____ _____ CONTRACTOR ___ CITY

This Change Order has been reviewed by:_____ _____
(COMMISSIONER OF PUBLIC WORKS) (Date)

Notice of Substantial Completion (C-006515)

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		

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.

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.

Accepted by Contractor — Date

Accepted by Owner — Date

This page intentionally left blank

Certificate of Substantial Completion (Form C-006516)

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

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:

☐ Amended Responsibilities ☐ Not Amended

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	Date
Accepted by Contractor	Date
Accepted by Owner	Date

Certificate of Completion (Form C-006519)

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		

This Certificate of Completion applies to:

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

_____

_____

_____

_____

_____
Date of final Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner and Contractor, Contractor has completed all corrections to the satisfaction of Owner, delivered all required documentation, and the Project, or portion designated above, is found to be complete. The Date of Completion of the Project or portion thereof designated above is hereby declared.

Contractor may make application for final payment.

The following documents are attached to and made part of this Certificate:

Final Application for Payment

This Certificate does not constitute a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

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.

_____ _____
Accepted by Contractor Date

_____ _____
Accepted by Owner Date

This page intentionally left blank

Final Release and Waiver of Liens (C-00 65 19.15)

Date: _____

Project:	
Owner:	Owner's Contract No.:
Contract:	Engineer's Project No.:
Contractor:	
Contractor's Address: [send Certified Mail, Return Receipt Requested]	

The undersigned Contractor certifies that all charges for labor, material, equipment and services in connection with the Contract have been paid in full, that there remains no charge by any Subcontractor or Supplier in connection with this Contract to date for which a lien could be filed arising out of or relating to said Contract, and all payment obligations have been fully discharged.

In connection with this Final Release and Waiver of Lien, the undersigned Contractor deposes and says that the total amount of the Contract, including change orders is $_____, and that all waivers are true, correct, and genuine and delivered unconditionally and that there is no claim either legal or equitable to defeat the validity of said waivers. The undersigned Contractor further states that there are no other contracts for said Work outstanding, and that there is nothing due or to become due to any person or entity for labor, material, equipment, or services, or other work of any kind done or to be done upon or in connection with said Work.

In consideration of Final Payment and upon receipt of that amount, the undersigned Contractor does hereby release and waive any and all liens, claims or rights of liens on or against the Project, security interests, or encumbrances on account of labor, materials, equipment, and services furnished by or through the undersigned Contractor and used or intended for use in said Project, subject to any rights the undersigned Contractor may have under the statutes of [STATE], except for except those listed below by obligee, nature and amount of obligation and covered by appropriate Bond or Bonds, as listed beside each obligation and attached to and made a part of this certification.

Obligee	**Obligation**	**Bond**

The undersigned Contractor further declares and agrees that in the event of the filing of any lien or other claim against the Owner or the property on which the Project is located, which lien or claim is covered in whole or substantially by the above certification, release and waiver, that the undersigned Contractor will protect, indemnify and hold harmless the Owner, its sureties or successors, and defend any suit or action and reimburse same for any expense incurred in connection with such defense or otherwise in obtaining the removal or release of any such lien or other form of claim or action arising out of the Contract and covered, as above stated, by this instrument.

_____
Contractor

_____
Authorized Signature

_____
Title

_____
Date

Notary Acknowledgement:

County of _____

State of _____

On this _____ day of _____, _____, before me, the undersigned Notary Public,
Day *Month* *Year*
personally appeared_____ , proved to me through satisfactory
Name of Signer
evidence of identity, which was _____, to be the person whose name is
Description of Evidence of Identity
signed above, and acknowledged to me that he/she signed it voluntarily for its stated purpose on behalf of said Contractor and that all of the statements contained therein are true, correct and complete.

NOTARY SEAL:

Signature of Notary Public_____

Name of Notary Public_____

My Commission Expires_____

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

SECTION 00 72 05
STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

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NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by

CONSTRUCTION SPECIFICATIONS INSTITUTE

REVISIONS HIGHLIGHTED WITHIN THE TEXT OF THIS SECTION HAVE BEEN PREPARED BY WOODARD & CURRAN ON BEHALF OF OWNER

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SECTION 00 72 05
STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents 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.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

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.

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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 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.

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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.

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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.

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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. *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 or Final Completion, but which items will not significantly interfere with the safe, reliable operation and integrity of the Project or its intended use.

4. *Purchase Order*—A written agreement between Contractor and a Supplier for provision of material and equipment.

5. *Warranty Period*—The correction period after the date of Substantial Completion per Paragraph 13.07 of these General Conditions.

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1.02 *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.

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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

2.01 *Delivery of Bonds and Evidence of Insurance*

A. ~~When Contractor delivers the executed counterparts~~Prior to execution 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 b~~B~~efore 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.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ~~ten~~ 5 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.

2.03 *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~~ 90th 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.~~

2.04 *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.

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2.05 *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. 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 promptly may result in full liability for liquidated damages if Contract Times are not met.

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

2.06 *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.

2.07 *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.

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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.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *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.

3.02 *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.

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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.

3.03 *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 such conflict, error, ambiguity, or discrepancy in the Contract Documents ~~unless~~ if Contractor ~~had actual knowledge~~knew or reasonably should have known 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).

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3.04 *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.

3.05 *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.

3.06 *Electronic Data*

A. ~~Unless otherwise stated in the Supplementary Conditions, t~~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.

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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

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. 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.

4.02 *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:

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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.

4.03 *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. (Not Used)~~*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

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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

~~c.~~d. 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.

4.04 *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.

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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, losses, or damages incurred by Contractor (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) related to Underground Facilities not shown or indicated.

4.05 *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.

4.06 *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.

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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.

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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

5.01 *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.

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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~~ 5 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.

5.02 *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.

5.03 *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 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.

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5.04 *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.~~6~~7 inclusive, be written on an occurrence basis, include as additional insureds by endorsement (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~~ included as additional insureds by endorsement, 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;

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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

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2. Contractor's General Liability:

$1,000,000 per occurrence; $2,000,000 general aggregate; $2,000,000 per project 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 "C" Deleted
- Fire Legal Liability - $1,000,000
- Medical payments - $1,000,000

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.

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5.05 *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.

5.06 *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"~~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, 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

~~7.~~8. comply with the requirements of Paragraph 5.06.C of the General Conditions.

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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.

5.07 *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.

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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.

5.08 *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.~~

5.09 *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

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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

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. 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.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. 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.

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6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

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.

6.04 *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.

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6.05 *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.

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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.

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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.

6.06 *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

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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.

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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.

6.07 *Patent Fees and Royalties*

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

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

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

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

6.08 *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.

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6.09 *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.

B. If Owner is sales tax exempt, specific provisions shall be as 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.

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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:

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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.

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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.

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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.

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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

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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

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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.

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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.

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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

7.01 *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.

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7.02 *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.

7.03 *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

8.01 *Communications to Contractor*

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

8.02 *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.

8.03 *Furnish Data*

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

8.04 *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.

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8.05 *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.

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

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ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 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.

9.03 *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:

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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 on-Site 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,

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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.

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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.

9.04 *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.

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9.05 *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.

9.06 *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.

9.07 *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.

9.08 *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.

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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.

9.09 *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 set forth in the Contract Documents or 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.

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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

10.01 *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.

10.02 *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.

10.03 *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.

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10.04 *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.

10.05 *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~~ 14 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~~ 30 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.

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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

11.01 *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

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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.

      1) 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.

   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

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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.

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11.02 *Allowances*

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

B. Cash Allowances: (Not used)

~~1. 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 any Owner's ~~a~~ contingency allowance, if any, is for the sole use of Owner to cover ~~un~~estimated 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.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. 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~~

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~~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

12.01 *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 ~~15~~ 10 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 ~~15~~ 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

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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.

12.02 *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.

12.03 *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

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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

13.01 *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.

13.02 *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.

13.03 *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. 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.

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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 as provided in 13.03.B above and 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.~~

13.04 *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.

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13.05 *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.

13.06 *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.

13.07 *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

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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.

13.08 *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.

13.09 *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.

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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

14.01 *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.

14.02 *Progress Payments*

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and

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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.

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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;

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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;

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.

14.03 *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.

14.04 *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.

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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.

14.05 *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.

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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.

14.06 *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.

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14.07 *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;

   ~~c.~~d. Certificate of Completion; and

   ~~d.~~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

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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.

14.08 *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 Certificate 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.

14.09 *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

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by 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.

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15.02 *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.

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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.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

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.

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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.

15.04 *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

16.01 *Methods and Procedures*

A. Subject to the requirements in Paragraph 10.05, Owner and Contractor agree that they will submit any and all unsettled Claims, counterclaims, disputes and other matters in question between them arising out of or relating to the Contract Documents ("disputes"), to mediation by senior management representatives of each party for a period of 5 days. If resolution is not achieved, then the dispute shall be submitted to formal mediation prior to either of them initiating against the other, a demand for arbitration pursuant to Paragraph 16.02, unless delay in initiating arbitration would irrevocably prejudice one of the Parties. Any time limits within which to file a demand for arbitration shall be suspended with respect to a dispute submitted to mediation within those same applicable time limits and shall remain suspended until 10 days after the termination of the mediation. The mediator of any dispute submitted to mediation shall not serve as arbitrator of such dispute unless otherwise agreed.

~~A.~~B. Subject to Paragraph 16.01.A, e~~E~~ither Owner or Contractor may request formal 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.

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~~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.

~~C.~~D. If the Claim is not resolved by senior management mediation or formal 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~~ the dispute resolution process pursuant to Paragraph 16.02~~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.~~

16.02 *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

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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.

16.03 *General*

A. The Contractor will require similar arbitration 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.

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ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person 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.

17.02 *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.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract 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.

17.04 *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.

17.05 *Controlling Law*

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

17.06 *Headings*

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

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17.07 *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

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SECTION 00 73 05

ADDITIONAL 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 additional Supplementary Conditions have the meanings stated in the Standard General and Supplementary Conditions and as included within the Sections listed below.

00 73 10	Specific Project Requirements
00 73 19	Health and Safety Requirements
00 73 37	Equal Employment Opportunity Requirements
00 73 43	Wage Rate Requirements
00 73 46	Wage Determination Schedule
00 73 73	Statutory Requirements

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SECTION 00 73 10

PROJECT SPECIFIC REQUIREMENTS

1.01 GENERAL

A. The address system used herein is the same as the address system used in the Standard General and Supplementary 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.

B. The contents of this Section do not represent or reflect all applicable provisions and policies, Regulations, or Laws, and may only include excerpts and portions thereof. Other required provisions and policies, Regulations, and Laws 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-2.05 ***Before Starting Construction***

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

C. Additionally, within 10 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

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.3.

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-3.06 ***Electronic Data***

Pursuant to Paragraph 3.06.A, the Contractor may rely on the following electronic data furnished by Owner or Engineer.

3. Files transmitted to the Contractor in ".PDF" format which are understood by all parties to constitute official project correspondence such as a response to a request for information or submittal review.

SC 4.01 ***Availability of Lands***

Pursuant to Paragraph 4.01.A, easements and rights-of-way exist for the Project and are reflected on the Drawings.

SC-4.02 ***Subsurface and Physical Conditions***

A. Pursuant to Paragraph 4.02,

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

   a. NONE

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

   a. As specified in the Drawings under General Notes: Base plans are based on information obtained by the City from the Adams Green Project Designers, Howard Stein & Hudson (HSH) based on survey information provided to HSH by A-Plus Construction Services. Drawing further supplemented with HSH Adams Green design drawings and Woodard & Currans West of Chestnut Utility Roadway Infrastructure Replacement Project design drawings

   b. Drawings listed in Section 00 01 15 generally identify certain existing surface and subsurface structures and additional subsurface items may be encountered which are subject to Paragraph 4.04 of the Standard General and Supplementary Conditions and Additional Supplementary Conditions.

      All of the information in such drawings constitutes "technical data" on which Contractor may rely.

   c. The "technical data" shall be limited to facts, measurements, field observations, boring logs, soil type and similar data. "Technical data" shall not include opinions regarding suitability of material, dewatering methodologies, soil stability, slope stabilization methods and other opinions or professional judgments

SC-4.06 ***Hazardous Environmental Conditions at Site***

A. Pursuant to Paragraph 4.06.,

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

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.

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).

In subparagraph B.4. line 2, delete the words "materially changed" per Massachusetts insurance Laws.

SC-5.06 ***Property Insurance***

In Paragraph C. line 3, delete the words "or materially changed" per Massachusetts insurance Laws.

SC-6 ***Contractor's Responsibilities***

Pursuant to Article 6, Contractor shall comply with special coordination requirements and communicate with identified contacts during prosecution of the Work as set forth in Section 01 15 00.

SC-6.02 ***Labor; Working Hours***

Pursuant to Paragraph 6.02.B, regular working hours for this Project are 7:30 a.m. to 3:30 p.m., Monday through Friday.

SC-6.08 ***Permits***

Pursuant to subparagraph 6.08.A, the Contractor shall comply with permit requirements included in Quincy Code of Ordinances, Chapters 12.08 and 17.36 included as Attachment B to this

Section. Note Owner will waive fees associated with road opening and trench permits to be obtained by Contractor.

SC-6.09 ***Laws and Regulations***

Pursuant to Paragraph 6.09, the Contractor shall comply with the following additional requirements, portions of which are included as Attachment C to this section.

- Quincy Code of Ordinances
- Quincy Zoning Ordinance (Title 17 of the Code of Ordinances)

SC-6.11 ***Use of Site and Other Areas***

Pursuant to Paragraph 6.11.A, the Contractor shall provide that access to businesses and residences are maintained during prosecution of the Work.

SC-7.01 ***Related Work at Site***

Pursuant to Paragraph 7.01, Owner has separately contracted for or intends to separately contract for Adams Green. See SC-7.02 for coordination details.

SC-7.02 ***Coordination***

Pursuant to Paragraph 7.02.A, for other work on the Project at the Site Owner has separately contracted for or intends to separately contract for, as identified in SC-7.01 above, authority and responsibility for coordination of the other work will be identified at the Preconstruction Conference. Coordination shall be through Engineer, Planning and Community Development and Department of Public Works as necessary.

SC-8.09 ***Limitations on Owner's Responsibilities***

Pursuant to Paragraph 8.09, 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.

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

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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)

12.08.020 - 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))

12.08.021 - 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))

12.08.022 - 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))

12.08.023 - 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))

12.08.024 - 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)

12.08.040 - Street construction—Safeguarding—Police detail required—Cost liability.

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.

(Ord. 1978-100; Ord. 1977-271: prior code Ch. 18, § 5A)

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

Sections:

17.36.010 - Illumination—Residence districts.
17.36.020 - Earth removal—Permit required.
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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))

17.36.040 - 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))

17.36.060 - 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))

17.36.070 - 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)

17.36.090 - 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))

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QUINCY, MASSACHUSETTS - MUNICIPAL CODE

A Codification of the General Ordinances of the City of Quincy, Massachusetts

Beginning in September 2009, Supplemented by Municipal Code Corporation

Municipal Code Corporation
PO Box 2235 Tallahassee, FL 32316
800-262-2633 • Fax: 850-575-8852
Municode.com • info@municode.com

PREFACE
HOW TO USE YOUR CODE

PREFACE

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

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Section Two: Districts

Section Three: Use Regulations

Section Four: Dimensional Regulations

Section Five: General Regulations

Section Six: Special Regulations

Section Seven: Special Residential Regulations

Zoning Ordinances

Thank you for visiting the City of Quincy Zoning Ordinance Page. Mayor Koch commissioned the biggest overhaul of the City's Zoning Code in a generation, and the process was completed in the summer of 2011.

We have divided the zoning code into sections, with links below and on the left sidebar. To access the full .pdf Zoning Ordinance document, click here.

If you have any questions about zoning, please contact Jay Duca, Director of Inspectional Services, at 617-376-1456, or email him at jduca@quincyma.gov.

Section One: Purpose and Authority

Section Two: Districts

Section Three: Use Regulations

Section Four: Dimensional Regulations

Section Five: General Regulations

Section Six: Special Regulations

Section Seven: Special Residential Regulations

Section Eight: Special Districts

Section Nine: Administration and Procedures

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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 vehicle.

D. Pursuant to MGL Chapter 30, Section 39M and 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 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
Section 18B Confined spaces; ventilation
Section 18C Power transmission equipment
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 37

EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

A. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; provision of non-segregated facilities and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

B. The Contractor will, in all solicitations or advancements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

C. The Contractor will comply with all provisions of Executive Order No. 11246 as amended, and of the rules, Regulations, and relevant orders of the Secretary of Labor as applicable, and additional provisions for federally-assisted construction contracts, including those required by 41 CFR 60-4.3.

D. In the event of the Contractor's noncompliance with the nondiscrimination clauses of the Contract or with any of such rules, Regulations, or orders, the Contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further contracts in accordance with procedures authorized in Executive Order No. 11246 as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 as amended, or by rule, Regulation, or order of the Secretary of Labor, or as otherwise provided by Law.

E. The Contractor will include the applicable provisions of the above paragraphs in every subcontract or purchase order unless exempted by rules, Regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 as amended, so that such provisions will be binding upon each Subcontractor or vendor or Supplier.

END OF SECTION

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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.

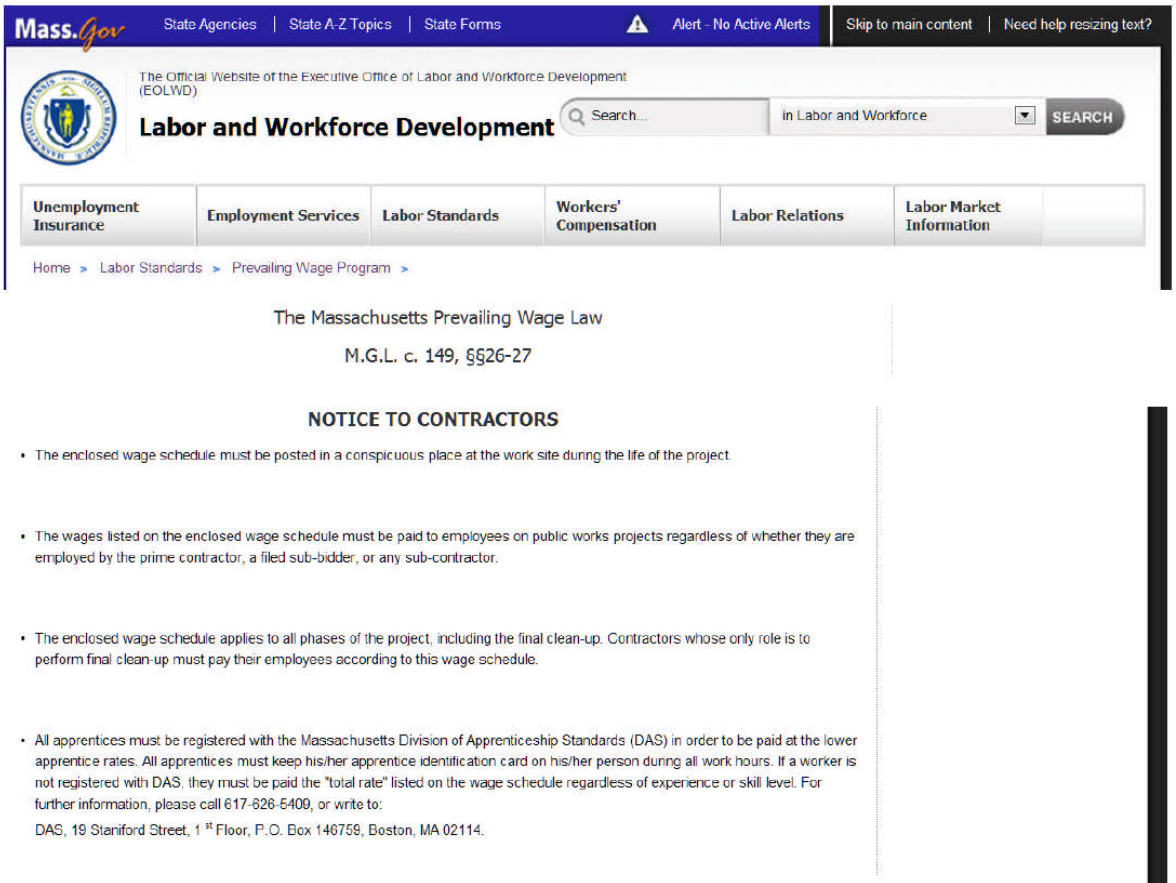
The Project is subject to minimum wage rates as issued by the Director of the Executive Office of Labor and Workforce Development, Department of Labor Standards and the requirements of MGL Chapter 149, Sections 26, 27 and 27A to 27H. Wage Determination Schedules are included in Section 00 73 46. Pursuant 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.

1.01 State Requirements

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.

Requirements of MGL Chapter 149, Sections 26, 27 and 27A to 27H



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 has been printed on the reverse of this page 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.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years from the date of completion of the project.

Each such contractor or subcontractor shall furnish to the awarding authority directly within 15 days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or by any authorized officer thereof who supervised the payment of wages, this form.

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 _____

09/11

MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM

Company's Name:	Address:	Phone No.:	Payroll No.:

Employer's Signature:	Title:	Contract No:	Tax Payer ID No.	Work Week Ending:

Awarding Authority's Name:	Public Works Project Name:	Public Works Project Location:	Min. Wage Rate Sheet No.

General / Prime Contractor's Name:	Subcontractor's Name:	"Employer" Hourly Fringe Benefit Contributions

Employee Name & Complete Address	Employee is OSHA 10 Certified (?)	Work Classification:	Appr. Rate (%)	Hours Worked Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	Project Hours (A) / All Other Hours	Hourly Base Wage (B)	Health & Welfare Insurance (C')	ERISA Pension Plan (D)	Supp. Unemp. (E)	Total Hourly Prev. Wage (F) (B+C+D+E)	Project Gross Wages (G) (A x F) / Total Gross Wages	Check No. (H)
	☐																	
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NOTE: Pursuant to MGL Ch. 149 s.27B, every contractor and subcontractor is required to submit a "true and accurate" copy of their weekly payroll records directly to the awarding authority. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

Page _____ of _____

Date recieved by awarding authority
/ /

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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.

- 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.

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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

KARYN E. POLITO
Lt. Governor

RONALD L. WALKER, II
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: City of Quincy

Contract Number:

City/Town: QUINCY

Description of Work: Construction of surface improvements that includes: site preparation, curb removal and installation, street lighting, roadway milling, asphalt paving and concrete walkways.

Job Location: Chestnut and Cottage Streets

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$32.75	$10.41	$10.08	$0.00	$53.24
	06/01/2016	$33.25	$10.41	$10.08	$0.00	$53.74
	08/01/2016	$33.25	$10.91	$10.08	$0.00	$54.24
	12/01/2016	$33.25	$10.91	$10.89	$0.00	$55.05
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$32.82	$10.41	$10.08	$0.00	$53.31
	06/01/2016	$33.32	$10.41	$10.08	$0.00	$53.81
	08/01/2016	$33.32	$10.91	$10.08	$0.00	$54.31
	12/01/2016	$33.32	$10.91	$10.89	$0.00	$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$32.94	$10.41	$10.08	$0.00	$53.43
	06/01/2016	$33.44	$10.41	$10.08	$0.00	$53.93
	08/01/2016	$33.44	$10.91	$10.08	$0.00	$54.43
	12/01/2016	$33.44	$10.91	$10.89	$0.00	$55.24
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$88.29	$9.80	$19.23	$0.00	$117.32
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR *LABORERS - ZONE 1*	12/01/2015	$36.10	$7.45	$13.55	$0.00	$57.10
	06/01/2016	$36.85	$7.45	$13.55	$0.00	$57.85
	12/01/2016	$37.85	$7.45	$13.55	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	12/01/2015	$34.38	$10.40	$5.95	$0.00	$50.73
ASPHALT RAKER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 1*	12/01/2015	$36.10	$7.45	$13.55	$0.00	$57.10
	06/01/2016	$36.85	$7.45	$13.55	$0.00	$57.85
	12/01/2016	$37.85	$7.45	$13.55	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2016	$41.62	$6.97	$16.21	$0.00	$64.80
	01/01/2017	$42.92	$6.97	$16.21	$0.00	$66.10

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$27.05	$6.97	$10.54	$0.00	$44.56
2	65	$27.05	$6.97	$10.54	$0.00	$44.56
3	70	$29.13	$6.97	$11.35	$0.00	$47.45
4	75	$31.22	$6.97	$12.16	$0.00	$50.35
5	80	$33.30	$6.97	$12.97	$0.00	$53.24
6	85	$35.38	$6.97	$13.78	$0.00	$56.13
7	90	$37.46	$6.97	$14.59	$0.00	$59.02
8	95	$39.54	$6.97	$15.40	$0.00	$61.91

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$27.90	$6.97	$10.54	$0.00	$45.41
2	65	$27.90	$6.97	$10.54	$0.00	$45.41
3	70	$30.04	$6.97	$11.35	$0.00	$48.36
4	75	$32.19	$6.97	$12.16	$0.00	$51.32
5	80	$34.34	$6.97	$12.97	$0.00	$54.28
6	85	$36.48	$6.97	$13.78	$0.00	$57.23
7	90	$38.63	$6.97	$14.59	$0.00	$60.19
8	95	$40.77	$6.97	$15.40	$0.00	$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (QUINCY)*	02/01/2016	$49.86	$10.18	$19.14	$0.00	$79.18
	08/01/2016	$50.76	$10.18	$19.22	$0.00	$80.16
	02/01/2017	$51.33	$10.18	$19.22	$0.00	$80.73

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 Quincy*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.93	$10.18	$19.14	$0.00	$54.25
2	60	$29.92	$10.18	$19.14	$0.00	$59.24
3	70	$34.90	$10.18	$19.14	$0.00	$64.22
4	80	$39.89	$10.18	$19.14	$0.00	$69.21
5	90	$44.87	$10.18	$19.14	$0.00	$74.19

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.38	$10.18	$19.22	$0.00	$54.78
2	60	$30.46	$10.18	$19.22	$0.00	$59.86
3	70	$35.53	$10.18	$19.22	$0.00	$64.93
4	80	$40.61	$10.18	$19.22	$0.00	$70.01
5	90	$45.68	$10.18	$19.22	$0.00	$75.08

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$36.45	$7.45	$13.75	$0.00	$57.65
	06/01/2016	$37.20	$7.45	$13.75	$0.00	$58.40
	12/01/2016	$38.20	$7.45	$13.75	$0.00	$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$35.30	$7.45	$13.75	$0.00	$56.50
	06/01/2016	$36.05	$7.45	$13.75	$0.00	$57.25
	12/01/2016	$37.05	$7.45	$13.75	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$35.30	$7.45	$13.75	$0.00	$56.50
	06/01/2016	$36.05	$7.45	$13.75	$0.00	$57.25
	12/01/2016	$37.05	$7.45	$13.75	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	03/01/2016	$37.10	$9.80	$16.82	$0.00	$63.72
	09/01/2016	$38.08	$9.80	$16.82	$0.00	$64.70
	03/01/2017	$39.05	$9.80	$16.82	$0.00	$65.67
	09/01/2017	$40.06	$9.80	$16.82	$0.00	$66.68
	03/01/2018	$41.06	$9.80	$16.82	$0.00	$67.68
	09/01/2018	$42.10	$9.80	$16.82	$0.00	$68.72
	03/01/2019	$43.13	$9.80	$16.82	$0.00	$69.75

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.55	$9.80	$1.63	$0.00	$29.98
2	60	$22.26	$9.80	$1.63	$0.00	$33.69
3	70	$25.97	$9.80	$11.93	$0.00	$47.70
4	75	$27.83	$9.80	$11.93	$0.00	$49.56
5	80	$29.68	$9.80	$13.56	$0.00	$53.04
6	80	$29.68	$9.80	$13.56	$0.00	$53.04
7	90	$33.39	$9.80	$15.19	$0.00	$58.38
8	90	$33.39	$9.80	$15.19	$0.00	$58.38

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.04	$9.80	$1.63	$0.00	$30.47
2	60	$22.85	$9.80	$1.63	$0.00	$34.28
3	70	$26.66	$9.80	$11.93	$0.00	$48.39
4	75	$28.56	$9.80	$11.93	$0.00	$50.29
5	80	$30.46	$9.80	$13.56	$0.00	$53.82
6	80	$30.46	$9.80	$13.56	$0.00	$53.82
7	90	$34.27	$9.80	$15.19	$0.00	$59.26
8	90	$34.27	$9.80	$15.19	$0.00	$59.26

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (QUINCY)*	01/01/2016	$46.44	$10.90	$18.71	$1.30	$77.35

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CEMENT MASONRY/PLASTERING - Eastern Mass (Quincy)*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.22	$10.90	$12.21	$0.00	$46.33
2	60	$27.86	$10.90	$13.71	$1.30	$53.77
3	65	$30.19	$10.90	$14.71	$1.30	$57.10
4	70	$32.51	$10.90	$15.71	$1.30	$60.42
5	75	$34.83	$10.90	$16.71	$1.30	$63.74
6	80	$37.15	$10.90	$17.71	$1.30	$67.06
7	90	$41.80	$10.90	$18.71	$1.30	$72.71

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*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$44.73	$10.00	$14.90	$0.00	$69.63
	06/01/2016	$45.48	$10.00	$14.90	$0.00	$70.38
	12/01/2016	$46.73	$10.00	$14.90	$0.00	$71.63
	06/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
	12/01/2017	$48.73	$10.00	$14.90	$0.00	$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$30.13	$10.00	$14.90	$0.00	$55.03
	06/01/2016	$30.65	$10.00	$14.90	$0.00	$55.55
	12/01/2016	$31.52	$10.00	$14.90	$0.00	$56.42
	06/01/2017	$32.21	$10.00	$14.90	$0.00	$57.11
	12/01/2017	$32.90	$10.00	$14.90	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$49.51	$7.85	$16.10	$0.00	$73.46
	07/01/2016	$50.46	$7.85	$16.10	$0.00	$74.41
	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.76	$7.85	$0.00	$0.00	$32.61
2	55	$27.23	$7.85	$3.66	$0.00	$38.74
3	60	$29.71	$7.85	$3.99	$0.00	$41.55
4	65	$32.18	$7.85	$4.32	$0.00	$44.35
5	70	$34.66	$7.85	$14.11	$0.00	$56.62
6	75	$37.13	$7.85	$14.44	$0.00	$59.42
7	80	$39.61	$7.85	$14.77	$0.00	$62.23
8	90	$44.56	$7.85	$15.44	$0.00	$67.85

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.23	$7.85	$0.00	$0.00	$33.08
2	55	$27.75	$7.85	$3.66	$0.00	$39.26
3	60	$30.28	$7.85	$3.99	$0.00	$42.12
4	65	$32.80	$7.85	$4.32	$0.00	$44.97
5	70	$35.32	$7.85	$14.11	$0.00	$57.28
6	75	$37.85	$7.85	$14.44	$0.00	$60.14
7	80	$40.37	$7.85	$14.77	$0.00	$62.99
8	90	$45.41	$7.85	$15.44	$0.00	$68.70

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 1*	12/01/2015	$35.50	$7.45	$13.55	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 1*	12/01/2015	$36.50	$7.45	$13.55	$0.00	$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 1*	12/01/2015	$36.25	$7.45	$13.55	$0.00	$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 1*	12/01/2015	$36.50	$7.45	$13.55	$0.00	$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 1*	12/01/2015	$36.25	$7.45	$13.55	$0.00	$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 1*	12/01/2015	$35.50	$7.45	$13.55	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$58.86	$9.80	$19.23	$0.00	$87.89
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$63.06	$9.80	$19.23	$0.00	$92.09
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$88.23	$9.80	$19.23	$0.00	$117.26
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) *ELECTRICIANS LOCAL 103*	03/01/2016	$46.17	$13.00	$16.39	$0.00	$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN *ELECTRICIANS LOCAL 103*	03/01/2016	$46.17	$13.00	$16.39	$0.00	$75.56

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$18.47	$13.00	$0.55	$0.00	$32.02
2	40	$18.47	$13.00	$0.55	$0.00	$32.02
3	45	$20.78	$13.00	$12.34	$0.00	$46.12
4	45	$20.78	$13.00	$12.34	$0.00	$46.12
5	50	$23.09	$13.00	$12.71	$0.00	$48.80
6	55	$25.39	$13.00	$13.07	$0.00	$51.46
7	60	$27.70	$13.00	$13.44	$0.00	$54.14
8	65	$30.01	$13.00	$13.81	$0.00	$56.82
9	70	$32.32	$13.00	$14.18	$0.00	$59.50
10	75	$34.63	$13.00	$14.55	$0.00	$62.18

Notes: :
App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2016	$54.53	$14.43	$14.96	$0.00	$83.92
	01/01/2017	$55.86	$15.28	$15.71	$0.00	$86.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.27	$14.43	$0.00	$0.00	$41.70
2	55	$29.99	$14.43	$14.96	$0.00	$59.38
3	65	$35.44	$14.43	$14.96	$0.00	$64.83
4	70	$38.17	$14.43	$14.96	$0.00	$67.56
5	80	$43.62	$14.43	$14.96	$0.00	$73.01

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.93	$15.28	$0.00	$0.00	$43.21
2	55	$30.72	$15.28	$15.71	$0.00	$61.71
3	65	$36.31	$15.28	$15.71	$0.00	$67.30
4	70	$39.10	$15.28	$15.71	$0.00	$70.09
5	80	$44.69	$15.28	$15.71	$0.00	$75.68

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2016	$38.17	$14.43	$14.96	$0.00	$67.56
	01/01/2017	$39.10	$15.28	$15.71	$0.00	$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2015	$40.49	$10.00	$14.55	$0.00	$65.04
	05/01/2016	$41.03	$10.00	$14.90	$0.00	$65.93
	11/01/2016	$41.62	$10.00	$14.90	$0.00	$66.52
	05/01/2017	$42.50	$10.00	$14.90	$0.00	$67.40
	11/01/2017	$43.23	$10.00	$14.90	$0.00	$68.13
	05/01/2018	$43.94	$10.00	$14.90	$0.00	$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2015	$41.93	$10.00	$14.55	$0.00	$66.48
	05/01/2016	$42.47	$10.00	$14.90	$0.00	$67.37
	11/01/2016	$43.07	$10.00	$14.90	$0.00	$67.97
	05/01/2017	$43.96	$10.00	$14.90	$0.00	$68.86
	11/01/2017	$44.69	$10.00	$14.90	$0.00	$69.59
	05/01/2018	$45.41	$10.00	$14.90	$0.00	$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2015	$21.71	$10.00	$14.55	$0.00	$46.26
	05/01/2016	$21.88	$10.00	$14.90	$0.00	$46.78
	11/01/2016	$22.23	$10.00	$14.90	$0.00	$47.13
	05/01/2017	$22.76	$10.00	$14.90	$0.00	$47.66
	11/01/2017	$23.18	$10.00	$14.90	$0.00	$48.08
	05/01/2018	$23.61	$10.00	$14.90	$0.00	$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 103*	03/01/2016	$46.17	$13.00	$16.39	$0.00	$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING*ELECTRICIANS LOCAL 103*	03/01/2016	$34.63	$13.00	$14.55	$0.00	$62.18
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$36.34	$10.00	$14.90	$0.00	$61.24
	06/01/2016	$36.96	$10.00	$14.90	$0.00	$61.86
	12/01/2016	$38.00	$10.00	$14.90	$0.00	$62.90
	06/01/2017	$38.84	$10.00	$14.90	$0.00	$63.74
	12/01/2017	$39.67	$10.00	$14.90	$0.00	$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 1*	12/01/2015	$20.50	$7.45	$13.55	$0.00	$41.50
	06/01/2016	$20.50	$7.45	$13.55	$0.00	$41.50
	12/01/2016	$20.50	$7.45	$13.55	$0.00	$41.50
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE I*	03/01/2016	$42.13	$9.80	$17.62	$0.00	$69.55

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.07	$9.80	$1.79	$0.00	$32.66
2	55	$23.17	$9.80	$1.79	$0.00	$34.76
3	60	$25.28	$9.80	$12.25	$0.00	$47.33
4	65	$27.38	$9.80	$12.25	$0.00	$49.43
5	70	$29.49	$9.80	$14.04	$0.00	$53.33
6	75	$31.60	$9.80	$14.04	$0.00	$55.44
7	80	$33.70	$9.80	$15.83	$0.00	$59.33
8	85	$35.81	$9.80	$15.83	$0.00	$61.44

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$30.13	$10.00	$14.90	$0.00	$55.03
	06/01/2016	$30.65	$10.00	$14.90	$0.00	$55.55
	12/01/2016	$31.52	$10.00	$14.90	$0.00	$56.42
	06/01/2017	$32.21	$10.00	$14.90	$0.00	$57.11
	12/01/2017	$32.90	$10.00	$14.90	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 35 (ZONE 2)*	01/01/2016	$39.01	$7.85	$16.10	$0.00	$62.96
	07/01/2016	$39.96	$7.85	$16.10	$0.00	$63.91
	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.51	$7.85	$0.00	$0.00	$27.36
2	55	$21.46	$7.85	$3.66	$0.00	$32.97
3	60	$23.41	$7.85	$3.99	$0.00	$35.25
4	65	$25.36	$7.85	$4.32	$0.00	$37.53
5	70	$27.31	$7.85	$14.11	$0.00	$49.27
6	75	$29.26	$7.85	$14.44	$0.00	$51.55
7	80	$31.21	$7.85	$14.77	$0.00	$53.83
8	90	$35.11	$7.85	$15.44	$0.00	$58.40

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.98	$7.85	$0.00	$0.00	$27.83
2	55	$21.98	$7.85	$3.66	$0.00	$33.49
3	60	$23.98	$7.85	$3.99	$0.00	$35.82
4	65	$25.97	$7.85	$4.32	$0.00	$38.14
5	70	$27.97	$7.85	$14.11	$0.00	$49.93
6	75	$29.97	$7.85	$14.44	$0.00	$52.26
7	80	$31.97	$7.85	$14.77	$0.00	$54.59
8	90	$35.96	$7.85	$15.44	$0.00	$59.25

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$24.05	$10.00	$0.00	$0.00	$34.05
2	60	$26.24	$10.00	$14.90	$0.00	$51.14
3	65	$28.42	$10.00	$14.90	$0.00	$53.32
4	70	$30.61	$10.00	$14.90	$0.00	$55.51
5	75	$32.80	$10.00	$14.90	$0.00	$57.70
6	80	$34.98	$10.00	$14.90	$0.00	$59.88
7	85	$37.17	$10.00	$14.90	$0.00	$62.07
8	90	$39.36	$10.00	$14.90	$0.00	$64.26

Effective Date - 06/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$24.46	$10.00	$0.00	$0.00	$34.46
2	60	$26.69	$10.00	$14.90	$0.00	$51.59
3	65	$28.91	$10.00	$14.90	$0.00	$53.81
4	70	$31.14	$10.00	$14.90	$0.00	$56.04
5	75	$33.36	$10.00	$14.90	$0.00	$58.26
6	80	$35.58	$10.00	$14.90	$0.00	$60.48
7	85	$37.81	$10.00	$14.90	$0.00	$62.71
8	90	$40.03	$10.00	$14.90	$0.00	$64.93

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2016	$43.31	$10.70	$21.95	$2.28	$78.24
	08/01/2016	$44.46	$10.70	$21.95	$2.28	$79.39
	02/01/2017	$45.56	$10.70	$21.95	$2.28	$80.49
	08/01/2017	$46.66	$10.70	$21.95	$2.28	$81.59
	02/01/2018	$47.81	$10.70	$21.95	$2.28	$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 103*	03/01/2016	$46.17	$13.00	$16.39	$0.00	$75.56

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2016	$43.31	$10.70	$21.95	$2.28	$78.24
	08/01/2016	$44.46	$10.70	$21.95	$2.28	$79.39
	02/01/2017	$45.56	$10.70	$21.95	$2.28	$80.49
	08/01/2017	$46.66	$10.70	$21.95	$2.28	$81.59
	02/01/2018	$47.81	$10.70	$21.95	$2.28	$82.74
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PIPEFITTERS LOCAL 537*	03/01/2016	$49.19	$9.70	$18.14	$0.00	$77.03
	09/01/2016	$50.19	$9.70	$18.14	$0.00	$78.03
	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC *PIPEFITTERS LOCAL 537*	03/01/2016	$49.19	$9.70	$18.14	$0.00	$77.03
	09/01/2016	$50.19	$9.70	$18.14	$0.00	$78.03
	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 1*	12/01/2015	$36.10	$7.45	$13.55	$0.00	$57.10
	06/01/2016	$36.85	$7.45	$13.55	$0.00	$57.85
	12/01/2016	$37.85	$7.45	$13.55	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2015	$43.81	$11.50	$13.80	$0.00	$69.11
	09/01/2016	$45.81	$11.50	$13.80	$0.00	$71.11
	09/01/2017	$47.81	$11.50	$13.80	$0.00	$73.11
	09/01/2018	$50.06	$11.50	$13.80	$0.00	$75.36
	09/01/2019	$52.56	$11.50	$13.80	$0.00	$77.86

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

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.91	$11.50	$10.05	$0.00	$43.46
2	60	$26.29	$11.50	$10.80	$0.00	$48.59
3	70	$30.67	$11.50	$11.55	$0.00	$53.72
4	80	$35.05	$11.50	$12.30	$0.00	$58.85

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.91	$11.50	$10.05	$0.00	$44.46
2	60	$27.49	$11.50	$10.80	$0.00	$49.79
3	70	$32.07	$11.50	$11.55	$0.00	$55.12
4	80	$36.65	$11.50	$12.30	$0.00	$60.45

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (BOSTON AREA)*	03/16/2016	$43.40	$7.80	$20.85	$0.00	$72.05
	09/16/2016	$44.05	$7.80	$20.85	$0.00	$72.70
	03/16/2017	$44.65	$7.80	$20.85	$0.00	$73.30

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Boston*

Effective Date - 03/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.04	$7.80	$20.85	$0.00	$54.69
2	70	$30.38	$7.80	$20.85	$0.00	$59.03
3	75	$32.55	$7.80	$20.85	$0.00	$61.20
4	80	$34.72	$7.80	$20.85	$0.00	$63.37
5	85	$36.89	$7.80	$20.85	$0.00	$65.54
6	90	$39.06	$7.80	$20.85	$0.00	$67.71

Effective Date - 09/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$26.43	$7.80	$20.85	$0.00	$55.08
2	70	$30.84	$7.80	$20.85	$0.00	$59.49
3	75	$33.04	$7.80	$20.85	$0.00	$61.69
4	80	$35.24	$7.80	$20.85	$0.00	$63.89
5	85	$37.44	$7.80	$20.85	$0.00	$66.09
6	90	$39.65	$7.80	$20.85	$0.00	$68.30

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 1*

Effective Date - 12/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$21.21	$7.45	$13.55	$0.00	$42.21
2	70	$24.75	$7.45	$13.55	$0.00	$45.75
3	80	$28.28	$7.45	$13.55	$0.00	$49.28
4	90	$31.82	$7.45	$13.55	$0.00	$52.82

Effective Date - 06/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$21.66	$7.45	$13.55	$0.00	$42.66
2	70	$25.27	$7.45	$13.55	$0.00	$46.27
3	80	$28.88	$7.45	$13.55	$0.00	$49.88
4	90	$32.49	$7.45	$13.55	$0.00	$53.49

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 1*	12/01/2015	$35.50	$7.45	$13.55	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
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*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2016	$38.08	$10.18	$17.70	$0.00	$65.96
	08/01/2016	$38.78	$10.18	$17.78	$0.00	$66.74
	02/01/2017	$39.24	$10.18	$17.78	$0.00	$67.20

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

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.04	$10.18	$17.70	$0.00	$46.92
2	60	$22.85	$10.18	$17.70	$0.00	$50.73
3	70	$26.66	$10.18	$17.70	$0.00	$54.54
4	80	$30.46	$10.18	$17.70	$0.00	$58.34
5	90	$34.27	$10.18	$17.70	$0.00	$62.15

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.39	$10.18	$17.78	$0.00	$47.35
2	60	$23.27	$10.18	$17.78	$0.00	$51.23
3	70	$27.15	$10.18	$17.78	$0.00	$55.11
4	80	$31.02	$10.18	$17.78	$0.00	$58.98
5	90	$34.90	$10.18	$17.78	$0.00	$62.86

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2016	$49.90	$10.18	$19.14	$0.00	$79.22
	08/01/2016	$50.80	$10.18	$19.22	$0.00	$80.20
	02/01/2017	$51.37	$10.18	$19.22	$0.00	$80.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.95	$10.18	$19.14	$0.00	$54.27
2	60	$29.94	$10.18	$19.14	$0.00	$59.26
3	70	$34.93	$10.18	$19.14	$0.00	$64.25
4	80	$39.92	$10.18	$19.14	$0.00	$69.24
5	90	$44.91	$10.18	$19.14	$0.00	$74.23

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.40	$10.18	$19.22	$0.00	$54.80
2	60	$30.48	$10.18	$19.22	$0.00	$59.88
3	70	$35.56	$10.18	$19.22	$0.00	$64.96
4	80	$40.64	$10.18	$19.22	$0.00	$70.04
5	90	$45.72	$10.18	$19.22	$0.00	$75.12

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) *MILLWRIGHTS LOCAL 1121 - Zone 1*	04/01/2015	$37.64	$9.80	$16.21	$0.00	$63.65

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 1*

Effective Date - 04/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$20.70	$9.80	$4.48	$0.00	$34.98
2	65	$24.47	$9.80	$13.36	$0.00	$47.63
3	75	$28.23	$9.80	$14.18	$0.00	$52.21
4	85	$31.99	$9.80	$14.99	$0.00	$56.78

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$22.27	$10.00	$14.90	$0.00	$47.17
	06/01/2016	$22.66	$10.00	$14.90	$0.00	$47.56
	12/01/2016	$23.31	$10.00	$14.90	$0.00	$48.21
	06/01/2017	$23.82	$10.00	$14.90	$0.00	$48.72
	12/01/2017	$24.34	$10.00	$14.90	$0.00	$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$26.08	$10.00	$14.90	$0.00	$50.98
	06/01/2016	$26.54	$10.00	$14.90	$0.00	$51.44
	12/01/2016	$27.29	$10.00	$14.90	$0.00	$52.19
	06/01/2017	$27.89	$10.00	$14.90	$0.00	$52.79
	12/01/2017	$28.50	$10.00	$14.90	$0.00	$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$49.51	$7.85	$16.10	$0.00	$73.46
	07/01/2016	$50.46	$7.85	$16.10	$0.00	$74.41
	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.76	$7.85	$0.00	$0.00	$32.61
2	55	$27.23	$7.85	$3.66	$0.00	$38.74
3	60	$29.71	$7.85	$3.99	$0.00	$41.55
4	65	$32.18	$7.85	$4.32	$0.00	$44.35
5	70	$34.66	$7.85	$14.11	$0.00	$56.62
6	75	$37.13	$7.85	$14.44	$0.00	$59.42
7	80	$39.61	$7.85	$14.77	$0.00	$62.23
8	90	$44.56	$7.85	$15.44	$0.00	$67.85

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.23	$7.85	$0.00	$0.00	$33.08
2	55	$27.75	$7.85	$3.66	$0.00	$39.26
3	60	$30.28	$7.85	$3.99	$0.00	$42.12
4	65	$32.80	$7.85	$4.32	$0.00	$44.97
5	70	$35.32	$7.85	$14.11	$0.00	$57.28
6	75	$37.85	$7.85	$14.44	$0.00	$60.14
7	80	$40.37	$7.85	$14.77	$0.00	$62.99
8	90	$45.41	$7.85	$15.44	$0.00	$68.70

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2016	$40.41	$7.85	$16.10	$0.00	$64.36
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	07/01/2016	$41.36	$7.85	$16.10	$0.00	$65.31
	01/01/2017	$42.31	$7.85	$16.10	$0.00	$66.26

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.21	$7.85	$0.00	$0.00	$28.06
2	55	$22.23	$7.85	$3.66	$0.00	$33.74
3	60	$24.25	$7.85	$3.99	$0.00	$36.09
4	65	$26.27	$7.85	$4.32	$0.00	$38.44
5	70	$28.29	$7.85	$14.11	$0.00	$50.25
6	75	$30.31	$7.85	$14.44	$0.00	$52.60
7	80	$32.33	$7.85	$14.77	$0.00	$54.95
8	90	$36.37	$7.85	$15.44	$0.00	$59.66

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.68	$7.85	$0.00	$0.00	$28.53
2	55	$22.75	$7.85	$3.66	$0.00	$34.26
3	60	$24.82	$7.85	$3.99	$0.00	$36.66
4	65	$26.88	$7.85	$4.32	$0.00	$39.05
5	70	$28.95	$7.85	$14.11	$0.00	$50.91
6	75	$31.02	$7.85	$14.44	$0.00	$53.31
7	80	$33.09	$7.85	$14.77	$0.00	$55.71
8	90	$37.22	$7.85	$15.44	$0.00	$60.51

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$38.47	$7.85	$16.10	$0.00	$62.42
	07/01/2016	$39.42	$7.85	$16.10	$0.00	$63.37
	01/01/2017	$40.37	$7.85	$16.10	$0.00	$64.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.24	$7.85	$0.00	$0.00	$27.09
2	55	$21.16	$7.85	$3.66	$0.00	$32.67
3	60	$23.08	$7.85	$3.99	$0.00	$34.92
4	65	$25.01	$7.85	$4.32	$0.00	$37.18
5	70	$26.93	$7.85	$14.11	$0.00	$48.89
6	75	$28.85	$7.85	$14.44	$0.00	$51.14
7	80	$30.78	$7.85	$14.77	$0.00	$53.40
8	90	$34.62	$7.85	$15.44	$0.00	$57.91

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.71	$7.85	$0.00	$0.00	$27.56
2	55	$21.68	$7.85	$3.66	$0.00	$33.19
3	60	$23.65	$7.85	$3.99	$0.00	$35.49
4	65	$25.62	$7.85	$4.32	$0.00	$37.79
5	70	$27.59	$7.85	$14.11	$0.00	$49.55
6	75	$29.57	$7.85	$14.44	$0.00	$51.86
7	80	$31.54	$7.85	$14.77	$0.00	$54.16
8	90	$35.48	$7.85	$15.44	$0.00	$58.77

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 1*	12/01/2015	$35.35	$7.45	$13.55	$0.00	$56.35
	06/01/2016	$36.10	$7.45	$13.55	$0.00	$57.10
	12/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
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.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$39.01	$7.85	$16.10	$0.00	$62.96
	07/01/2016	$39.96	$7.85	$16.10	$0.00	$63.91
	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.51	$7.85	$0.00	$0.00	$27.36
2	55	$21.46	$7.85	$3.66	$0.00	$32.97
3	60	$23.41	$7.85	$3.99	$0.00	$35.25
4	65	$25.36	$7.85	$4.32	$0.00	$37.53
5	70	$27.31	$7.85	$14.11	$0.00	$49.27
6	75	$29.26	$7.85	$14.44	$0.00	$51.55
7	80	$31.21	$7.85	$14.77	$0.00	$53.83
8	90	$35.11	$7.85	$15.44	$0.00	$58.40

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.98	$7.85	$0.00	$0.00	$27.83
2	55	$21.98	$7.85	$3.66	$0.00	$33.49
3	60	$23.98	$7.85	$3.99	$0.00	$35.82
4	65	$25.97	$7.85	$4.32	$0.00	$38.14
5	70	$27.97	$7.85	$14.11	$0.00	$49.93
6	75	$29.97	$7.85	$14.44	$0.00	$52.26
7	80	$31.97	$7.85	$14.77	$0.00	$54.59
8	90	$35.96	$7.85	$15.44	$0.00	$59.25

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2016	$37.07	$7.85	$16.10	$0.00	$61.02
	07/01/2016	$38.02	$7.85	$16.10	$0.00	$61.97
	01/01/2017	$38.97	$7.85	$16.10	$0.00	$62.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.54	$7.85	$0.00	$0.00	$26.39
2	55	$20.39	$7.85	$3.66	$0.00	$31.90
3	60	$22.24	$7.85	$3.99	$0.00	$34.08
4	65	$24.10	$7.85	$4.32	$0.00	$36.27
5	70	$25.95	$7.85	$14.11	$0.00	$47.91
6	75	$27.80	$7.85	$14.44	$0.00	$50.09
7	80	$29.66	$7.85	$14.77	$0.00	$52.28
8	90	$33.36	$7.85	$15.44	$0.00	$56.65

Effective Date - 07/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.01	$7.85	$0.00	$0.00	$26.86
2	55	$20.91	$7.85	$3.66	$0.00	$32.42
3	60	$22.81	$7.85	$3.99	$0.00	$34.65
4	65	$24.71	$7.85	$4.32	$0.00	$36.88
5	70	$26.61	$7.85	$14.11	$0.00	$48.57
6	75	$28.52	$7.85	$14.44	$0.00	$50.81
7	80	$30.42	$7.85	$14.77	$0.00	$53.04
8	90	$34.22	$7.85	$15.44	$0.00	$57.51

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$32.58	$10.41	$10.08	$0.00	$53.07
	06/01/2016	$33.08	$10.41	$10.08	$0.00	$53.57
	08/01/2016	$33.08	$10.91	$10.08	$0.00	$54.07
	12/01/2016	$33.08	$10.91	$10.89	$0.00	$54.88
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2015	$42.04	$9.80	$19.23	$0.00	$71.07

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.02	$9.80	$19.23	$0.00	$50.05
2	60	$25.22	$9.80	$19.23	$0.00	$54.25
3	70	$29.43	$9.80	$19.23	$0.00	$58.46
4	75	$31.53	$9.80	$19.23	$0.00	$60.56
5	80	$33.63	$9.80	$19.23	$0.00	$62.66
6	80	$33.63	$9.80	$19.23	$0.00	$62.66
7	90	$37.84	$9.80	$19.23	$0.00	$66.87
8	90	$37.84	$9.80	$19.23	$0.00	$66.87

Notes:

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER *PIPEFITTERS LOCAL 537*	03/01/2016	$49.19	$9.70	$18.14	$0.00	$77.03
	09/01/2016	$50.19	$9.70	$18.14	$0.00	$78.03
	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03

Apprentice - *PIPEFITTER - Local 537*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$19.68	$9.70	$7.50	$0.00	$36.88
2	45	$22.14	$9.70	$18.14	$0.00	$49.98
3	60	$29.51	$9.70	$18.14	$0.00	$57.35
4	70	$34.43	$9.70	$18.14	$0.00	$62.27
5	80	$39.35	$9.70	$18.14	$0.00	$67.19

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$20.08	$9.70	$7.50	$0.00	$37.28
2	45	$22.59	$9.70	$18.14	$0.00	$50.43
3	60	$30.11	$9.70	$18.14	$0.00	$57.95
4	70	$35.13	$9.70	$18.14	$0.00	$62.97
5	80	$40.15	$9.70	$18.14	$0.00	$67.99

Notes:

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

Apprentice to Journeyworker Ratio:**

PIPELAYER *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PLUMBERS & GASFITTERS *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2016	$51.36	$11.07	$15.14	$0.00	$77.57
	09/01/2016	$52.41	$11.07	$15.14	$0.00	$78.62
	03/01/2017	$53.41	$11.07	$15.14	$0.00	$79.62

Apprentice - *PLUMBER/GASFITTER - Local 12*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$17.98	$11.07	$5.63	$0.00	$34.68
2	40	$20.54	$11.07	$6.37	$0.00	$37.98
3	55	$28.25	$11.07	$8.56	$0.00	$47.88
4	65	$33.38	$11.07	$10.03	$0.00	$54.48
5	75	$38.52	$11.07	$11.48	$0.00	$61.07

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$18.34	$11.07	$5.63	$0.00	$35.04
2	40	$20.96	$11.07	$6.36	$0.00	$38.39
3	55	$28.83	$11.07	$8.55	$0.00	$48.45
4	65	$34.07	$11.07	$10.02	$0.00	$55.16
5	75	$39.31	$11.07	$11.48	$0.00	$61.86

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic$57.78 Step5 with lic$64.37

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) *PIPEFITTERS LOCAL 537*	03/01/2016	$49.19	$9.70	$18.14	$0.00	$77.03
	09/01/2016	$50.19	$9.70	$18.14	$0.00	$78.03
	03/01/2017	$51.19	$9.70	$18.14	$0.00	$79.03

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

PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER *LABORERS - ZONE 1*	12/01/2015	$36.35	$7.45	$13.55	$0.00	$57.35
	06/01/2016	$37.10	$7.45	$13.55	$0.00	$58.10
	12/01/2016	$38.10	$7.45	$13.55	$0.00	$59.10

For apprentice rates see "Apprentice- LABORER"

POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$30.13	$10.00	$14.90	$0.00	$55.03
	06/01/2016	$30.65	$10.00	$14.90	$0.00	$55.55
	12/01/2016	$31.52	$10.00	$14.90	$0.00	$56.42
	06/01/2017	$32.21	$10.00	$14.90	$0.00	$57.11
	12/01/2017	$32.90	$10.00	$14.90	$0.00	$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010) *TEAMSTERS LOCAL 25b*	07/01/2015	$27.88	$7.98	$8.92	$0.00	$44.78
	05/01/2016	$28.03	$7.98	$9.31	$0.00	$45.32
	07/01/2016	$28.03	$8.23	$9.31	$0.00	$45.57
	05/01/2017	$28.18	$8.23	$9.72	$0.00	$46.13
	07/01/2017	$28.18	$8.48	$9.72	$0.00	$46.38
READY-MIX CONCRETE DRIVER *TEAMSTERS LOCAL 25b*	07/01/2015	$29.18	$7.98	$8.92	$0.00	$46.08
	05/01/2016	$29.33	$7.98	$9.31	$0.00	$46.62
	07/01/2016	$29.33	$8.23	$9.31	$0.00	$46.87
	05/01/2017	$29.48	$8.23	$9.72	$0.00	$47.43
	07/01/2017	$29.48	$8.48	$9.72	$0.00	$47.68
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) *CARPENTERS -ZONE 2 (Residential Wood)*	04/01/2011	$24.24	$8.67	$15.51	$0.00	$48.42
RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. *CARPENTERS -ZONE 2 (Residential Wood)*	05/01/2011	$24.24	$6.34	$6.23	$0.00	$36.81

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CARPENTER (Residential Wood Frame) - Zone 2*

Effective Date - 05/01/2011

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$14.54	$6.34	$0.00	$0.00	$20.88
2	60	$14.54	$6.34	$6.23	$0.00	$27.11
3	65	$15.76	$6.34	$6.23	$0.00	$28.33
4	70	$16.97	$6.34	$6.23	$0.00	$29.54
5	75	$18.18	$6.34	$6.23	$0.00	$30.75
6	80	$19.39	$6.34	$6.23	$0.00	$31.96
7	85	$20.60	$6.34	$6.23	$0.00	$33.17
8	90	$21.82	$6.34	$6.23	$0.00	$34.39

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2016	$40.11	$11.00	$12.90	$0.00	$64.01

Apprentice - *ROOFER - Local 33*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.06	$11.00	$3.39	$0.00	$34.45
2	60	$24.07	$11.00	$12.90	$0.00	$47.97
3	65	$26.07	$11.00	$12.90	$0.00	$49.97
4	75	$30.08	$11.00	$12.90	$0.00	$53.98
5	85	$34.09	$11.00	$12.90	$0.00	$57.99

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.

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	02/01/2016	$40.36	$11.00	$12.90	$0.00	$64.26
For apprentice rates see "Apprentice- ROOFER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2016	$43.31	$10.70	$21.95	$2.28	$78.24
	08/01/2016	$44.46	$10.70	$21.95	$2.28	$79.39
	02/01/2017	$45.56	$10.70	$21.95	$2.28	$80.49
	08/01/2017	$46.66	$10.70	$21.95	$2.28	$81.59
	02/01/2018	$47.81	$10.70	$21.95	$2.28	$82.74

Apprentice - *SHEET METAL WORKER - Local 17-A*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.32	$10.70	$4.90	$0.00	$32.92
2	40	$17.32	$10.70	$4.90	$0.00	$32.92
3	45	$19.49	$10.70	$9.79	$1.20	$41.18
4	45	$19.49	$10.70	$9.79	$1.20	$41.18
5	50	$21.66	$10.70	$10.65	$1.29	$44.30
6	50	$21.66	$10.70	$10.90	$1.30	$44.56
7	60	$25.99	$10.70	$12.37	$1.47	$50.53
8	65	$28.15	$10.70	$13.24	$1.56	$53.65
9	75	$32.48	$10.70	$14.97	$1.74	$59.89
10	85	$36.81	$10.70	$16.18	$1.91	$65.60

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.78	$10.70	$4.90	$0.00	$33.38
2	40	$17.78	$10.70	$4.90	$0.00	$33.38
3	45	$20.01	$10.70	$9.79	$1.22	$41.72
4	45	$20.01	$10.70	$9.79	$1.22	$41.72
5	50	$22.23	$10.70	$10.65	$1.31	$44.89
6	50	$22.23	$10.70	$10.90	$1.31	$45.14
7	60	$26.68	$10.70	$12.37	$1.49	$51.24
8	65	$28.90	$10.70	$13.24	$1.59	$54.43
9	75	$33.35	$10.70	$14.97	$1.77	$60.79
10	85	$37.79	$10.70	$16.18	$1.94	$66.61

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SIGN ERECTOR *PAINTERS LOCAL 35 - ZONE 2*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SIGN ERECTOR - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$12.91	$7.07	$0.00	$0.00	$19.98
2	55	$14.20	$7.07	$2.45	$0.00	$23.72
3	60	$15.49	$7.07	$2.45	$0.00	$25.01
4	65	$16.78	$7.07	$2.45	$0.00	$26.30
5	70	$18.07	$7.07	$7.05	$0.00	$32.19
6	75	$19.36	$7.07	$7.05	$0.00	$33.48
7	80	$20.65	$7.07	$7.05	$0.00	$34.77
8	85	$21.94	$7.07	$7.05	$0.00	$36.06
9	90	$23.23	$7.07	$7.05	$0.00	$37.35

Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$33.04	$10.41	$10.08	$0.00	$53.53
	06/01/2016	$33.54	$10.41	$10.08	$0.00	$54.03
	08/01/2016	$33.54	$10.91	$10.08	$0.00	$54.53
	12/01/2016	$33.54	$10.91	$10.89	$0.00	$55.34
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$33.33	$10.41	$10.08	$0.00	$53.82
	06/01/2016	$33.83	$10.41	$10.08	$0.00	$54.32
	08/01/2016	$33.83	$10.91	$10.08	$0.00	$54.82
	12/01/2016	$33.83	$10.91	$10.89	$0.00	$55.63
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1*	03/01/2016	$54.43	$8.67	$16.80	$0.00	$79.90
	10/01/2016	$55.53	$8.67	$16.80	$0.00	$81.00
	03/01/2017	$56.53	$8.67	$16.80	$0.00	$82.00

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

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

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.05	$8.67	$8.55	$0.00	$36.27
2	40	$21.77	$8.67	$8.55	$0.00	$38.99
3	45	$24.49	$8.67	$8.55	$0.00	$41.71
4	50	$27.22	$8.67	$8.55	$0.00	$44.44
5	55	$29.94	$8.67	$8.55	$0.00	$47.16
6	60	$32.66	$8.67	$8.55	$0.00	$49.88
7	65	$35.38	$8.67	$8.55	$0.00	$52.60
8	70	$38.10	$8.67	$8.55	$0.00	$55.32
9	75	$40.82	$8.67	$8.55	$0.00	$58.04
10	80	$43.54	$8.67	$8.55	$0.00	$60.76

Effective Date - 10/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.44	$8.67	$8.55	$0.00	$36.66
2	40	$22.21	$8.67	$8.55	$0.00	$39.43
3	45	$24.99	$8.67	$8.55	$0.00	$42.21
4	50	$27.77	$8.67	$8.55	$0.00	$44.99
5	55	$30.54	$8.67	$8.55	$0.00	$47.76
6	60	$33.32	$8.67	$8.55	$0.00	$50.54
7	65	$36.09	$8.67	$8.55	$0.00	$53.31
8	70	$38.87	$8.67	$8.55	$0.00	$56.09
9	75	$41.65	$8.67	$8.55	$0.00	$58.87
10	80	$44.42	$8.67	$8.55	$0.00	$61.64

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*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 103*	03/01/2016	$34.63	$13.00	$14.55	$0.00	$62.18

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 103*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$13.85	$13.00	$0.42	$0.00	$27.27
2	40	$13.85	$13.00	$0.42	$0.00	$27.27
3	45	$15.58	$13.00	$11.52	$0.00	$40.10
4	45	$15.58	$13.00	$11.52	$0.00	$40.10
5	50	$17.32	$13.00	$11.79	$0.00	$42.11
6	55	$19.05	$13.00	$12.06	$0.00	$44.11
7	60	$20.78	$13.00	$12.34	$0.00	$46.12
8	65	$22.51	$13.00	$12.62	$0.00	$48.13
9	70	$24.24	$13.00	$12.90	$0.00	$50.14
10	75	$25.97	$13.00	$13.17	$0.00	$52.14

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2016	$48.80	$10.18	$19.14	$0.00	$78.12
	08/01/2016	$49.70	$10.18	$19.22	$0.00	$79.10
	02/01/2017	$50.27	$10.18	$19.22	$0.00	$79.67

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.40	$10.18	$19.14	$0.00	$53.72
2	60	$29.28	$10.18	$19.14	$0.00	$58.60
3	70	$34.16	$10.18	$19.14	$0.00	$63.48
4	80	$39.04	$10.18	$19.14	$0.00	$68.36
5	90	$43.92	$10.18	$19.14	$0.00	$73.24

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.85	$10.18	$19.22	$0.00	$54.25
2	60	$29.82	$10.18	$19.22	$0.00	$59.22
3	70	$34.79	$10.18	$19.22	$0.00	$64.19
4	80	$39.76	$10.18	$19.22	$0.00	$69.16
5	90	$44.73	$10.18	$19.22	$0.00	$74.13

Notes:

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$36.70	$7.45	$13.75	$0.00	$57.90
	06/01/2016	$37.45	$7.45	$13.75	$0.00	$58.65
	12/01/2016	$38.45	$7.45	$13.75	$0.00	$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$35.42	$7.45	$13.75	$0.00	$56.62
	06/01/2016	$36.17	$7.45	$13.75	$0.00	$57.37
	12/01/2016	$37.17	$7.45	$13.75	$0.00	$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2015	$35.30	$7.45	$13.75	$0.00	$56.50
	06/01/2016	$36.05	$7.45	$13.75	$0.00	$57.25
	12/01/2016	$37.05	$7.45	$13.75	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.31	$10.00	$14.90	$0.00	$68.21
	06/01/2016	$44.06	$10.00	$14.90	$0.00	$68.96
	12/01/2016	$45.29	$10.00	$14.90	$0.00	$70.19
	06/01/2017	$46.28	$10.00	$14.90	$0.00	$71.18
	12/01/2017	$47.27	$10.00	$14.90	$0.00	$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$33.62	$10.41	$10.08	$0.00	$54.11
	06/01/2016	$34.12	$10.41	$10.08	$0.00	$54.61
	08/01/2016	$34.12	$10.91	$10.08	$0.00	$55.11
	12/01/2016	$34.12	$10.91	$10.89	$0.00	$55.92
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)*	12/01/2015	$47.58	$7.45	$14.15	$0.00	$69.18
	06/01/2016	$48.33	$7.45	$14.15	$0.00	$69.93
	12/01/2016	$49.33	$7.45	$14.15	$0.00	$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)*	12/01/2015	$49.58	$7.45	$14.15	$0.00	$71.18
	06/01/2016	$50.33	$7.45	$14.15	$0.00	$71.93
	12/01/2016	$51.33	$7.45	$14.15	$0.00	$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)*	12/01/2015	$39.65	$7.45	$14.15	$0.00	$61.25
	06/01/2016	$40.40	$7.45	$14.15	$0.00	$62.00
	12/01/2016	$41.40	$7.45	$14.15	$0.00	$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)*	12/01/2015	$41.65	$7.45	$14.15	$0.00	$63.25
	06/01/2016	$42.40	$7.45	$14.15	$0.00	$64.00
	12/01/2016	$43.40	$7.45	$14.15	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2015	$33.04	$10.41	$10.08	$0.00	$53.53
	06/01/2016	$33.54	$10.41	$10.08	$0.00	$54.03
	08/01/2016	$33.54	$10.91	$10.08	$0.00	$54.53
	12/01/2016	$33.54	$10.91	$10.89	$0.00	$55.34
WAGON DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2015	$35.60	$7.45	$13.55	$0.00	$56.60
	06/01/2016	$36.35	$7.45	$13.55	$0.00	$57.35
	12/01/2016	$37.35	$7.45	$13.55	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2015	$43.73	$10.00	$14.90	$0.00	$68.63
	06/01/2016	$44.48	$10.00	$14.90	$0.00	$69.38
	12/01/2016	$45.73	$10.00	$14.90	$0.00	$70.63
	06/01/2017	$46.73	$10.00	$14.90	$0.00	$71.63
	12/01/2017	$47.73	$10.00	$14.90	$0.00	$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2016	$51.36	$11.07	$15.14	$0.00	$77.57
	09/01/2016	$52.41	$11.07	$15.14	$0.00	$78.62
	03/01/2017	$53.41	$11.07	$15.14	$0.00	$79.62
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentice Information:

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

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

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

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SECTION 00 73 73

STATUTORY REQUIREMENTS

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.

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.

SC-1.01.B *Additional Terms:* 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-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 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 MGL 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;*

Add the following language at the end of subparagraph 5.04.C.1,

> , in compliance with MGL Chapter 152

SC-6.02 ***Labor; Working Hours:***

Add the following new subparagraphs immediately after subparagraph 6.02.A.1.

2. 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.

3. 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.

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. 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 which limits work hours of those employed on public construction to 8 hours in any one day or 48 hours in any one week or 6 days in any one week, except in cases of emergency.

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 applies 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 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.

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:*

". . .(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 (2) 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-9.08 ***Decisions on Requirements of Contract Documents and Acceptability of Work:*** In Paragraph 9.08.B, 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"*.

SC-10.01 ***Authorized Changes in the Work***: Add the following subparagraph immediately after Paragraph 10.01.A.

1. 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 Sections 00 73 43 and 00 73 46.

Add the following new subparagraph immediately after Paragraph 11.01.A.5.d.

1) The Project is exempt from sales tax as set forth in SC-6.01.

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.

a. 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. The following provisions regarding payment to Subcontractors are required by MGL Chapter 30, Section 39F, *Construction contracts; assignment and subrogation; subcontractor defined; enforcement of claim for direct payment; deposit, reduction of disputed amounts*. These provisions shall be included in any subcontract in connection with Work under the Contract Documents.

1. 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.

2. 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.

3. 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.

4. If, within 70 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.

5. Within 15 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.

6. 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.

7. 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.

8. 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 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; extra work; 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*, 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.

2. 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.

3. 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 1 and 2 above give the general Contractor against the Awarding Authority, but nothing in provisions 1 and 2 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.

1. 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

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Project Description

B. Description of the Work

C. Work Sequence and Coordination

D. Special Requirements

E. Attachments

1.02 PROJECT DESCRIPTION

A. The primary objective of the proposed Project is to restore / improve pedestrian and vehicular surface conditions on a portion of Chestnut Street and a portion of Cottage Avenue in the City's Downtown area.

1.03 DESCRIPTION OF THE WORK

A. The Work includes labor, material and equipment, services required for construction and commissioning of the Project in accordance with the Contract Documents and as more specifically described in the Specifications and Drawings and includes, but is not limited to, the following principal features:

- Site preparation and demolition of select site features
- Furnish, install, and maintenance of environmental protection controls
- Layout of proposed work by surveyor
- Furnish and install new vertical granite curb
- Removal & resetting of existing vertical granite curb
- Furnish and install lighting conduit, duct banks and lighting units
- Installation of cement concrete & bituminous concrete sidewalks
- Install full depth reclamation and reconstruction of roadway at indicated areas
- Install full depth bituminous concrete pavement at indicated areas
- Install roadway mill and asphalt overlay at indicated areas

B. Work Site locations: generally as shown on the Drawings.

1. Chestnut Street – near Maple Street east to Dennis Ryan Pkwy, Foster Street – 100 feet +/- to intersection of Chestnut Street and Foster Street, Cottage Avenue – intersection of Chestnut Street and Cottage Avenue southerly to 30 feet +/- south of Cottage Street and 60 feet +/- easterly on Cottage Street in Quincy, Massachusetts.

C. Existing conditions and Site data: per the Drawings and Section 01 15 00.

1.04 WORK SEQUENCE AND COORDINATION

A. The Work will not extend over more than one construction season and must be sequenced to limit impacts to the City, school and neighborhood areas from construction.

B. Work shall be performed from 7:30 AM to 3:30 PM, Monday through Friday, excluding holidays unless otherwise approved by Owner.

C. Coordinate all work with Quincy Planning and Community Development, Department of Public Works, Quincy Traffic Engineer traffic control (plans & procedures), Quincy Police Department for traffic control & details officers and Engineer.

D. The Contractor shall coordinate lane and road closures with the City Traffic Engineer, Police Department, Fire Department and Emergency Medical Services.

E. All construction activities and restorations shall be Final complete and contractor de-mobilized from the site within 90 days of Notice to Proceed.

1.05 SPECIAL PROJECT REQUIREMENTS

A. Coordinate permitting through the City Engineer's office to obtain required permits and those as may be referenced in Sections 00 73 10 and 01 15 00.

B. Maintain roads/sidewalks, utilities and other public amenities for convenience, safety and safe access to businesses and abutters at all times during execution of the Work and during periods of no construction activity until Project completion.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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.

1.02 PRICE AND PAYMENT PROCEDURES

A. Pursuant to Paragraph B, payment for uniformed traffic police officers will be paid on the basis of the actual hours worked and paid by the Contractor as verified by the Resident Project Representative. The invoiced amounts paid may include standard administrative charges levied by the Police Department. Additional mark-up of police details invoices shall not be allowed.

B. Submit the following with Applications for Payment for Traffic Police Details. Failure to include this information and a proof of payment may result in non-payment of invoiced amount.

1. Receipts of invoices paid (include copy of cashed check paid to police), clearly showing:

a. the project name;

b. the officer's name;

c. location of assignment;

d. date of assignment;

e. hours of assignment; and

f. number of hours being invoiced.

C. Pursuant to Paragraph C. Change Procedures, also use the City of Quincy standard Change Order Form provided.

D. Pursuant to Paragraph D, Measurement and Payment Requirements, see Section 01 20 25 for Measurement and Payment for this Project.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Pursuant to Paragraph A, Project Management and Coordination,

1. and per subparagraph 1., the Project contact list will be distributed at the preconstruction meeting.

2. and per subparagraph 4, identify documents and items for the Project as follows:

West of Chestnut Surface Improvement Project

3. and per subparagraph 7.a, Progress Meetings, biweekly, or as necessary, progress meetings will be held for this Project.

B. Pursuant to Paragraph B, Documentation of Progress,

1. and per subparagraph 3, provide construction photographs prior to start of construction to establish pre-construction conditions and to show progress in accordance with subparagraph 3.b.

C. Pursuant to Paragraph C, Submittal Procedures,

1. and per subparagraph C.1, address submittals as follows:

Engineer:

Woodard & Curran
33 Broad Street | One Weybosset Hill
Floor 7
Attn: R.J. Dowling
401-484-6136
rdowling@woodardcurran.com

Owner:

City of Quincy
34 Coddington Street, Third Floor
Quincy, MA 02169
Attn: Planning Director James Fatseas
617 376-1365

2. Per subparagraph 5.f, Shop Drawings, submit 3 prints and electronic files in “PDF” by email.

3. Per subparagraph 6.a, As-Builts for Material and Equipment, submit 3 prints and electronic files in “.DWG” and “PDF” by email.

4. Per subparagraph 6.b, Conformed to Construction Record Drawings, submit 3 prints and electronic files in “.DWG” and PDF by email for Engineer’s use in preparing final Record Drawings.

D. Pursuant to subparagraph D.1, achievement of Substantial Completion shall also require restoration of the Project Site to the satisfaction of the Owner and Engineer.

1.04 QUALITY REQUIREMENTS

A. Pursuant to Paragraph A, Reference Standards, comply with the Massachusetts Department of Transportation - Highway Division's (referred to as "MassDOT") Construction Specifications (including Interim Supplemental Specifications and Supplemental Specifications), 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.

1. 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.

2. See MassDOT Highway Division website for referenced documents listed in Attachment A to this Section.

www.massdot.state.ma.us/highway/DoingBusinessWithUs/ManualsPublicationsForms

B. Comply with the requirements of the Quincy Code of Ordinances and Zoning Code portions of which are included in Section 00 73 10.

PART 2 – PRODUCTS

2.02 PRODUCT REQUIREMENTS

A. Pursuant to Paragraph A, General,

1. The definition of "material" also includes that defined in Section 00 73 73.

PART 3 – EXECUTION

3.01 TEMPORARY CONSTRUCTION FACILITIES

A. Pursuant to Paragraph F, Parking,

1. Parking areas are not to be constructed on-Site for the Project.

2. Prohibit personal vehicle parking on existing pavements and sidewalks within the Project Site.

B. Pursuant to Paragraph G, Field Offices, delete this paragraph in its entirety as field offices are not required.

C. Pursuant to Paragraph H, Staging Area, delete this paragraph in its entirety as a staging area is not provided.

D. Pursuant to Paragraph I, Project Identification, provide one 4-foot by 8-foot Project Sign with verbiage as directed and approved by the City DPW.

3.02 TEMPORARY UTILITIES

A. Pursuant to Paragraphs A and B regarding electricity and phone services, delete these paragraphs in their entirety

B. Pursuant to Paragraph D, provide lighting as required for construction operations only.

3.03 TEMPORARY CONTROLS

A. Pursuant to Paragraph C, Erosion and Sediment Control,

1. subparagraph 2, coordinate plan with the requirements indicated in the Drawings.

2. subparagraph 23.c regarding Removal of Temporary Erosion Control, adequate grass growth for this Project is specified as minimum of 3-inches in height.

B. Pursuant to Paragraph F, Traffic Regulation,

1. subparagraph 1,

a. Include two (2) portable, programmable electronic message boards. To be installed & maintained from 2 weeks prior to construction activities through project completion.

b. Include suggested construction staging, pertinent traffic control, and sign placement and sign size sketches showing the proposed sign setups intended for necessary traffic control and protection during the progress of the Work in the traffic control plan to be submitted to the Engineer and subject to approval of the City Traffic Engineer.

c. 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.

2. subparagraph 2, also comply with applicable portions of the "*Massachusetts Amendments to the 2009 Manual on Uniform Traffic Control Devices and the Standard Municipal Traffic Code*" published by the Massachusetts Department of Transportation Highway Division (referred to as "Mass Amendments").

3. subparagraph 4, comply with the relevant provisions of Section 7.00 of the MassDOT Standard Specifications and Supplements, and the following:

   a. The intent of posting police details is to ensure public safety and protection of property through appropriate traffic control. Police personnel are not to be employed as watchmen to protect the Contractor's equipment and materials.

   b. All uniformed traffic police personnel required for traffic control for construction shall be authorized by the Department of Public Work's Safety Officer and/or the Engineer.

   c. No payment will be made for personnel other than uniformed traffic police, nor will payment be made for uniformed traffic police not approved by the Engineer.

   d. Submit a forecast weekly traffic police detail schedule, at least 72 hours prior to the start of the Work describing: the nature and location of the Work, the number of police personnel, the estimated number of police hours required for each location, and justification for each uniformed officer being requested. All payment to the police for work under this Contract shall be in accordance with the Massachusetts General Laws, Chapter 149, Section 34B, which states that reserve police officers shall receive the same prevailing wage rate as paid to regular police officers.

   e. While scheduling Work in areas where uniformed traffic police is required, take into consideration that uniformed police are paid for a four-hour minimum. If uniformed police have been arranged to work, and weather or some other situation prohibits the Work, the Police Department Detail Unit shall be notified at (617) 479-1212 before 5:30 a.m. on the day of intended Work to cancel the work order. Unless the work order is canceled in time, the Contractor shall be charged at the rate of minimum four hours for each officer included in the detail and shall be fully responsible for payment of all charges thus incurred.

4. subparagraph 5, regarding maintaining one moving lane, comply with the following additional requirements.

   a. Except when road closure and road blockage permits are obtained, maintain two lanes of traffic (one in each direction) on Chestnut

Street throughout construction and during non-working hours to the maximum extent possible.

b. Lane closures will not be permitted from 7:00 am to 9:00 am and 3:00 pm to 7:00 pm except when road closure and road blockage permits are obtained.

5. subparagraph 6, Owner considers the access/egress to abutting residences and businesses to be of critical importance and Contractor must ensure strict compliance with the requirements specified.

6. subparagraph 8, include details of the required signs in traffic plan.

3.05 OVERALL EXECUTION REQUIREMENTS

A. Pursuant to Paragraph A, Coordination,

1. Pursuant to subparagraph A.3 Work coordination, comply with the required Work sequence and coordination specified in Section 01 11 10 for starting and completion of Work and Work hours in the area referenced as Atlantic Middle School Campus Improvement Project, and maintaining access to private driveways. Reflect in the Project scheduling.

2. Pursuant to subparagraph A.7 other coordination requirements,

a. Coordinate Work such that Work is completed with minimum disruption to residents and businesses.

b. Per SC-6.02 of Section 00 73 10, regular working hours are 7:30 a.m. to 3:30 p.m., Monday through Friday.

3. Pursuant to Paragraph B, Existing Conditions,

a. Pursuant to subparagraph B.1 Project specific conditions,

1) see information regarding existing conditions identified in in 00 73 10, Articles SC-4.02 and SC-4.; and

2) As specified in the Drawings under General Notes: Base plans are based on information obtained by the City from the Adams Green Project Designers, Howard Stein & Hudson (HSH) based on survey information provided to HSH by A-Plus Construction Services. Drawing further supplemented with HSH Adams Green design drawings and Woodard & Currans West of Chestnut Utility Roadway Infrastructure Replacement Project design drawings.

3) Conduct test pits to verify existing conditions as approved and coordinated with the City of Quincy DPW at no additional cost to Owner.

b. Pursuant to subparagraph B.2, existence and location of underground and other utilities and construction,

1) See 3.a. above;

2) engage a professional subsurface utility locator to verify the existence and location of underground utilities prior to starting Work; and

3) conduct test pits and other utility research as directed by Engineer and properly restore utilities interfered with or damaged during construction at no additional cost to the Owner.

B. Comply with the technical requirements included in the Quincy Code of Ordinances. Referenced portions and list of contents are included in Section 00 73 10.

ATTACHMENTS

A. List of MassDOT Highway Division documents

END OF SECTION

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Manuals, Publications & Forms

MassDOT posts most of its manuals, publications and forms on its website. To view the documents listed below, click on the links. If you can't find what you're looking for below, please browse by department.

- Construction Specifications
- Construction Details
- Design Guide and Manuals
- Environmental Documents
- Project Management Guides
- Highway Access Permits
- Miscellaneous Publications

Construction Specifications

Title	Date	File Type/Size
Standard Specification for Highways and Bridges (English Edition)	1988	HTML
Standard Specifications for Highways and Bridges (Metric Edition)	1995	PDF | 2.49MB
2015 Supplemental Specifications to the Standard Specifications for Highways and Bridges	7/1/2015	PDF | 2.1MB
Interim Supplemental Specifications	9/18/2015	PDF | 68KB
Price Adjustments	Updated Monthly	View Pages
Superseded Publications		
2012 Supplemental Specifications to the Standard Specifications for Highways and Bridges	6/15/2012	PDF | 1.6MB
2010 Supplemental Specifications to the 1988 Standard Specifications for Highways and Bridges (Combined English and Metric Edition) (Combined English and Metric Edition)	2/25/2010	PDF | 1MB
2006 Supplemental Specifications to the 1988 Standard Specifications for Highways and Bridges (English Edition)	6/6/2006	PDF | 1.73MB
2006 Supplemental Specifications to the 1995 Standard Specifications for Highways and Bridges (Metric Edition)	6/6/2006	PDF | 1.41mb

Construction Details

Title	Date	File

		Type/Size
2014 Construction Standard Details	Jun 2014	PDF | 15.2MB
Notes on Walks and Wheelchair Ramps for Designers and Construction Engineers	March 2012	PDF | 140KB
Traffic Management Plans and Detail Drawings		HTML link
Standard Drawings for Signs and Supports	1990	PDF | 7MB
Standard Drawings for Traffic Signals and Highway Lighting	1968	PDF | 3.25MB
Superseded Publications		
2012 Construction Standard Details	Mar 2012	PDF | 27MB
2012 Construction Standard Details: Drawing History Index	2012	PDF | 119KB
2010 Construction Standard Details (English Edition)	2010	PDF | 13MB
Metric/English Supplemental Drawings Supplement to the 1996 Metric Edition of the Construction and Traffic Standard Details and the 1977 Mass. Department of Public Works Construction Standards	Apr 2003	PDF | 5.6MB
Construction and Traffic Standard Details (Metric Edition)	1996	PDF | 7.8MB
1966 Construction Standards 1st Edition (Obsolete)	May 1966	PDF | 10MB

Design Guide and Manuals

Title	Date	File Type/Size
Project Development & Design Guide	2006	HTML
Separated Bike Lane Planning and Design Guide	2015	
LRFD Bridge Manual - 2013 Edition	Jun 2013	HTML
2005 Bridge Manual, Revised August 2007	Aug 2007	HTML
CAD Standards		
Manual on Uniform Traffic Control Devices		FHWA Link
Massachusetts Amendments to the 2009 Manual on Uniform Traffic Control Devices and the Standard Municipal Traffic Code		HTML link
Survey Manual	1996	HTML
Historic Parkway Preservation Treatment Guidelines (DCR)	Mar 2007	PDF | 28MB
Superseded Publications		
Addenda to the 1997 Highway Design	Apr	PDF |

Manual	2003	2.7MB
Highway Design Manual	1997	PDF | 6.65MB

Miscellaneous Publications

Title	Date	File Type/Size
Bridge Inspection Handbook 2015 Edition	May 2015	HTML
Design Build Procurement Guide	2012	PDF | 233KB
Diesel Equipment Retrofit		HTML
English Bid Item Nomenclature List	9/25/2015	PDF | 935KB
Metric Bid Item Nomenclature List	9/25/2015	PDF | 950KB
Guide Sign Policy for Secondary State Highways	2008	HTML
Identification of Massachusetts Freight Issues and Priorities	Nov 1999	PDF | 7.4MB
Procedures for Speed Zoning on State and Municipal Roadways	2012	PDF | 2.2MB
Utility Accommodation Policy	May 2013	PDF | 6.5MB
Vegetation Management Plans		
District 1 Yearly Operational Plan 2015	2015	PDF | 580KB
District 1 Vegetation Management Plan 2012 - 2016	2012	PDF | 452KB
Herbicide Alternatives Research	Jul-2008	PDF | 8.9MB

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SECTION 01 15 30

PAYMENT AND ADMINISTRATIVE PROCEDURES AND QUALITY REQUIREMENTS

PART 1 – GENERAL

1.01 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

1.02 PAYMENT PROCEDURES
Schedule of Values
Payment Procedures
Change Procedures
Measurement and Payment Procedures
Correlation of Submittals

1.03 ADMINISTRATIVE REQUIREMENTS
Project Management and Coordination; Meetings
Documentation of Progress
Submittal Procedures
Closeout Procedures

1.04 QUALITY REQUIREMENTS
Reference Standards and Regulatory Requirements
Qualifications

1.05 ATTACHMENTS

1.02 PAYMENT PROCEDURES

A. **Schedule of Values**: in accordance with Article 2 of the Standard General and Supplementary Conditions, if any.

1. Provide sufficient detail to allow for determination of the value of the Work at any degree of completion.

   ☒ For each line item, identify number and title of specification section in accordance with the Table of Contents.

☒ See **Specific Project Requirements and Procedures** for additional requirements.

Number of hardcopies: **6**

Submit electronically: ☒ by email ☐ on CD
☐ via digital document exchange system in PDF format

B. **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.

   Number of hardcopies: **6**

   Submit electronically: ☒ by email ☐ on CD
   ☐ via digital document exchange system in PDF format

2. Payment Period: at intervals stipulated in the Agreement.

3. Submit an updated Progress Schedule with each Application for Payment.

☒ See **Specific Project Requirements and Procedures** for additional requirements.

C. **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.

Number of hardcopies: 6 of each type of form and accompanying documentation.

Submit electronically: ☒ by email ☐ on CD
☐ via digital document exchange system in PDF format

☒ See **Specific Project Requirements and Procedures** for additional requirements.

1. Field Order: as authorized by Paragraph 9.04 of the Standard General and Supplementary Conditions, if any.

2. Change Request: issued by Engineer, Owner or Contractor to request or authorize minor variations and deviations, amendments or supplements to the Contract Documents. Initiate requests for substitute items per Paragraph 6.05 of the Standard General and Supplementary Conditions, if any, using a Change Request.

   a. Engineer or Owner to include a detailed description of a proposed change with supplementary or revised Drawings and Specifications, including a change in Contract Times related to the change (with a stipulation for any overtime work required) and the period of time during which the requested price (if any) will be considered valid. Prepare and submit an estimate within 15 days.

   b. Describe the proposed change and its full effect on the Work. Describe the reason for the change and the effect on the Contract Price and Contract Time with full documentation (and a statement describing the effect on Work by separate or other contractors).

3. Work Change Directive: as defined in Paragraph 1.01.A.51 of the Standard General and Supplementary Conditions, if any.

4. Change Order: in accordance with Articles 10 and 12 of the Standard General and Supplementary Conditions, if any.

   a. *Stipulated Price Change Order*: based on Contractor's maximum price quotation or Contractor's request for a Change Order as approved by Engineer or Owner.

b. *Unit Price Change Order*: for pre-determined unit prices and quantities and executed on a fixed unit price basis. Execute Work under a Work Change Directive for unit costs or quantities of Work not pre-determined. Changes in Contract Price and Contract Time to be computed as specified for Time and Material Change Order.

c. *Time and Material Change Order*: based on itemized account and supporting data after completion of change within time limits indicated in the Standard General and Supplementary Conditions, if any. Engineer or Owner and Contractor to determine the change allowable in Contract Price and Contract Time as provided in the Standard General and Supplementary Conditions, if any. Maintain detailed records of Work completed on this basis, provide provide full information for evaluation of proposed changes, and substantiate costs for changes in the Work.

5. "Or Equals" and Substitutes: Request "Or-Equal" and substitute items items as a Change Request per subparagraph 1.02.C.2 above, with complete data substantiating compliance with Contract Documents.

a. Or-Equal" and substitute items will be processed in accordance with Paragraph 6.05 of the Standard General and Supplementary Conditions, if any, and subparagraph 1.03.C.6 below.

D. **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

☒ See **Specific Project Requirements and Procedures** for additional requirements.

E. 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.

1.03 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 Conference and Site Mobilization 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.

   ☒ 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.

4. Identify correspondence, submittals, drawings, data and materials, packing slips or other items associated with this Contract as specified in the Section 01 15 00.

5. 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.

6. 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.

7. Progress Meetings

a. Owner to schedule progress meetings beginning no later than 14 days after the Initial Conference and continue thereafter on a **biweekly** basis throughout progress of the Work.

b. Attendance required by Contractor, Contractor's Superintendent, major Subcontractors and Suppliers, Owner and Engineer as appropriate to agenda topics for each meeting.

c. 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

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. 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).

d. Review conditions, preparation and procedures, and coordination with related Work.

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.

   Number of hardcopies: **6**

   Submit electronically: ☒ by email ☐ on CD
   ☐ via digital document exchange system in PDF format

   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:

   ☐ Not Required for the Project

   ☒ 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.

   ☒ Submit prior to starting construction.

   ☐ Submit photographs with Payment Application:
   ☐ monthly during progress of Work.
   ☐ 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.

Number of copies: 1 on 8-1/2 by 11 sheets.

Submit electronically: ☒ by email ☒ on CD
☐ via digital document exchange system

☒ 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.

☒ Submit prior to the starting construction.
☒ Submit at completion of 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 1 copies of approved videos.

4. Reports

a. Submit weekly Safety Reports signed by the Safety Representative in accordance with Articles 6.13 and 6.14 of the Standard General and Supplementary Conditions, if any.

b. Other reports to be submitted:
☐ None
☒ Specified in Section 01 15 00

Number of hardcopies: **1**

Submit electronically: ☒ by email ☐ on CD
☐ via digital document exchange system in PDF format

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 **at the Preconstruction Conference and Site Mobilization Meeting**. 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.

   Number of hardcopies: **6**

   Submit electronically: ☒ by email ☐ on CD
   ☐ via digital document exchange system in PDF format

   a. 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 10-15 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.

Number of prints: **6**

Electronic format: ☒ PDF ☐ DWG ☐ DXF
☐ OTHER (as specified in Section 01 15 00)

Submit electronically: ☒ by email ☐ on CD
☐ via digital document exchange system

a. 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 beyond 3 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.

   Number of prints: **6**

   Electronic format: ☒ PDF ☒ DWG ☐ DXF
   ☐ OTHER (as specified in Section 01 15 00)

   Submit electronically: ☐ by email ☒ on CD
   ☐ via digital document exchange system

   a. Indicate special procedures, perimeter conditions requiring special attention and special environmental criteria required for application or installation.

   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.

8. Record Documents and Closeout Submittals: submit in accordance with Paragraph 6.12 of the Standard General and Supplementary Conditions, if any, and Paragraph 1.03.D below.

a. *As-Builts for Material and Equipment*

Number of prints: **6**

Electronic format: ☒ PDF ☒ DWG ☐ DXF
☐ OTHER (as specified in Section 01 15 00)

Submit electronically: ☒ by email ☒ on CD
☐ via digital document exchange system

Indicate "As-Supplied" in revision block and sign. Show all changes and revisions to Final Completion per **Execution and Closeout Requirements**.

b. *Conformed to Construction Record Drawings*: Submit for Engineer's use in preparing final Record Drawings.

Number of prints: **6**

Electronic format: ☒ PDF ☒ DWG ☐ DXF
☐ OTHER (as specified in Section 01 15 00)

Submit electronically: ☒ by email ☒ on CD
☐ via digital document exchange system

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.

In PDF format: ☒ on CD
☐ via digital document exchange system

☒ Submit 6 copies in ring binders with durable plastic covers and table of contents.

d. *Operation and Maintenance Data*

1) Submit draft of completed volumes 30 days prior to equipment startup. Revise content of all sets as required prior to final submission.

Number of hardcopies: **6**

Submit electronically: ☐ by email ☒ on CD
☐ via digital document exchange system in PDF format

2) Submit final volumes within 10 days after final inspection.

Submit electronically: ☐ by email ☒ on CD
☐ via digital document exchange system in PDF format

☒ Submit 6 copies of data in ring binders with durable plastic covers with 8 1/2 by 11 inch text pages. Cover: title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of Project, and subject matter of binder when multiple binders are required.

a) Subdivide binder contents with permanent page dividers, logically organized as described below with laminated plastic tabs and clearly print the contents. Prepare a Table of Contents for each volume, with material, equipment, or system description identified, in three parts as follows.

Part 1: Directory, listing names, addresses, and telephone numbers of Contractor, Subcontractors, and major equipment Suppliers, and service representative.

Part 2: Operation and maintenance instructions arranged by system and subdivided by Specification section.

For each system, identify names, addresses, and telephone numbers of Subcontractors and Suppliers. Identify the following:

- Significant design criteria
- List of equipment with As-Builts certified "As-Supplied"
- Parts list for each component
- Operating instructions
- Inspection, maintenance and adjustment instructions for equipment and systems
- Lubrication and maintenance schedules
- Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents
- Troubleshooting guides
- Schematic diagrams

Part 3: Material Safety Data Sheets

Part 4: Other Project documents and certificates, including the following:

- Certificates
- Photocopies of warranties

☒ See **Specific Project Requirements and Procedures** for additional requirements.

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 16.19.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 Certificate of Completion has been provided in accordance with Paragraph 14.07.B of the Standard General and Supplementary Conditions, if any.

i. 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.

1.04 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.

3. Pursuant to Paragraph A. Reference Standards and Regulatory Requirements, specific requirements applicable to the Project include the following:

a. requirements of the Quincy Code of Ordinances and Zoning Code portions of which are included in Section 00 73 10.

b. 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.

c. 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 listing of documents included as an attachment to this Section.

www.massdot.state.ma.us/highway/DoingBusinessWithUs/Manuals PublicationsForms

☒ See **Specific Project Requirements and Procedures** for additional requirements.

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.

☒ See **Specific Project Requirements and Procedures** for additional requirements.

1.05 ATTACHMENTS

A. Transmittal form

END OF SECTION

TRANSMITTAL FORM

Owner:		Transmittal No.:	
Project:		Date:	
Contract No.:			
Contract Title:			
Specification Section No.:			

Assign a consecutive, unique number to each submittal and use same on resubmittals. Example: 25 =original submittal; 25A = 1st resubmittal; 25B (and beyond) = additional resubmittals

Submittal (Item) No.	Resubmittal (A B C etc.)	Date	Title/Description	Vendor/Manufacturer	Copies

☐ The material and equipment, and requirements for construction/installation contained in Submittal No.(s) _____ have been reviewed and we certify that they are correct and in strict conformance with the requirements specified (no exceptions or deviations)

☐ The material and equipment and requirements for construction/installation contained in Submittal No.(s) _____ have been reviewed and we certify that they are correct and in strict conformance with the requirements specified except for the following deviations (list below or attach listing):

_____

_____

CONTRACTOR'S NAME_____

ADDRESS_____

BY: _____ DATE: _____

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SECTION 01 20 25

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 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 Standard General and Supplementary Conditions and the General Requirements.

C. Measurement: as determined, verified, or approved by Engineer in accordance with Paragraph 11.03 of the Standard General Conditions, Supplementary Conditions 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 <u>incidental to all pay items</u>, and shall not be measured separately for payment.

1. Division 01 General Requirements EXCEPT those items included in Mobilization/Demobilization and included as a separate pay item including, but not limited to:

a. temporary traffic control and regulation; investigative test pits, erosion control (including installation, operation, maintenance, removal and off-Site disposal of erosion control devices); site preparation of Work; construction dewatering (including compliance with applicable Laws and Regulations), notifications to abutters; and temporary construction fencing and gates; temporary construction projects signs;

2. Materials, equipment, and services necessary to verify existing field conditions and the location, size, type, material, and orientation of existing pipes and utilities shown on the Drawings including test pits.

3. Restoration of all areas disturbed by the Contractor within the limits of Work, including planting.

4. Field and laboratory testing and reporting by independent laboratory, including but not limited to compaction of backfill materials; aggregate gradation; and concrete testing.

5. Site stabilization of unpaved areas disturbed by the Contractor within the limits of Work.

6. Health and Safety Plan.

F. Payment will not be made for restoration of areas disturbed by the Contractor outside the limits of Work.

G. 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

H. 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.

I. Temporary bypass pumping and plugging of flows shall be considered incidental to the Work and shall not be measured separately for payment.

J. Pay items identified as a Contingency Allowance will be processed per Article 11.02 of the General Conditions.

1.02 MEASUREMENT AND PAYMENT BASIS FOR EACH BID ITEM

Item 1 – Full Depth Roadway Reconstruction by Reclamation and Pavement Installation	
Measurement	Per Square Yard Measured in Place
Payment	Unit price per Square Yard
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment associated with FULL DEPTH (12") roadway reconstruction by reclamation and install indicated asphalt pavement section at the locations and limits indicated on the Drawings including but not limited to: protection of structures; lowering of structures/ castings; saw cutting; removal & storage or disposal of excess soils & materials; subgrade grading and compaction; Hot Mix Asphalt Surface Course- Standard Top; Hot Mix Asphalt Base Course; gravel base; feather grade to meet surrounding elevation, and ensure smooth transition; adjustment of existing casting to grade including brick & mortar, concrete collars; compaction and material testing and all other Work incidental to the satisfactory completion of the Work. Hot Mix Asphalt for miscellaneous use will not be measured for payment under this item and shall be incidental to Work.	

Item 2 – Roadway Milling (Cold Plane), Asphalt Leveling and Asphalt Overlay Pavement Installation	
Measurement	Per Square Yard Measured in Place
Payment	Unit price per Square Yard
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment associated with existing roadway milling (cold planning) and bituminous pavement installation at the locations and limits indicated on the Drawings including but not limited to: protection of structures; lowering of structures/ castings; saw cutting; removal & disposal of excess soils, materials, existing asphalt & sub base material; milling; provision and installation of tack coat; provision and installation of Hot Mix Asphalt Surface Course- Standard Top for roadway leveling required to meet indicated grades; fine grading to sub-grade elevations and compaction; compaction testing; provision & installation of Hot Mix Asphalt Surface Course- Standard Top for roadway overlay pavement section (1 ½ inches); feather grade to meet surrounding elevation, and ensure smooth transition; adjustment of existing casting to grade including brick & mortar, concrete collars; compaction and material testing and all other Work incidental to the satisfactory completion of the Work. Hot Mix Asphalt for miscellaneous use will not be measured for payment under this item and shall be incidental to Work.	

Item 3 – Tree Protection	
Measurement	Per Each Installed
Payment	Unit price per Each
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment to install tree protection measures as indicated on drawings, details and as directed, and other required Work to satisfactorily protect existing trees from construction activities.	

Item 4 – Cement & Bituminous Concrete Sidewalk Demolition, Remove and Dispose	
Measurement	Per Square Yard Measured In Place
Payment	Unit price per Square Yard
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment to saw cut as indicated, demolish, remove and dispose concrete or asphalt sidewalk at the locations and limits indicated on the Drawings and all other Work incidental to the satisfactory completion of the Work.	

Item 5 – Removal & Storage or Disposal of Surface Features	
Measurement	Portion of Work completed and accepted
Payment	Percent of lump sum price based on Schedule of Values
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment associated with removing existing signs, trees, bushes, salvage of street lighting and miscellaneous street features (such as mailboxes, …) as indicated on the Drawings or as field conditions dictate, saw cutting of the existing pavement where indicated or directed, reinstallation of stored items (such as mailboxes, …) and all other required Work including coordination & delivery of salvaged lighting, excess granite curb, castings and other items to DPW.	

Item 6 – Controlled Density Fill	
Measurement	Per ton delivered, placed and compacted based on truck delivery slips
Payment	Unit price per ton placed
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment for placing Control Density Fill (CDF), Type 2e, Flowable (Excavatable) for preventative trench settlement or shallow cover pipe installations only where required by the Specifications, Drawings or as directed.	

Item 7 – Vertical Granite Curb Type VA-3 – Straight and Curved (New)	
Measurement	Actual length of curb installed
Payment	Unit price per Linear Foot
Schedule of Payment	Per cubic yard of soil removed and replaced as measured
Includes all labor, services, materials, handling, transportation, tools and equipment associated with provision and installation of new vertical granite curbs at the locations and limits indicated on the Drawings including but not limited to: storing in a secure location during excavation; saw cutting of the existing pavement where indicated or directed; the removal and disposal of the existing pavement; excavation; curb installation; cutting ends square; trimming exposed and hidden faces; cleaning all sections to be set; gravel borrow, including grading and compacting and provision and placement of concrete base; pavement materials between the curb and the existing or proposed pavement; replacement and compaction of sidewalk subgrade; setting of curbing to match adjacent existing curbing where applicable to pre-construction conditions; and all other Work incidental to the satisfactory completion of the Work. Any surplus (excess) curbing in good condition to shall be delivered to Owner at 55 Sea Street at no additional cost.	

Item 8 – Vertical Granite Driveway Curb Returns (New)	
Measurement	Per each installed
Payment	Unit price per Each
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment associated with installing vertical granite driveway curb (corners/returns) at the locations and limits indicated on the Drawings including but not limited to:, storing in a secure location during excavation; saw cutting of the existing pavement where indicated or directed; the removal and disposal of the existing pavement; excavation; curb installation; cutting ends square; trimming exposed and hidden faces; cleaning all sections to be set; gravel borrow, including grading and compacting and provision and placement of concrete base; pavement materials between the curb and the existing or proposed pavement; replacement and compaction of sidewalk subgrade; setting of curbing to match adjacent existing curbing where applicable to pre-construction conditions; and all other Work incidental to the satisfactory completion of the Work. Any surplus (excess) curbing in good condition to shall be delivered to Owner at 55 Sea Street at no additional cost.	

Item 9– Remove, Stack, Relocate and Reset Granite Curb Item 10 - Remove, Stack and Reset Driveway Granite Curb Returns	
Measurement	Actual length of curb installed
Payment	Unit price per Linear Foot
Schedule of Payment	Completion of Work – 100%
Includes all labor, services, materials, transportation, tools and equipment to: remove and protect existing granite curbs, sack and store in a secure location; saw cutting of the existing pavement where indicated or directed; removal and disposal of the existing pavement; excavation; all handling (including retrieval of stacked curb from DPW storage location(s); cutting ends square; trimming exposed and hidden faces; cleaning all sections to be reset; provision and installation of gravel borrow; grading and compaction; provision and placement of concrete base; provision and installation of pavements between the reset curb and the existing or proposed pavement, replacement and compaction of sidewalk subgrade; resetting of original curbing and all other Work incidental to the satisfactory completion of the Work. Any surplus (excess) curbing in good condition to shall be delivered to Owner at 55 Sea Street at no additional cost.	

Item 11 – Cement Concrete Driveway Item 12 – Bituminous Concrete Driveway	
Measurement	Square Yard of driveway installed
Payment	Unit price per Square Yard
Schedule of Payment	Completion of Work – 100%
Includes all labor, services, materials, handling, transportation, tools and equipment to provide and install new asphalt/ concrete driveway/ apron at the locations and limits indicated on the Drawings including but not limited to: driveway subgrade; provision, installation and compaction of backfill and bedding soils; welded wire mesh,; removal and off-Site disposal of unsuitable excess soil materials, matching of new driveway to adjacent existing materials as necessary to meet and match pre-construction conditions, feather driveway grade to meet surrounding sidewalk elevation, and ensure smooth transition, provision and construction of expansion and control joints, surface finishing, and all other Work incidental to the satisfactory completion of the Work.	

Item 13– Accessible Curb Ramp (ACR)	
Measurement	Actual Accessible Curb Ramps Installed
Payment	Unit price per Each
Schedule of Payment	Completion of Work – 100%
Includes all labor, services, materials, handling, transportation, tools and equipment associated with installation of new accessible curb ramps (ACR) at the locations and limits indicated on the Drawings including but not limited to: all components associated with ACR from the limits of the ramp tie-in to the adjacent surface(s) including, but not limited to: provision of granite transition curbs; flush granite curbs; tactile warnings; saw cutting of the existing pavement where indicated or directed; removal & disposal of the existing concrete and/or pavement; excavation; curb installation; cutting curb ends square trimming exposed and hidden faces cleaning all sections to be set; provision & installation of gravel base & borrow, grading and compaction; provision & placement of concrete base; welded wire mesh; ramp concrete sidewalk; materials as necessary to meet and match adjacent surfaces to ensure smooth transition to proposed or pre-construction conditions;, feather sidewalk grade to meet surrounding sidewalk elevation; provision and construction of expansion and control joints; surface finishing; and all other Work incidental to the satisfactory completion of the Work.	

Item 14 –Cement Concrete Sidewalk Item 15 –Bituminous Concrete Sidewalk	
Measurement	Square yard of sidewalk installed
Payment	Unit price per square yard
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment to provide and install new Cement Concrete / Bituminous Concrete sidewalks at the locations and limits indicated on the Drawings including but not limited to: preparation of subgrade; provision, installation and compaction of backfill and bedding soils; removal and off-Site disposal of unsuitable excess soil materials, matching of new asphalt sidewalk to adjacent existing surfaces to meet and match pre-construction conditions, feather sidewalk grade to meet surrounding sidewalk elevation, and ensure smooth transition; provision and construction of expansion and control joints; surface finishing and all other Work incidental to the satisfactory completion of the Work.	

Item 16 – Branch Electrical Services & Connections	
Measurement	Work measured, accepted and completed in place
Payment	Unit price per Lump Sum
Schedule of Payment	Monthly based on progress
Includes all labor, services, material and equipment associated with furnishing and installing compliant wired branch service connections from the power source to the apparatus within underground duct bank systems in the configurations and locations shown on the Drawings. Work includes, but not limited to, pavement saw cutting, pavement removal & disposal, temporary pavement, excavation, backfill, compaction, conduit, conduit spacers, all wire, concrete encasement, reinforcement, warning tape, installation of owner furnished structural fill material, electrical connections by licensed electrician implemented utilizing all applicable national codes and all other Work incidental to the satisfactory completion of the Work.	

Item 17 –Electrical Pullbox	
Measurement	Per Each Installed
Payment	Unit price per Each
Schedule of Payment	Completion of Work - 100%
Includes labor, services, material and equipment associated with furnishing and installing the new electrical pullbox at the locations and limits indicated on the Drawings including but not limited to: conduit connections; excavation; bedding; backfill; backfill compaction and material testing; removal and off-Site disposal of excess material; brick & mortar, concrete collars and all related Work to install and adjust to final grade.	

Item 18 – Street Lighting and Bases	
Measurement	Street lighting system installed tested and passed
Payment	Unit price per Each
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment to provide and install the street lighting system at the location and limits shown on the Drawings. Work includes, but not limited to: provision & installation of light base foundation, pole, Victorian style street light fixture, lamping, bulbs; storage and protection; pavement saw cutting, pavement removal & disposal, temporary pavement, excavation, backfill, compaction, foundations, provision and installation of applicable mounting hardware, provision and installation of structural fill material, electrical connections by licensed electrician in compliance with all codes, restoration of disturbed surfaces and all other Work incidental to the satisfactory completion of the Work.	

Item 19 –Pavement Markings	
Measurement	Portion of Work completed and accepted
Payment	Lump Sum
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment associated with, but not limited to, the removal of pavement markings and the provision of temporary and permanent pavement markings indicated on the plans; surface cleaning and preparation, symbols, lines & words per the Manual on Uniform Traffic Control Devices (latest edition) and all other Work incidental to the satisfactory completion of the Work.	

Item 20 – Sign Posts	
Measurement	Actual sign post installed
Payment	Unit price per each sign post installed
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment to provide and install new posts at the locations and limits indicated on the Drawings including but not limited to: storage and protection; excavation, gravel, backfill, compaction, concrete base where required; furnishing and installing applicable mounting hardware; break away sleeves (anchor section); restoration of disturbed surfaces and all other Work incidental to the satisfactory completion of the Work.	

Item 21 – Street Name Sign Item 22 - Permanent Traffic Management Sign (MUTCD)	
Measurement	Actual sign Installed
Payment	Unit price per each sign installed
Schedule of Payment	Completion of Work - 100%
Includes all labor, services, materials, handling, transportation, tools and equipment to provide and install new signs for post and light pole mounted signs at the locations and limits indicated on the Drawings including but not limited to: storage and protection; excavation, gravel, backfill, compaction, concrete base where required; furnishing and installing applicable mounting hardware; break away sleeves (anchor section); restoration of disturbed surfaces and all other Work incidental to the satisfactory completion of the Work.	

Item 23 – Traffic Police Details	
Measurement	Actual wages and fringes paid to police officers based upon invoices and/or payroll records excluding overtime and Contractor markup and/or administration fees
Payment	Percent of not to exceed contingency amount based upon direct costs incurred for Police Details after confirmation of Police Department payment
Schedule of Payment	Based on actual hours worked 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 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.	

Item 24: Mobilization/Demobilization	
Measurement	At Project commencement and at Project completion
Payment	Lump sum price, operations and expenses in connection with mobilization and demobilization shall not exceed five percent (5%) of the Contract Price.
Schedule of Payment	50% Project Commencement 50% Substantial Completion
Includes delivery to and removal of equipment from the Project Site, temporary utilities, facilities and controls, obtaining necessary permits including associated fees, insurance and bond costs, signage, development of pre-construction schedules and plans required by the General Conditions, Supplementary Conditions and General Requirements; necessary pre-construction investigations, verifying existing field conditions and documentation, coordination, preparation of Work and operations, movement of men, equipment and all other Work and operations which must be performed from the time prior to the start of the Work to the final acceptance of the Work by the City.	

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 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

1.02 TEMPORARY CONSTRUCTION FACILITIES
Barriers
Protection of Work
Security
Safety Facilities
Access Roads
Parking
Field Offices
Staging Area
Project Identification
Progress Cleaning and Waste Removal

1.03 TEMPORARY UTILITIES

1.04 TEMPORARY CONTROLS
Dust Control
Water Control and Dewatering
Erosion and Sediment Control
Noise Control
Pollution Control
Traffic Regulation

1.05 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

1.02 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.

4. Furnish barricades required by governing authorities for public rights of way.

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.

7. If required, furnish commercial grade, minimum 8 foot high chain link fence around construction Site. Equip with vehicular gates with locks.

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.

5. Buildings and Enclosures

   a. Furnish protective coverings at walls, projections, jambs, sills, and soffits of openings and protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

   b. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

6. Whenever gale or high winds are forecast, take measures to secure loose material, equipment or other items that could be blown and be damaged or cause damage. Do not leave such loose items unsecured at end of a working day. Particular attention shall be taken with scaffolding and items placed or stored on roofs or within a structure prior to being enclosed.

7. Provide for removal of snow and ice which may impede Work, damage the finishes or materials, be detrimental to workers, or impede trucking, delivery, or moving of materials at the Site, or prevent adequate drainage of the Site or adjoining 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.

2. Coordinate with Owner's security program.

D. Safety Facilities

1. Provide first aid and other safety facilities required by Laws and Regulations during working and non-working hours.

E. Access Roads

1. Construct and maintain temporary roads accessing public thoroughfares to serve construction area. Control dust and water.

2. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.

3. Provide for emergency access and maintain throughout the Work Site.

F. Parking

1. Do not allow construction vehicle parking on existing pavement or sidewalks.

   ☐ Available parking areas at the Project Site are identified on the Drawings

   ☒ Off-Site construction parking area to be established at a location determined by Contractor.

G. Field Offices

☒ Delete - not required for the Project.

☐ Provide for the Project as follows.

1. Furnish weather tight office with lighting, electrical outlets, heating, cooling and ventilating equipment, and equip with furnishings and accessories to accommodate supervision of Work, maintenance of records, and project meetings, including, but not limited to the following.

   - Desk and chairs (2 cushioned office desk chairs and 4 metal fold chairs)
   - Plan table with light and stool
   - 3 locking file cabinets
   - Hanging plan rack
   - Book case with 4 shelves
   - "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, and fax machine)
   - Paper stock for duration of Project
   - Telephone with answering machine (or telephone service with voicemail feature)
   - Refrigerator, microwave, and water cooler with bottled water supply for duration of Project
   - First aid kit

   ☐ Furnish separate office for use by Engineer and Resident Project Representative similarly equipped with fully functional equipment and furniture.

2. Maintain utilities per Article 1.03 below for the duration of the Project.

3. Location of Field Offices

☐ Locate as shown on the Drawings.

☐ Locate as specified in the **Specific Project Requirements and Procedures**.

H. Staging Area

☐ Locate as shown on the Drawings.

☐ Locate as specified in the **Specific Project Requirements and Procedures**.

☒ Owner is not providing a location for staging area. Determine and secure a location for staging area.

I. Project Identification

☐ Delete - not required for the Project.

☒ Provide for the Project

☒ as specified in the **Specific Project Requirements and Procedures**.

☐ as shown on the Drawings.

J. 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.

1.03 TEMPORARY UTILITIES

A. Power service

☒ Delete - not required for the Project.

☐ Provide for the Project as follows.

1. Arrange for and pay for required power service from local electric utility for duration of Project. Exercise measures to conserve energy. Furnish and install required equipment including pole of sufficient height to provide proper clearance and install weatherproof box of such size to house service disconnect, overcurrent protection, electric meter, and other required equipment.

   ☐ Locate as shown on the Drawings.

   ☐ Locate as designated by Owner.

☐ See the **Specific Project Requirements and Procedures** for additional requirements.

B. Telephone service and internet access to field offices

☒ Delete - not required for the Project.

☐ Provide for the Project as follows.

1. Arrange for, pay for, and maintain telephone service and internet access to field offices at time of Project mobilization and for duration of Project.

2. Obtain voicemail feature if answering machine not provided.

3. Provide wireless, high speed broadband internet access via DSL, cable, satellite, or T1.

☐ See the **Specific Project Requirements and Procedures** for additional requirements.

C. Water service

☒ Delete - not required for the Project.

☐ Provide for the Project as follows.

1. Arrange for, pay for and maintain suitable quality water service as required for duration of Project.

   ☐ Owner will provide water at no charge for construction.

☐ See the **Specific Project Requirements and Procedures** for additional requirements.

D. Furnish and maintain required sanitary facilities and enclosures. Do not use existing facilities.

E. Furnish lighting for construction operations. Furnish lighting for exterior staging and storage areas and for security purposes. Maintain lighting and provide routine repairs.

F. Furnish heat devices and heat and cooling devices as required to maintain specified conditions for construction operations.

G. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

H. Fire Protection

1. Provide temporary fire protection equipment and services during construction per NFPA and local fire code and regulations, and fire marshal's requirements.

2. Use Work procedures that minimize fire hazards to the extent practicable and materials that are fire resistant where possible. Collect and remove combustible debris and waste materials from the Site each day. Store fuels, solvents, and other volatile or flammable materials away from the construction and storage areas in well-marked, safe containers in accordance with Laws and Regulations.

1.04 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

☐ Delete - not required for the Project.

☒ Provide for the Project as follows.

☐ See the **Specific Project Requirements and Procedures** for additional requirements.

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.

1. Maintain excavations free of water. Furnish, operate and maintain pumping equipment.

2. Dewater excavations and legally dispose of water in a manner that will not cause injury to public and private property.

3. Protect Site from puddling, ponding or running water.

4. Design, furnish, install, maintain, operate and remove temporary dewatering systems as required to lower and control water levels and hydrostatic pressures in excavations during construction; legally dispose of pumped water; construct, maintain, observe and, except where indicated or required to remain in place, remove dewatering equipment and system at the completion of construction.

    a. Dewatering may include: lowering the water table, intercepting and collecting seepage which may penetrate the support of excavation, slopes or bottom of the excavation; increasing the stability of excavated slopes; preventing loss of material from beneath the slopes or bottom of the excavation; reducing lateral loads on sheeting and bracing; limiting horizontal displacements and stresses in support of excavation to tolerable and allowable levels; preventing displacements of existing structures, utilities, pavements, and sidewalks; improving the excavation and hauling characteristics of sandy soil; preventing rupture or heaving of the bottom of any excavation; and disposing of pumped water.

b. *Normal dewatering* is defined as using conventional pumps installed in open excavations, ditches, or sumps to control water and allow for installation of the pipe in a dry trench.

c. *Special dewatering* is defined as installing wellpoints, deep wells, or eductor and ejector systems to control groundwater and hydrostatic pressures to allow for installation of the work. Special dewatering includes design of the dewatering system by a Professional Engineer currently registered in the state where the Project is located in good standing, and conducting additional borings or subsurface explorations deemed necessaryby the Contractor, and approved by the Engineer, to support design.

1) For Special Dewatering, retain the services of a Professional Engineer currently registered in the state where the Project is located in good standing, experienced in design of dewatering systems, to independently evaluate the boring logs and other soils information available to determine those areas that will require special dewatering techniques and to design the required system. If, in the opinion of the Contractor or Contractor's Dewatering Professional Engineer, additional borings are needed to design special dewatering systems or determine areas where special dewatering techniques will be required, the Contractor shall retain and pay for the services of a boring subcontractor. Contractor's Dewatering Professional Engineer shall provide sufficient on-Site inspection and supervision to assure that the dewatering is carried out in accordance with the approved design.

d. Design a dewatering system capable of:

1) effectively reducing the hydrostatic pressure and lowering the groundwater levels to a minimum of 2 feet below excavation subgrade in the existing fills and any organic peat, and below the excavation subgrade in the existing organic silts/clays unless otherwise directed by the Engineer, so that all excavation bottoms are firm and dry;

2) maintaining a dry and stable subgrade until the structures, pipes, appurtenances, and drainage pipe and structure bedding to be built therein have been completed to the extent that structures, pipes, and appurtenances will not be floated or otherwise damaged;

3) lowering of the groundwater level within the work area without adversely affecting existing structures, utilities, pavements, sidewalks or wells outside of the Work area.

e. Submit the following.

1) Plans and description of the Normal and/or Special Dewatering systems, including the number, location and depth of wells, wellpoints or sumps; designs of filters to prevent pumping of fine soil; method and location for filtering, sedimentation tanks and legal disposal of pumped water; and flow capacity of proposed system, accounting for groundwater level relative to tide cycles if applicable

2) Design calculations, description and complete layout drawings, stamped and signed by Contractor's Dewatering Professional Engineer, at least two weeks prior to scheduled installation of Special Dewatering system

3) Locations of observation wells

4) Records of pump operation and groundwater elevations

5. Dewatering Operations and Procedures

a. Provide electrically operated dewatering equipment, powered with independent generators adequately sized to operate the dewatering system and capable of running on commercial power. Provide standby equipment independent of commercial power and provide for dewatering within 24 hours upon primary pump or power failure. No work shall be performed by the Contractor below the pre-construction groundwater level during dewatering system failure.

b. Provide suitable temporary pipes, flumes or channels for water that may flow along or across the Site of the Work.

c. Provide dewatering equipment with noise attenuation systems capable of meeting the governing noise regulation requirements.

d. Encapsulate the suction end of the pump with crushed stone, filter fabric, and other materials to minimize the amount of silt discharged to the amount allowed by the construction dewatering permit.

e. Do not operate equipment on paved surfaces to prevent damaging these surfaces.

f. Locate dewatering facilities to prevent interference with utilities and construction work to be done by others.

g. 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.

h. 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 permit.

i. Utilize silt sacks in catch basins when excess silt is suspended in the discharge water per Erosion and Sediment Control below.

j. If siltation basin is used, size to effectively filter for the volume and discharge rate of water anticipated without overflow.

k. 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.

l. 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.

m. 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.

6. Special Dewatering

a. Use Special Dewatering as necessary if Normal Dewatering methods are inadequate to ensure dry and stable excavation subgrade conditions.

b. Special Dewatering techniques may consist of one- or two-stage wellpoint systems, deep wells, or eductor and ejector type systems. Design with suitable screens to prevent pumping of fines and to address specified Work Site conditions.

c. In areas requiring special dewatering, lower the groundwater level to a minimum of 2 feet below the existing fill and/or organic peat subgrades or to the excavation subgrade for organic silt/clay subgrades prior to any installation and maintain that groundwater level until the excavation has been backfilled and provide monitoring by Contractor's Dewatering Professional Engineer to ensure conformance with the requirements herein.

d. Furnish materials and install at least two observation wells at each excavation area. The location of the wells shall be proposed in the field by the Contractor's Dewatering Professional Engineer and reviewed and approved by the Engineer.

C. Erosion and Sediment Control

☐ Delete - not required for the Project.

☒ Provide for the Project as follows.

☒ See the **Specific Project Requirements and Procedures** for additional requirements.

1. Plan and execute construction using methods to control surface drainage from cuts and fills, from borrow and waste disposal areas and prevent erosion and sedimentation.

2. Submit erosion and sediment control plan to Engineer prior to the start of construction.

3. Install erosion and sediment controls as may be shown on the Drawings and as required by Laws and Regulations. Install additional erosion and sedimentation control measures beyond those 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.

4. 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.

5. 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.

6. 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.

7. Limit duration of the exposure of soils on embankments, excavations, and graded areas to a minimum.

8. 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.

9. Stabilize storm drain outfalls as shown on the Drawings before the discharge points become operational. Install inlet protection immediately upon construction of culverts.

10. 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.

11. Place stockpiled topsoil on the Site away from natural drainages, in piles with side slopes of 50 percent to 70 percent. Install siltation fence around the base of the pile to prevent eroding soil from washing into drainages. Cover topsoil piles which are to remain for a period of 21 days or more with temporary seed and mulch immediately following stockpiling.

12. Conduct pavement sweeping to remove sediment and soil debris accumulation on pavement resulting from construction activity

13. Siltation/Silt Fence

    a. Filter fabric: suitable for erosion control.

    b. Wood posts: oak, 2 inches by 2 inches in section, and at least 4.5 feet in length.

    c. Construct as shown on Drawings or as directed by Engineer. Install parallel to contours where possible, prior to Site clearing and grading activities.

14. 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.

15. Seeding

    a. Select seed variety and applied rates based upon the date of application per the following table. Equivalent seed mixture based

on suitability for use in controlling erosion of the various soil types and slopes may be used as approved by the Engineer.

Dates	Seed	Applied Rate (pounds per 1,000 feet^2)
4/1 to 7/1 8/15 to 9/15	Oats	1.8
4/1 to 7/1	Annual Ryegrass	0.9
5/15 to 8/15	Sundangrass	0.9
9/15 to 10/15	Winter Ryegrass	2.6

1) Sow seed at the rates indicated, on the pure live seed basis.

2) Mulch areas where temporary seeding has been applied. Do not mulch seeded areas where matting will be immediately installed. If temporary seeding does not achieve adequate growth by November 1, apply an additional layer of mulch.

3) Mulch temporarily or permanently seeded areas, areas which cannot be seeded within the recommended seeding dates, and any soil stockpile areas, immediately following seeding. Straw or hay mulch, wood fiber mulch, and hydromulch are recommended.

16. Sod: grown from certified seed of adapted varieties to produce high quality sod free of any serious thatch, weeds, insects, diseases and other pest problem, be at least one year old and not older than three years, and cut with a 1/2 inch to 1 inch layer of soil.

a. Lay sod strips on the prepared soil, perpendicular to the slope or direction of water flow, starting at the lowest elevation. Butt the edges and ends of the sod strips together and tamp or roll. Stagger joints.

b. Staple sod strips at ends and at 3-foot intervals along the center of the strip.

c. Irrigate sodded area immediately after installation.

17. Catch Basin Silt Sacks

a. Style: Silt Sack Regular Flow.

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. Properties are Minimum Average Roll Values (MARV).

Property	Test Method	Units	Test Results
Grab Tensile	ASTM D-4632	lbs.	315x300
Grab Elongation	ASTM D-4632	%	15x15
Puncture	ASTM D-4833	lbs.	125
Mullen Burst	ASTM D-3786	psi	650
Trapezoid Tear	ASTM D-4533	lbs	120x150
UV Resistance	ASTM D-4355	%	90
Apparent Opening	ASTM D-4751	US Sieve	40
Flow Rate	ASTM D-4491	gal/min/ft ^{2}	40
Permittivity	ASTM D-4491	sec -1	0.55

1) Utilize silt sacks in catch basins as required when excess silt is suspended in discharge water.

18. Filtration Bag or System for Discharge from Excavation Dewatering

a. Meet the following standards. Properties are Minimum Average Roll Values (MARV).

Property	Test Method	Units	Test Results
Flow Rate	ASTM D-4491	gal/min/ft ^{2}	40
Permittivity	ASTM D-4491	sec -1	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.

19. 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.

20. Provide detention basins or water filtration systems for dewatering and coordinate locations with Engineer. See Dewatering in Paragraph B. above.

21. 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.

22. 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 erosion control 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.

23. 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 compost filter tubes 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.

2. Provide noise attenuation systems capable of meeting the Department of Environmental Protection Division of Air Quality Control regulations governed by the following policy:

   "*A source of sound will be considered to be violating the Department's noise regulation (310 CMR 7.10) if the source:*

   - *Increases the broadband sound level by more than 10 dB(A) above ambient, or*
   - *Produces a "pure tone" condition when any octave band center frequency sound pressure level exceeds the two adjacent center frequency sound pressure levels by 3 decibels or more.*

   "These criteria are measured both at the property line and at the nearest inhabited residence. Ambient is defined as the background A-weighted sound level that is exceeded 90% of the time measured during equipment operating hours. The ambient may also be established by other means with the consent of the Department."

3. Construct sound enclosures or utilize other noise reduction techniques if the equipment does not meet the noise level requirements.

E. Pollution Control

☐ Delete - not required for the Project.

☒ Provide for the Project as follows.

☒ See the **Specific Project Requirements and Procedures** for additional requirements.

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 exhausts 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 Regulation

☐ Delete - not required for the Project.

☒ See the **Specific Project Requirements and Procedures** for additional requirements.

☒ Provide for the Project as follows.

1. Control and maintain traffic within the Project area.

☒ Submit traffic control plans and coordinate with Owner and local agencies. Submit plan for traffic control to Owner for review 14 days in advance of any Work within public right-of-way, street closure or detour.

☐ A traffic control plan is not required for the Project.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. Exercise particular care to establish and maintain such methods and procedures that will not create hazards.

   a. 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.

   b. 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.

   c. 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.

d. Provide night watchmen where special hazards exist.

8. Post 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.

9. Pursuant to Paragraph F. **Traffic Regulation** subparagraph 4. regarding **use of police officers**, comply with the following additional requirements.

a. Relevant provisions of Section 7.00 of the MassDOT Standard Specifications and Supplements, and the following.

i. The intent of posting police details is to ensure public safety and protection of property through appropriate traffic control. Police personnel are not to be employed as watchmen to protect the Contractor's equipment and materials.
ii. All uniformed traffic police personnel required for traffic control for construction shall be authorized by Owner's Safety Officer and/or the Engineer.
iii. Payment will be made by Owner for uniformed traffic police only.
iv. Submit a forecast weekly traffic police detail schedule, at least 72 hours prior to the start of the Work describing: the nature and location of the Work, the number of police personnel, the estimated number of police hours required for each location, and justification for each uniformed officer being requested. Payment to the police for work under this Contract shall be in accordance with the Massachusetts General Laws, Chapter 149, Section 34B and paid directly by Contractor.

10. If uniformed police have been arranged to work, and weather or some other situation prohibits the Work, notify the Police Department Detail before 5:30 a.m. on the day of intended Work to cancel the work order. Unless the work order is canceled in time, the Contractor shall be charged at the rate of minimum four hours for each officer included in the detail and shall be fully responsible for payment of all charges thus incurred.

1.05 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 42

TEMPORARY STORMWATER DRAINAGE BYPASS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish, install and maintain temporary measures for storm drain bypass, including but not limited to, temporary bypass piping, plugs, and pumping.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: in accordance with Division 01 General Requirements.

1.04 SUBMITTALS

A. Submit in accordance with the Division 01 General Requirements.

B. Bypass Pumping Plan for **each** bypass location to Engineer and Owner 2 weeks prior to bypassing stamped by a Professional Engineer registered in the state in which the Project is located.

C. Bypass Pumping Plan must contain at a minimum:

1. Standard Operating Procedure: Describe the normal sequence of events to be followed while setting up, pumping, and breaking down pumping equipment. Plan must address strategies and safeguards to ensure that public safety and environmental health is constantly maintained, the possibility of property damage and wetlands impacts, and overall level of inconvenience is minimized.

2. A bypass routing diagram including pump location for **each** Work zone,

3. Calculations: Estimates of anticipated peak flows, pump rates, pump curves, and other relevant design.

4. List of the equipment that will be used during normal pumping operation.

5. Emergency Response Plan: Describe the intended means of handling the following situations, include both response and clean-up measures. List equipment to be used and where it will be stored in case of emergency:

a. Break or failure of bypass line (pipe)

b. Failure of bypass pump

c. Overflow

d. Back up into dwelling or onto private property

e. Failure of bypass pumping system to accommodate flow.

D. Shop Drawings for equipment and materials including, but not limited to:

1. Pumps

2. Pipe or hose

3. Joints/couplings

4. Plugs and/or bladders

1.05 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.01 PUMPS, PIPES & FITTINGS

A. Pump: suitable for usage with storm drainage and capable of conveying the volume of flow anticipated with a sufficient margin of safety. Provide for 100 percent redundancy (two pumps shall be provided at the Site for every one pump required) if flow cannot be returned to the storm drain at any time if pumping system failure occurs. Redundant pump: include suction and discharge piping and quick connect couplings to facilitate change out of pumps.

B. Pipe and fittings: constructed of carbon steel, or fused high-density polyethylene pipe or approved equal. Fittings shall be quick-disconnect type.

C. Lay flat hose: extra heavy duty, highly abrasion resistant and fitted with gasketed couplings. Hose shall be rated for 150 percent of working pressure.

D. Provide a temporary enclosure for the bypass pumping system for sound attenuation operating outside of regular working hours meeting state and local Laws and Regulations for noise requirements.

PART 3 – EXECUTION

3.01 GENERAL

A. Adequately bypass flow around the affected section of the Work, even instantaneous peak flows, without damage or overflow. Be aware of potential large instantaneous flow contributors connected to the storm drain under repair.

B. Allow for passage of traffic. Protect bypass piping at driveway and street crossings.

C. Maintain roadway drainage system during precipitation events to prevent flooding of public right-of-way and adjacent properties.

1. Protect against surcharging of the existing system upstream during dry weather and wet weather flows.

2. Protect Site from flooding. Provide measures to adequately isolate the Site from backflow of adjacent waterways to provide dry working conditions.

D. Continuously monitor bypass operations regardless of duration or timing of bypassing.

E. Coordinate bypassing with low-flow times, to the extent feasible. Ensure no overflows or backups occur.

F. Temporary damming of waterways is not allowed.

G. If it is determined that bypass pumping is not required at a location due to lack of flow or that a Work item does not require bypass pumping to be performed, and the decision is agreed upon by the Engineer, provide protection of flows from any construction debris and ensure that no debris enters the storm drain system.

H. Bypass Pumping

1. Bypass storm drain pumping: a typical manhole to manhole or catch basin to manhole bypass pumping setup.

2. Submit a bypass plan to Engineer prior to implementation of such Work and prior to the start of construction.

I. Restore normal service to entire system at the end of normal working hours every day or post an attendant on Site.

J. Repair any damage that occurs to existing pipes and structures to the satisfaction of the Engineer.

K. Temporary Bypass will be considered incidental to the Work to be performed, unless otherwise indicated.

3.02 FLOW DATA

A. Active storm drains exist in the entire Project area. Therefore, flows and flow data are variable depending on location, weather conditions and tides. Visiting areas of the Site prior to Work to visually inspect flow conditions is encouraged. Maintain flows as specified under all flow conditions.

B. Portions of the Project area are subject to tidal infiltration and inflow. Account for tide elevations, tide cycles, and tidal I/I volume in the planning and conduct of the Work.

C. Portions of the Project area are subject to groundwater inflow. Account for groundwater infiltration in the planning and conducting the Work.

3.03 TEMPORARY POWER

A. Provide fuel and/or power to run pumps associated with the bypass at no additional cost to the Owner. Include emergency backup power or backup fuel storage as part of the Bypass Pumping Plan.

3.04 PIPING

A. Lay temporary piping along the general lines of the street in a manner that causes the minimum amount of disruption and is least likely to be damaged. Make provisions at driveways, provisions to permit property owners to drive over the temporary pipe by use of temporary bituminous pavement, cold patch, or other approved material to form a ramp on each side of the pipe to the satisfaction of the Engineer or by depressing the pipe as directed by the Engineer.

3.05 OPERATION AND MAINTENANCE

A. Constantly attend the bypass system. Provide an attendant if bypass pumping must continue beyond working hours.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 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

1.02 SOURCE QUALITY CONTROL
General
Independent Testing Agency Certification
Factory Testing

1.03 PRODUCT REQUIREMENTS
General
Transportation and Handling
Storage and Protection

1.04 WARRANTIES

1.02 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.

1.03 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.

1.04 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

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SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 – GENERAL

1.01 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

1.02 OVERALL EXECUTION REQUIREMENTS
Coordination
Existing Conditions
Field Engineering
Record Documents
Cutting and Patching
Electrolytic Corrosion Prevention
Quality Assurance and Control of Installation
Manufacturers' Field Services
Independent Testing

1.03 STARTUP, TESTING, AND COMMISSIONING
Spare Parts
Consumables
Checkout and Starting Systems
Starting, Adjusting, and Balancing
Startup and Commissioning/Performance Testing
Demonstration and Training

1.02 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.

9. 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)

☒ See the **Specific Project Requirements and Procedures** for additional requirements.

B. Existing Conditions

1. Paragraph 4.01 of the Standard General and Supplementary Conditions, if any, covers Availability of Lands.

   ☐ No information is identified or available for the Project.

☒ Information identified is included as an attachment to the **Specific Project Requirements and Procedures.**

2. Paragraph 4.02 of the Standard General and Supplementary Conditions, if any, covers Subsurface and Physical Conditions.

☐ No information is identified or available for the Project.

☒ Information identified is included as an attachment to the **Specific Project Requirements and Procedures.**

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.

☒ Conduct test pits and other utility research and properly restore utilities interfered with or damaged during construction at no cost to the Owner.

☒ Engage a professional subsurface utility locator to verify the existence and location of underground utilities prior to starting Work

☒ See the **Specific Project Requirements and Procedures** for additional requirements.

4. Paragraph 4.05 of the Standard General and Supplementary Conditions, if any, covers Reference Points.

☐ No information is identified or available for the Project.

☒ Information is included in the **Specific Project Requirements and Procedures**.

5. Paragraph 4.06 of the Standard General and Supplementary Conditions, if any, covers Hazardous Environmental Conditions at Site.

☒ No information is identified or available for the Project.

☐ Information identified is included as an attachment to the **Specific Project Requirements and Procedures.**

☒ Other information is included as an attachment to the **Specific Project Requirements and Procedures**.

C. Field Engineering

☐ Delete - not required for the Project.

☒ Provide for the Project as follows.

1. Prior to initiating construction, engage an independent professional land surveyor registered in the state where the Project is located to provide surveys and permanent reference points for all bounds and property markers along the line of the Work that may be disturbed during construction. Submit copies of all ties to the bounds and property markers to the Engineer prior to excavation at the Site(s).

2. Maintain surveyor's log of control and other survey work. Keep log available for reference.

3. Verify layout information shown on the Drawings in relation to existing benchmarks before lay out of the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.

4. 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.

☒ See the **Specific Project Requirements and Procedures** for additional requirements.

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;

d. remove Samples of installed Work for testing when requested; and

e. provide openings in element of Work for penetration of mechanical and electrical work.

4. Execute Work by methods to avoid damage to other work and which will provide appropriate surfaces to receive patching and finishing.

5. Provide adequate temporary support for Work to be cut.

6. Restore Work with new materials in accordance with requirements of Contract Documents. Use materials identical with original materials where recognized that satisfactory results can be produced.

7. Provide protection from elements for areas which may be exposed by uncovering work.

8. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit. Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained adjoining Work in a manner, which will eliminate evidence of patching.

9. Identify any Hazardous Waste, Hazardous Environmental Condition, or hazardous substance exposed during the Work to Owner for decision or remedy in accordance with Paragraph 4.06 of the Standard General and Supplementary Conditions, if any.

10. Cut work by methods least likely to damage Work to be retained and work adjoining. Cut Work with sawing and grinding tools, not with hammering, chopping, or burning tools. Cut masonry and concrete materials with masonry saw or core drill. Do not use pneumatic tools without prior approval. Core drill openings through concrete Work. Adhere to mandatory cutback requirements when saw cutting concrete and roadway openings.

11. Do not cut and patch structural Work in a manner resulting in reduction of load-carrying capacity or load/ deflection ratio.

12. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Maintain supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage and seal voids. For interior work at penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire resistant material, to full thickness of the penetrated element.

13. Do not cut and patch operational or safety-related components that reduce capacities to perform in manner intended. Do not cut and patch Work that reduces visual qualities. Remove and replace unsatisfactory cutting patching as directed by Engineer or Owner.

F. Electrolytic Corrosion Prevention

1. Prevent galvanic action, bimetallic corrosion, anodic or cathodic action, and electrolysis at all electrical grounds and for all galvanic scale (electromotive series or table of oxidation potentials). Do not allow contact of dissimilar metals further apart than 0.35 on the galvanic scale (electromotive series or table of oxidation potentials). The electrode potential of common metals is listed below.

	Electrode Potential Volts (Relative to Hydrogen)
Magnesium	+2.37
Aluminum	+1.70
Zinc+	+0.76
Chromium	+0.56
Iron and Steel	+0.44
Cadmium	+0.40
Nickel	+0.25
Tin	+0.14
Lead	+0.13
Copper	-0.34

2. Unless otherwise indicated, provide dielectric insulators between ferrous and nonferrous pipe and equipment.

G. 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 6.11 of the Standard General and Supplementary Conditions, if any.

H. 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.

   c. Assist with field assembly as required.

   d. 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.

I. 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.

1.03 STARTUP, TESTING, AND COMMISSIONING

A. Spare Parts

1. Provide spare parts required for construction, startup, testing and commissioning of the Work prior to achievement of Substantial Completion, including spare parts for flushing and consumable supplies such as bolts, nuts, gaskets, filters, insulating tape, etc., normally consumed in the startup, commissioning and testing.

2. If spare parts are purchased by Owner, Contractor shall have the right to use the spare parts purchased by Owner provided that such spare parts are replaced prior to Substantial Completion at Contractor’s expense. Replacement spare parts, replaced by Contractor, shall be new, unused and identical as the original spare part used.

B. Consumables

1. Provide initial fills of consumables including equipment lubricants, resins, chemicals, desiccants, and fuels. Provide subsequent fills if required during Warranty Period if acts or omissions of Contractor cause such consumables to require replacement.

2. Coordinate with Owner for consumables required.

C. Checkout and Starting Systems

1. Coordinate schedule for startup and operation of various equipment and systems with Owner.

2. Notify Owner 7 days before startup of each major piece of equipment or system, including a staffing request for Owner's operations and maintenance personnel required to adequately and safely support each specific start-up and operation activity.

3. Verify that each system or piece of equipment item has been assembled, constructed, or completed in accordance with the Contract and capable of functioning as intended.

4. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, magnetic center alignment, belt tension, control sequence, or other conditions which may cause damage.

5. Verify that each piece of equipment or system has successfully completed construction testing and cold commissioning, including hydrostatic testing, loop checks, relay checks, calibration, and continuity checks and that all tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

6. Verify wiring and support components for equipment are complete and tested.

7. Execute start up under supervision of responsible manufacturers' representative or Contractor's personnel in accordance with manufacturers' instructions utilizing Owner's qualified operations and maintenance staff trained by Contractor.

8. When specified in individual Specification Sections, require manufacturer to provide field representative to be present at Site to inspect, check and approve equipment or system installation before start up, and to supervise placing equipment or system in operation.

D. Adjusting and Balancing

1. Supply necessary equipment, material, construction power, and consumables (except for those provided by Owner) needed to startup and fully test the Work and replenish the same until Substantial Completion is achieved. Contractor may utilize Owner's operating spare parts, such use requiring timely replacement at Contractor's expense.

2. Coordinate as required for conduct of independent testing.

3. Perform specified and required adjusting and balancing concurrently to the maximum extent possible on individual equipment and systems and prior to startup and commissioning/performance testing.

E. Startup and Commissioning/Performance Testing

1. Conduct startup and commissioning/performance tests to demonstrate the Work meets the requirements of the Contract Documents, satisfies the Owner's requirements, and is in accordance with Paragraph 14.04. of the Standard General and Supplementary Conditions, if any. Conduct testing in accordance with

   ☒ individual Specification sections.

   ☒ the separate Startup, Commissioning, and Testing section.

   ☒ the **Specific Project Requirements and Procedures.**

2. Prepare and submit a written startup and commissioning/performance testing procedures no later than 60 days prior to start of testing for review and final test procedures no later than 30 days prior to start of testing. Submit a staffing request for Owner's operations and maintenance personnel.

3. Calibrate test equipment and instrumentation on Site or provide acceptable certificate of calibration conducted within 30 days of testing.

4. Complete functional testing prior to initiating the startup and commissioning/performance testing as specified.

5. Complete specified startup and commissioning/performance tests prior to Substantial Completion. Owner and Engineer will witness Performance Testing. Notify Owner and Engineer in writing at least 7 days prior to starting any startup and commissioning/performance testing. Coordinate for witnessing of tests by required regulatory representatives.

6. Submit written test reports.

F. Demonstration and Training

1. Provide formal demonstration and training of Owner's personnel as specified in

   ☒ individual Specification sections.

   ☒ the separate Demonstration and Training section.

   ☒ the **Specific Project Requirements and Procedures.**

END OF SECTION

SECTION 02 41 14

SELECTIVE SITE DEMOLITION AND RESTORATION

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Furnish all labor, equipment and materials, and perform all operations in connection with the demolition, salvage, removal and stockpiling of removed items so indicated on the Drawings and those encountered during the course of construction to be demolished at the direction of the Engineer. Items to be demolished include, but are not limited to, clearing, stripping and/or ordinary excavation of existing bituminous or cement concrete pavements, soils, foundations, walls, grassed areas, demolition, dismantling, replacement/restoration Work, stacking of reusable and disposal of waste/surplus materials and protection of features to remain, dismantling of existing fence, stacking and reinstallation at locations indicated, other miscellaneous items and removal in accordance with this Section. Items to be removed and stockpiled include castings, light poles and bases, signs and signposts

2. Off-site disposal of demolition materials

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections

2. MassDOT Construction Details

3. MUTCD and Mass Amendments

4. Applicable portions of City of Quincy Code of Ordinances and Zoning Ordinances

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 SUBMITTALS

A. Submit in accordance with the Division 01 General Requirements.

1. Submit proposed methods and disposal Plans for demolition to Owner and Engineer for review prior to start of Work as specified.

2. Submit schedule indicating proposed sequence of demolition to Owner and Engineer for review prior to start of Work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.

B. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 GENERAL

A. Perform selective Site demolition in accordance with Section 100 of the MassDOT Standard Specifications and the Drawings.

B. Comply with the General Requirements for temporary construction controls and protections and waste disposal.

1. Ensure against damage or injury to buildings, occupants, and adjacent property from falling debris or other causes. Avoid damage to adjacent areas, facilities, and appurtenances.

2. Maintain free and safe passage to, from and through the Site.

3. Legally dispose of waste, surplus and unsatisfactory materials including bituminous/cement concrete, debris, rails and ties, common excavation, cold planning, and reclamation, immediately as it accumulates during the course of the clearing, grubbing, stripping, demolition, and other Site preparation. Burying is not allowed.

4. Stop demolition operations and notify Engineer immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations

3.02 SITE DEMOLITION

A. Clear the Site of construction debris and waste materials, including grass, bushes, trees, broken concrete, pipes, lumber and steel pieces, rags and plastics, within the limits of Work as shown on the Drawings or as directed.

B. Strip and/or excavate existing bituminous or cement concrete pavements, soils, foundations, bituminous or cement concrete curbs, bituminous or cement concrete sidewalks, grassed areas.

C. Remove and stack fencing, lamp posts, letter boxes, signs, guardrails, bike racks, and poles and other usable materials to be reinstalled.

D. Remove structures identified in accordance with Section 140 of the MassDOT Standard Specifications and the Drawings.

E. Remove and stack castings (frames, covers and grates).

1. Transport and stack castings in good condition at the City DPW yard.

2. Legally dispose of castings deemed not serviceable by Engineer at no additional cost.

F. Remove and stack existing Light Poles (poles and fixtures).

1. Transport and stack existing light poles and fixtures in good condition and neatly stack as directed at the City DPW yard.

2. Legally dispose of poles and fixtures deemed not serviceable by Engineer at no additional cost.

3. Legally dispose of existing concrete light pole base foundations.

G. Plug inlets and outlets and remove masonry and concrete.

H. Backfill and compact excavation from structure void with structural fill specified in Section 31 00 00

I. Demolish and remove grass borders and landscaping, bushes, shrubs, trees stumps and vegetation as necessary to construct the site and drainage improvements. Remove existing obstructions and debris, cut trees, bushes, root stumps, waste stones, wood, lumber, metal, plastic, and other unsuitable materials above, at or below grade that may interfere with or obstruct the new Work, whether or not shown on the Drawings.

J. Remove and stockpile top soil, vertical granite curbs and curb stones, utility castings and other materials for reuse as shown or as directed by the Engineer.

K. Stockpile recovered materials acceptable to the Engineer to be reused on the Project and protect against damage or deterioration.

L. Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising, and scattering in air to lowest practical level. Comply with governing Regulations, permits, Laws, ordinances, pertaining to environmental protection.

M. Do not cut, remove, destroy or trim trees and shrubs unless specifically marked or permitted. Do not remove tree branches using excavating equipment. Provide that required trimming is performed by a licensed arborist.

1. Remove, store, and protect trees designated on the Drawings per MassDOT Section 771.

2. Protect trees or vegetation outside the limits of the Work area.

3. Tree Removal (4-48 inches in diameter)

a. Cut existing trees and expose by excavation, remove or cut, as required, the tree stumps and root systems as shown on the Drawings and as directed. Remove and dispose of tree stumps, roots, organic matter and unsuitable materials resulting from the operation.

b. Excavation around tree: not to exceed the width of the sidewalk.

c. Depth of excavation for stump removal: not to exceed 5 feet.

d. Depth of excavation for removal of a tree root system: not to exceed 2 feet.

e. Cut clean and remove root system encountered within the limits of sidewalk width as determined by the Engineer. Paint cut surfaces of the remaining detached roots with stump rot. Clean and paint

tree roots still attached to the trunk with two coats of an approved chemical root guard to protect the tree from later damage.

f. Transport and carefully stack existing tree grates in good condition and not needed for the Project, or dispose of at no additional cost to the Owner, as directed by Engineer.

N. Protect integrity of remaining structures, appurtenances and equipment during demolition, removal and alteration to existing structures, appurtenances, utility pipes, castings, fences, walkways, posts, stairs and other physical features.

O. Maintain slopes longitudinally and laterally to ensure proper and continuous drainage. Field adjust sidewalk and roadway gutter grades at driveways and side street intersections to be consistent with the existing drainage pattern and provide for an appropriate transition between the new and the existing side streets and driveways pavement surfaces at intersections.

P. If cobblestones are encountered, carefully stack the excavated cobblestone at the City's DPW Yard at no additional cost to the City.

Q. Leave abandoned underground piping in place, plug or cap and fill with flowable control density fill. Remove or cut abandoned underground piping castings a minimum 12 inches below the finished surface and the area backfilled.

R. Cut sections of piping to be removed to the nearest solid support or provide appropriate new supports and cap each of the remaining ends before backfilling unless noted on the Drawings or specifically directed by the Engineer.

S. Cut openings in existing masonry work to provide for a suitable bond, and clean, square and plumb openings for installation of new Work. Thoroughly clean cut surfaces of loosened materials.

3.03 SAWCUTS IN EXISTING PAVEMENTS AND SIDEWALKS

A. Neatly saw cut edges of excavations in existing pavements and sidewalks along either a straight line or design curved line as shown in the Drawings. Ragged, uneven edges are not acceptable.

B. Saw cut existing pavement through its full depth or to elevation of abutting proposed pavement subgrade, whichever is less, at joints between existing and proposed pavements and at utility trenches through existing pavement to remain. Provide a uniform, vertical surface for the proposed pavement joint with existing pavement.

C. Neatly saw cut edges that become broken, ragged or undermined with a minimum disturbance to remaining pavements or sidewalks prior to the placement of abutting proposed pavement.

D. In areas where an existing concrete sidewalk abuts a building, wall or storefront, and sidewalk is to be reconstructed or removed, saw cut existing sidewalk a minimum of 6 inches from the building wall or storefront, unless otherwise directed by the Engineer.

E. Spray or paint saw cut surfaces with a uniform thin coat of RS-1 asphalt emulsion immediately before placement of hot mix asphalt material against the surface.

3.04 REPAIR, REPLACEMENT AND RESTORATION

A. Match materials of repair and/or restoration to existing adjacent surfaces in finish and texture as closely as possible. Make joints between new and existing Work inconspicuous.

B. Replace or restore items damaged, dislocated and/or dismantled such as walls, fences, lamp posts, letter boxes, masonry boundary walls, City signs, poles, bollards, curb stones, markers, trees, bushes, grassed areas, walkways, stairs/steps, benches, outside lighting and other amenities and physical features designated to remain, to conditions that existed prior to the start of construction.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from Project Site, debris, rubbish, and other materials resulting from demolition operations. Do not remove from Project Site without prior permission by Owner or Engineer. Store all demolished materials that Owner wishes to retain at location designated by Owner or Engineer.

B. Burning of removed materials from demolished structures will not be permitted on Site.

C. Dispose of demolition debris in a lawful manner.

D. In the event that unanticipated hazardous materials are discovered or suspected, Contractor shall carry out suitable measures to minimize hazards and immediately report conditions to Engineer.

3.06 FIELD QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements

3.07 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.00 SUMMARY

A. The Electrical Subcontractor shall provide the labor, tools, equipment, and materials necessary to furnish and install all electrical Work in accordance with the Drawings and as specified herein.

B. In general, electrical Work shall include but not be limited to the following:

1. All wiring, and safety disconnects unless integral with equipment.
2. Power distribution equipment.
3. Wiring Devices.
4. Grounding system.
5. Lighting – Exterior.
6. All support material and hardware for raceway and electrical equipment.
7. Branch circuit wiring.
8. Underground electrical systems.
9. Start up, acceptance testing test reports and instruction of systems operation to the Owner.

1.01 REQUIREMENTS OF REGULATORY AGENCIES

A. Codes and Standards:

1. Electrical equipment, materials, installation and workmanship shall comply with all state and local building codes, safety and fire law regulations at the location of the Work and shall conform to the latest edition of the applicable codes and standards of the organizations listed:

a. National Electrical Code (NEC).

b. Massachusetts Electrical Code (MEC).

c. Underwriters' Laboratories (UL).

d. Institute of Electrical and Electronics Engineers (IEEE C2).

e. American National Standards Institute, Inc. (ANSI).

f. National Fire Protection Association (NFPA).

g. National Electrical Manufacturers Association (NEMA).

h. Insulated Power Cable Engineers Association (IPCEA).

i. Association of Edison Illuminating Companies (AEIC).

j. Occupational Safety Health Act (OSHA).

k. Americans with Disabilities Act (ADA).

2. Where the Contract requires the Work or any part of the same, to be above the standards required by applicable laws, ordinances, rules and regulations and other statutory provisions pertaining to the Work, such Work shall be performed and completed in accordance with the Contract requirements.

3. Should any changes in the specifications and Drawings be necessary to conform to the requirements of any of the above mentioned codes or standards, the Contractor shall so notify the Engineer.

B. Drawings required by governing authorities: Prepare any detailed diagrams or Drawings which may be required by the governing authorities.

C. Permits, Certificates, Inspections, Fees and Utility Costs:

1. The Contractor shall obtain and make payments for all permits, licenses, and certificates which are required for the associated Work.

2. Following completion of the Work, the Contractor shall obtain certificates of approval from the responsible agencies concerned with the Work.

3. Arrange for timely inspections required for Work under this section.

4. All utility company and municipal back charges shall be the responsibility of the Owner. Cost of electricity shall be borne by the Contractor until substantial completion as determined by the Owner.

1.02 COORDINATION OF WORK

A. The electrical work shall be coordinated with the work of other trades to prevent interferences and so that the progress in construction of the building will in no way be retarded.

B. Refer to other sections of these specifications and Drawings for related work which may affect the work of this section.

C. Coordinate with all local utility companies and make all installations for their services in accordance with all utility company requirements.

D. Where lighting fixtures and other electrical items are shown in conflict with locations of structural members and mechanical or other equipment, furnish and install all required supports and wiring to clear the encroachment for a complete installation.

E. Any Work installed contrary to or without acceptance by the Engineer shall be subject to change as directed by the Engineer, and no extra compensation will be allowed to the Contractor for making these changes.

1.03 DRAWINGS

A. All electrical equipment such as junction and pull boxes, panelboards, switches, controls and such other apparatus as may require maintenance and operation from time to time shall be made easily accessible and properly labeled.

B. The Contractor shall examine all contracts and reference Drawings, and verify and properly coordinate the placement of outlets. Contractor shall also check all Drawings including mechanical Drawings and shop drawings for apparatus for which he must rough-in and to which he must connect.

1.04 SUBMITTALS

A. Furnish manufacturer's product data, test reports, and materials certifications as required.

B. Follow the procedures specified in the General Requirements and in addition, the Contractor shall prepare and submit a complete submittal list to the Engineer. The submittal list shall include all submittal items covered in the Division 26 specification sections.

C. Shop Drawings shall be submitted to the General Contractor who shall review and approve them prior to submittal to the Engineer for approval. Shop Drawings shall identify the specific equipment and material being supplied; the quantity being supplied; and all accessories, dimensions, descriptions, mounting and connection details, wiring diagrams, elementary control diagrams, equipment interface diagrams and any other information necessary to determine compliance with the plans and specifications. Fabrication and installation shall be in accordance with the approved Shop Drawings.

D. As-built copies of all Shop Drawings shall be submitted to the Engineer.

E. Permits and Easements. Submit copies of reports, permits, and easements necessary for installation, use, and operation.

F. Test Reports. Submit copies of reports of tests, inspections, and meter readings as specified.

1.05 RECORD DRAWINGS

A. The Contractor shall maintain a complete and separate set of prints of Contract Drawings and specifications at job Site for duration of the contract. The Contractor shall record Work completed and all changes from original Contract. Drawings shall clearly and accurately include Work installed as a modification or as an addition to the original design.

At completion of Work and prior to final request for payment, the Contractor shall submit a complete set of reproducible Record Drawings showing all systems as actually installed.

1.06 JOB CONDITIONS

A. Existing Conditions:

1. Existing Utilities: Locate existing underground utilities in excavation areas. If utilities are indicated to remain, support and protect services during excavation operations.

2. Prior to all Work of this section, carefully inspect the installed Work of all other trades and verify that all such Work is complete to the point where this installation may properly commence.

3. Verify that the electrical installation may be made in complete accordance with all pertinent codes and regulations and the original design.

C. Accuracy of Data:

1. The Drawings are diagrammatic and functional only, and are not intended to show exact circuit layouts, number of fittings, components and place in satisfactory operational power, lighting, and other electrical systems shown. Install additional circuits, components and material wherever needed to conform to the specific requirements of the equipment whether or not indicated or specified.

2. Information and components called for in the specification but not shown on plans or vise versa shall apply and shall be provided as though required expressly by both.

3. The locations of equipment, fixtures, outlets and similar devices shown on the Drawings are approximate only. Field measurements shall take precedence over scaled dimensions from Drawings. Exact locations shall be as accepted by Engineer during construction. Obtain in the field all information relevant to the placing of electrical Work and, in case of any interference with other Work, proceed as directed by the Engineer and furnish all labor and materials necessary to complete the Work in an acceptable manner.

4. In case of difference between building codes, specifications, state laws, industry standards and the Contract Documents, the most stringent shall govern. Should the Contractor perform any Work that does not comply with the requirements of the applicable building codes, state laws, and industry standards, he shall bear all cost arising in correcting these deficiencies.

5. Verify size and ratings of motors and other electrically operated devices supplied by others.

6. Check with Engineer before installation of Work for outlets not specified as to location or for Work that interferes with other trades.

1.07 FLASHING, CUTTING, FIREPROOFING AND WATERPROOFING

A. Flashing around all electrical items penetrating roof or exterior walls shall be the responsibility of the Contractor.

B. All cutting of surfaces, including core drilling of walls and slabs, shall be done by the Contractor.

C. Patching shall be done by the Contractor.

D. The Contractor shall fireproof, waterproof and seal all openings in slabs and walls.

1.08 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Protection. Use all means necessary to protect electrical system materials before, during and after installation and to protect the installed Work and materials of all other trades.

B. Replacements. In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Engineer and at no additional cost to the Owner. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried out and put through such special tests as directed by the Engineer, at the cost and expense of the Contractor, or shall be replaced by the Contractor at his own expense.

C. Protect the Work of other trades. Restore any damage caused to other trades to the condition existing prior to damage at no additional cost to the Owner.

D. Investigate each space in the building through which equipment must pass to reach its final location. If necessary, the manufacture shall be required to ship his material in sections sized to permit passing through such restricted areas in the building.

1.09 WORK PERFORMANCE

A. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required work, the following requirements are mandatory:

1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components,

certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.

2. Electricians must wear personal protective equipment while working on energized systems in accordance with NFPA 70E.

3. Before initiating any work, a job specific work plan must be developed by the Contractor and the Owner. The work plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, safety equipment to be used and exit pathways.

4. Work on energized circuits or equipment cannot begin until prior written approval is obtained from the Owner.

1.10 SPECIAL WARRANTY

A. Compile and assemble the warranties specified in Division 26 into a separate set of vinyl covered three ring binders, tabulated and indexed for easy reference.

B. Provide complete warranty information for each item. Information to include:

1. Product or equipment list.

2. Date of beginning of warranty or bond.

3. Duration of warranty or bond.

4. Names, addresses, and telephone numbers and procedures for filing a claim and obtaining warranty services.

1.11 DEFINITIONS

A. As used in this specification, "provide" means "furnish and install", "furnish" means "to purchase and deliver to the project Site complete with every necessary appurtenance and support and to store in a secure area in accordance with manufacturers instructions", and "install" means "to unload at the delivery point at the Site or retrieve from storage, move to point of installation and perform every operation necessary to establish secure mounting and correct operation at the proper location in the Project".

B. Finished Areas. In general, areas with carpet or tile floors, lay-in or fixed ceiling tile, special architectural ceiling treatment, or tiled, plastered, or paneled walls shall be considered finished areas.

C. Interior. For the purposes of this specification, interior is any area within the boundaries of the foundation of any building within the superstructure or other structures not classified as a building.

1.12 TEMPORARY POWER

A. The Contractor shall furnish, install, maintain, and remove the temporary electrical power and lighting systems, including lamps, and pay for all labor, materials, and equipment required therefore. All such temporary electrical Work shall meet the requirements of the National Electrical Code, the local utility company, and OSHA.

B. The Contractor shall make all necessary arrangements with the local utility company as to where the temporary electric service can be obtained.

C. The Contractor shall secure and pay for all required permits and back charges for Work performed by others, and other expenses incidental to the installation of the temporary electric service.

1.13 POSTED OPERATING INSTRUCTIONS

A. Provide for each system and principal item of equipment as specified in the technical sections for use by operation and maintenance personnel. The operating instructions shall include the following:

1. Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.

2. Start up, proper adjustment, operating, lubrication, and shutdown procedures.

3. Safety precautions.

4. The procedure in the event of equipment failure.

5. Other items of instruction as recommended by the manufacturer of each system or item of equipment.

B. Print or engrave operating instructions and frame under glass or in approved laminated plastic. Post instructions where directed. For operating instructions exposed to the weather, provide weather-resistant materials or weatherproof enclosures. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

1.14 MANUFACTURER'S NAMEPLATE

A. Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

1.15 FIELD FABRICATED NAMEPLATES

A. Provide laminated plastic nameplates for each equipment enclosure, relay, switch, and device; as specified in the technical sections or as indicated on the Drawings. Each nameplate inscription shall identify the name of the equipment, function and, when applicable, the position. Nameplates shall be melamine plastic, 0.125 inch thick, black with white letters. Surface shall be matte finish. Corners shall be square. Accurately align lettering and engrave into the core. Minimum size of nameplates shall be one by 2.5 inches. Lettering shall be a minimum of 0.25 inch high normal block style. All electrical equipment shall be labeled with the following:

1. Panel Name

2. Fed from "Panel Name" & "CKT #"

3. Amps

4. Volts

5. Phase

1.16 ARC FLASH LABEL

A. Provide arc flash labels for all electrical equipment with operating voltages greater than 50 volt per NEC 110.16.

1.17 WARNING SIGNS

A. Exterior warning and caution signs shall be weather resistant, nonfading, preprinted cellulose acetate butyrate signs with 20 gauge, galvanized steel backing, with colors, legend, and size appropriate to the location.

B. Interior warning and caution signs shall be aluminum signs with preprinted baked enamel finish and punched for fasteners. Colors, legend, and size appropriate to location.

1.18 WIRE AND CABLE MARKERS

A. Underground line marking tape shall be permanent, bright colored, continuous printed, metal backed, plastic tape compounded for direct burial service not less than 6 inches wide. Printed legend indicative of general type of underground line below.

B. Wire labels for wires smaller than No. 4. shall be vinyl or vinyl cloth, self-adhesive, wraparound, wire markers with preprinted numbers and letters. Wire sizes No. 4 and larger and multi conductor cables shall be marked with one-piece, nylon locking marker ties equal to Panduit PLM Series.

C. Reference Specification 16116 “Underground Electrical Construction” for further requirements.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Materials and equipment shall be listed by UL unless it can be demonstrated that no UL standards exist for a specific item or class of equipment.

B. All other materials, not specifically described but required for a complete and operable electrical installation, shall be new, first quality of their respective kinds, specification grade or better, and as selected by the Contractor subject to the acceptance by the Engineer.

C. All materials and equipment furnished and installed on this project shall meet the most stringent efficiency standards of the local utility to qualify for the maximum rebate.

2.02 INTERCHANGEABILITY

A. In all design and purchasing, interchangeability of items of equipment, subassemblies, parts, motors, starters, relays and other items is essential. All similar items shall be of the same manufacturer, type, model and dimensions.

B. For ease of maintenance and parts replacement, to the maximum extent possible, use equipment of a single manufacturer.

C. The Engineer reserves the right to reject any submittal which contains equipment from various manufacturers if suitable materials can be secured from fewer manufacturers and to require that source of materials be unified to the maximum extent possible.

PART 3 - EXECUTION

3.01 COORDINATION

A. Prior to all Work of this section, carefully inspect the installed Work of all other trades and verify that all such Work is complete to the point where this installation may properly commence.

B. Field verify all locations and dimensions to ensure that the equipment will be properly located, readily accessible, and installed in accordance with all pertinent codes and regulations, the Contract Documents, and the referenced standards.

C. The Work shall be carefully laid out in advance, and where cutting, drilling, etc., of floors, walls, ceilings, or other surfaces is necessary for the proper installation, this Work shall be carefully done, and any damage to building, piping, or equipment shall be repaired by skilled mechanics of the trades involved at no additional cost to the Owner.

D. In the event any discrepancies are discovered, immediately notify the Owner's Representative in writing. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 INSTALLATION

A. Install all equipment and fixtures in complete accordance with the manufacturer's recommendations and all pertinent codes and regulations.

B. Thoroughly inspect all items of equipment and any items dented, scratched, or otherwise damaged in any manner shall be replaced or repaired and painted to match original finish. All items so repaired and refinished shall be brought to the attention of the Engineer for inspection and acceptance.

C. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete or supported from or on other structural components, as they are constructed.

D. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building and equipment which must be placed in service before further construction can take place.

E. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.

F. The final routing of raceways shall be determined by structural conditions, interferences with other trades and by terminal locations on apparatus. The Engineer reserves the right of a reasonable amount of shifting at no extra cost up until time of roughing in the Work.

G. Where circuits are shown as “home-runs” all necessary fittings and boxes shall be provided for a complete raceway installation.

H. In general, wiring and raceway systems for security alarm, fire alarm, telephone and intercommunications systems are not indicated on the Drawings but shall be furnished and installed under this section.

I. Each lighting and each receptacle circuit shall have its own neutral, dedicated to that circuit. A common neutral for more than one signal phase circuit is not allowed.

J. Surface mounted panel boxed, junction boxes, conduits, etc., shall be supported by spacers to provide a clearance between wall and equipment.

K. Upon completion of all installation, lamping, and testing, thoroughly inspect all exposed portions of the electrical installation and completely remove all exposed labels, soils, markings and foreign material.

3.03 MARKING AND LABELING:

A. All panelboards, indoor transformers, cabinets, control panels and other specified equipment shall be labeled with engraved laminated plastic plates with engraved letters. Punch tapes with mastic backings are not acceptable.

B. All starters, disconnect switches and other specified equipment shall be marked with engraved laminated plastic plates and engraved letters. Where individual switches are circuit breakers in power or distribution panelboards do not have cardholders, they shall be marked with ½” high labels.

C. All empty conduits shall have labels tied to the pull string at each end of each empty conduit, marked as to identification of each end. Junction boxes with circuits provided for future use shall be labeled with appropriate circuit designation.

D. All panelboards directories shall be filled out with typewritten identification of each circuit.

3.04 WIRE AND CABLE MARKERS

A. Tag control circuit conductors at both ends and at junction box splices using wire and cable markers with identification numbers as designated on equipment wiring diagrams. Provide typed listing to identify conductors by number and use.

B. Identify spare conductors, individually, at both ends and at junction box splices with number between 1 and 999. Do not duplicate numbers.

C. Identify wire numbers on terminal block marking strips.

D. Provide permanent plastic name tag indicating load for each feeder for all junction boxes, handholes and manholes. Label all process motor wires to yard equipment in handholes and manholes.

3.05 TESTS & SETTINGS

A. Provide necessary material, equipment, labor and technical supervision to perform and complete the Electrical Acceptance Tests as required.

B. Acceptance tests as herein specified are defined as those tests and inspections required to determine that the equipment involved is acceptable as delivered to the job Site, that the equipment may be energized for final operational tests and is in accordance with the Specifications.

C. Final acceptance of the equipment and/or workmanship will depend upon performance characteristics as determined by the subject tests, in addition to complete operation tests, on all electrical equipment to show that it will perform the functions for which it was designed.

D. If the test and inspection data submitted should indicate deficiencies in the operation of the electrical apparatus or in the manufacturer thereof, the Contractor shall promptly implement the necessary adjustments, corrections, modifications and/or replacements necessary to be made to meet the specified requirements.

E. Upon completion of the remedial Work, the Testing Agency shall repeat all of the tests on components previously found deficient on the first test or any additional test if they be required. It shall be the responsibility and obligation of the Contractor to have all remedial Work accomplished as may be required by second and/or additional tests.

3.06 CLEANING

A. When all Work is completed and has been tested and accepted by the Owner's Representative, the Contractor shall clean all light fixtures, equipment, and exposed surfaces that have been directly affected by this Work.

END OF SECTION

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SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 – GENERAL

1.01 SCOPE

A. The Contractor shall provide the labor, tools, equipment, and materials necessary to install wires, cables, and connectors in accordance with the plans and as specified herein.

B. This section includes wires, cables, and connectors for power, lighting, signal, control, communications and related systems rated 600 volts and less.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

B. Related Sections:

1. Division 26: Section, “Common Work Results for Electrical”.

1.03 QUALITY ASSURANCE

A. Reference Standards:

1. National Fire Protection Association (NFPA) 70 "National Electrical Code (NEC), and Massachusetts Electrical Code".

2. Underwriter's Laboratories, Inc. (UL) Compliance.

a. UL Standard 83 Thermoplastic Insulated Wires and Cables.

b. UL Standard 486A Wire Connectors and Soldering Lugs for Use with Copper Conductors.

c. UL Standard 854 Service Entrance Cable.

3. National Electrical Manufacturers Association (NEMA) Compliance.

a. WC-5 Thermoplastic Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

b. WC-7 Cross Linked Thermosetting Polyethylene Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

c. WC-8 Ethylene Propylene Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

4. Institute of Electrical and Electronic Engineers (IEEE) Compliance.

a. Standard 82 Test Procedure for Impulse Voltage Tests on Insulated Conductors.

1.04 SUBMITTALS

A. Furnish manufacturer's product data, test reports, and materials certifications as required.

B. Submit the following in accordance with Conditions of Contract and Division 01 specification sections:

1. Product data for electrical wires, cables, and connectors.

2. Product data for Megger insulation testing instrument.

3. Report sheets for Megger testing.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Deliver wire and cable properly packaged in factory fabricated type containers, or wound on NEMA specified type wire and cable reels.

B. Store wire and cable in clean dry space in original containers. Protect products from weather, damaging fumes, construction debris, and traffic.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General:

1. Provide factory-fabricated wires of sizes, ampacity ratings, and materials for applications and services indicated. Where not indicated, provide proper wire selection as determined by Installer to comply with project's installation requirements, NEC and NEMA standards. Select from the following UL types those wires with construction features which fulfill project requirements:

2. Provide color-coding for phase identification as specified herein.

3. Provide factory applied nylon or polyvinyl chloride (PVC) external jackets on wires and cables for pulls in raceways over 100 feet in length, for pulls in raceways with more than three equivalent 90 degree bends, for pulls in conduits underground or under slabs on grade, and where indicated.

B. Service & Distribution Wiring:

1. 98 percent conductivity copper.

2. 600 volt insulation, type XHHW.

3. U.L. listed for underground use in wet locations at 75° C.

4. Use XHHW for #4 and larger and THHN/THWN or XHHW for #6 and smaller.

C. Building Wiring:

1. 98 percent conductivity copper.

2. 600 volt insulation, type, THWN/THHN, or XHHW.

3. Stranded conductor: #14 AWG and larger.

4. Minimum branch circuit: #12 AWG.

5. Minimum #10 AWG for 120 volt circuits more than 100 feet long.

6. Minimum #10 AWG for 277 volt circuits more than 230 feet long.

D. Control Wiring:

1. Control wiring for digital/discrete signal wiring, shall be 600V, minimum #14AWG, THHN/THWN, copper stranded, unless specifically indicated otherwise.

E. Splices:

1. No. 10 and smaller with 600-volt pressure type insulated connector of wire-nut type, or equal; soldered and crimped type not allowed. Ideal type “wire nut” Buchanan type “B-Cap” and Minnesota Mining (3M) type “Scotchlok”.

2. No. 8 and larger with solderless lugs or solderless connectors of Lock-tite or similar type properly taped with plastic insulating tape, Minnesota Mining Co. #33, or equal, then two half-lap servings of friction tape, Manson, or equal.'

3. Wire connector systems for use with underground conductors shall be UL listed specifically for such use.

4. Service entrance conductors shall be installed without splices. Electrical equipment feeders shall be spliced only where shown or specifically approved. Control and metering conductors shall be installed without splices.

5. All splices shall be made only by specific permission of the Engineer and then only in manholes or pull boxes and shall be sealed watertight with a heat-shrunk insulation.

6. Tighten electrical connectors and terminals in accordance with manufacturer's published torque tightening values. Where manufacture's torqueing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standards 486A and 486B.

7. Use UL listed splice for all underground wires, ducts buried, in conduit and in ducts. Connectors and splices shall be waterproof.

PART 3 – EXECUTION

3.01 WIRE AND CABLE INSTALLATION:

A. All wire and cables shall be installed in conduit of size and type indicated on the drawing and specifications.

B. Install electrical cables, wires, and connectors in compliance with NEC.

C. Pull conductors simultaneously where more than one is being installed in same raceway. Use UL listed pulling compound or lubricant, where necessary.

D. Use pulling means including, fish tape, cable, rope, and basket weave wire/cable grips which will not damage cables or raceways. Do not use rope hitches for pulling attachment to wire or cable.

E. Conceal all cable in finished spaces.

F. Install exposed cable parallel and perpendicular to surfaces or exposed structural members, and follow surface contours, where possible.

G. Conductors shall be sized such that voltage drop does not exceed 3 percent for branch circuits or 5 percent for feeder/branch circuit combination.

H. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors larger than No. 10 AWG cabled in individual circuits. Make terminations so there is no bare conductor at the terminal.

I. All feeder and branch circuit wiring shall be color coded at all termination and splice locations. System neutrals shall be designated in addition to phase conductors. Equipment grounds shall be green.

J. The number of conductors shown on the Drawings is not necessarily the correct number required. As many conductors as are required in each case shall be installed. In general, grounding conductors are not scheduled.

K. In general, wiring for the following systems shall be installed in separate conduits. Do not mix categories in a single raceway.

1. 120 volt power wiring.
2. 120 volt control wiring, including, digital input and output signals.
3. 24 volt DC control wiring, including, digital input and output signals.
4. 24 volt DC analog control wiring (4-20mA).
5. Communications wiring.
6. Special & Emergency Systems

L. Conductors 600 volts and below shall be color coded in accordance with the following:

CONDUCTOR	120/208 COLOR	480/277 COLOR
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	White/Gray
Equipment Grounds	Green	Green

3.02 FIELD QUALITY CONTROL:

A. The Contractor shall test each electrical circuit after permanent cables are in place with terminators installed, but before cable or wire is connected to equipment or devices to demonstrate that each circuit is free from improper grounds and short circuits.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SCOPE

A. The Contractor shall provide the labor, tools, equipment, and materials necessary to furnish and install grounding materials in accordance with the plans and as specified herein.

B. This section includes solid grounding of electrical systems and equipment.

C. Related Requirements

1. Section 26 05 00 "Common Work Results for Electrical".

1.02 QUALITY ASSURANCE

A. Reference Standards.

1. "National Electrical Code" (NEC), as applicable to electrical grounding and bonding, Art. 250. Use of conduit system for ground conductor shall not be allowed.

2. “Massachusetts Electrical Code” (MEC).

3. Underwriters' Laboratories, Inc. (UL). UL 467 "Electrical Grounding and Bonding Equipment."

4. Institute of Electrical and Electronic Engineers (IEEE) IEEE 81 and 142.

a. 1, "IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounded System (Part 1)."

b. 141, "IEEE Recommended Practice for Electric Power Distribution for Industrial Plants."

c. 142, "IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems."

1.03 SUBMITTALS

A. Submit in accordance with Division 01 General Requirements.

1. Product data for each type of product specified.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Provide each electrical grounding system with assembly of materials required for complete installation including wires/cables, connectors, lugs, clamps, ground rods, bonding jumpers and accessories.

B. Provide electrical grounding conductors for grounding connections matched to power supply wiring materials and sized according to NEC.

C. Provide electrical connectors, lugs, clamps, boding jumpers and accessories as recommended by the respective manufacturer for the particular application, unless other indicated.

D. Ground rods; Solid copper clad, 3/4-inch diameter by 10 feet long.

E. Insulated conductors: Green in color.

F. Ground Bus. Bare annealed copper bars of rectangular cross section, ¼-inch x 3-inch x length as required, with 98 percent conductivity, rigidly attached to structure, or as indicated on the Drawings.

G. Bonding Strap Conductor/Connectors. Soft copper, 0.05 inch thick and 2-inches wide, except as indicated.

H. Pressure Connectors. High conductivity plated units.

I. Bolted Clamps. Heavy-duty units listed for the application.

J. Exothermic Welded Connections. Provided in kit form and selected for the specific types, sizes, and combinations of conductors and other items to be connected.

PART 3 - EXECUTION

3.01 GROUNDING AND BONDING:

A. Use exothermic style ground connections to the ground rods and building steel.

B. Provide and install 600 volt insulated bonding conductors throughout the distribution system with connection to bonding (or grounding) terminal on each panel and panelboard with connections to other equipment where specifically indicated and noted.

C. Bonding conductors shall be continuous where possible. Where splices are required, provide T & B, or equal, compression connectors of approved pattern. Insulate connectors to equivalent thickness of conductors.

D. Provide grounding system for grounded circuit conductors of dry type transformer secondaries as indicated and required. Use exothermic style ground connections to building steel. Enclose grounding conductors in schedule 40 PVC conduit.

E. Provide equipment grounding conductors in all conduits containing power, control, or instrumentation conductors on the load side of the service equipment or on the load side of a separately derived system.

F. Comply with NEC Article 250 for sizes and quantities of equipment grounding conductors, except that larger sizes indicated or shown on the Contract Documents shall take precedence. Use of metallic conduit systems for equipment grounding as recognized by the NEC shall not be permitted under this specification.

G. Install grounding bushings on conduits at both primary and secondary entrances to transformers. Ground transformer enclosures to bushings.

H. Install bonding jumper for flexible metal conduit unless fittings are approved for grounding or otherwise comply with NEC.

1. Size jumper to match over-current device.
2. Green insulation.
3. Connect to grounding bushing at each end.

I. Ensure that entire electrical system is electrically continuous and permanently and effectively grounded, including all electrical equipment and motors.

1. Locate ground rods with a minimum of two rod length from each other and at least the same distance from any other grounding electrode. Connect ground conductors to ground rods by means of exothermic welds except at test wells and as otherwise indicated. Drive rods until tops are 24 inches below finished floor or final grade except as otherwise indicated.

J. Route grounding electrode conductors along the shortest and straightest paths possible without obstructing access or placing conductors where they may be subjected to strain, impact, or damage, except as indicated.

K. Ensure that grounding electrode conductor connections to interior piping, structural members, and the like are accessible for periodic inspection during the life of the structure.

3.02 BONDING FOR OTHER TRADES:

A. Signal raceways, water piping, heating piping and metallic air ducts shall be bonded together and to the grounding conductor with No. 8 soft drawn bare solid conductors. Connections to pipes shall be made with cast clamps of like material as the pipes to which attached, to ducting terminated in a secure manner by best practical means, bonding across any flexible or insulated connections.

B. All bonding conductors shall be installed in a neat and workmanlike manner properly shaped for contour of surface involved and properly supported. At locations remote from the main service entrance panelboards, bond to the largest raceway nearby.

END OF SECTION

SECTION 26 05 34

RACEWAYS, BOXES AND SUPPORTING DEVICES

PART 1 - GENERAL

1.01 SCOPE

A. The Contractor shall provide the labor, tools, equipment, and materials necessary to furnish and install raceways, boxes and supporting devices in accordance with the plans and as specified herein.

B. Types of products specified in this section include:

1. Conduit, Raceways & Fittings

2. Supporting Devices.

3. Boxes and fittings.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

B. Related Sections:

1. Division 26: Section 26 05 00 “Common Work Results for Electrical".

2. Division 26: Section 26 05 19 “Low-Voltage Electrical Power Conductors and Cables”.

1.03 QUALITY ASSURANCE

A. Reference Standards.

1. Underwriter's Laboratories, Inc. (UL) Listing and Labeling. Items provided under this section shall be listed and labeled by UL.

2. National Electrical Code (NEC).

3. Massachusetts Electrical Code (MEC).

4. National Electrical Manufacturers Association (NEMA).

1.04 SUBMITTALS

A. Furnish manufacturer's product data, test reports, and material certifications as required.

B. In accordance with Conditions of Contract and Division 01 specification sections:

1. Product data for cabinets and enclosures with classification higher than NEMA 1.

2. Shop drawings for floor boxes and boxes, enclosures and cabinets that are to be shop fabricated (non-stock items).

PART 2 - PRODUCTS

2.01 CONDUIT, RACEWAYS & FITTINGS

A. Provide conduit with ¾-inch diameter minimum, except where specifically shown smaller on the Contract Drawings.

B. Conduit, connectors, and fittings shall be approved for the installation of electrical conductors.

C. Refer to Table 3.01A for approved conduit installation guidelines.

1. Electrical Metallic Tubing (EMT):

a. EMT shall be rigid metallic conduit of the thinwall type in straight lengths, elbows, or bends and must conform to NEMA C80.3 and the requirements of UL 797.

b. Couplings and connectors shall be steel compression fittings. Where EMT enters outlet boxes, cabinets, or other enclosures, connectors must be the insulated-throat type, with a locknut. Fittings must meet the requirements of NEMA FB 1.

2. Rigid Galvanized Steel Conduit:

a. Rigid steel conduit (RGS), including couplings, elbows, bends, and nipples, shall conform to the requirements of UL 6 and NEMA C80.1 Steel fittings shall be galvanized by the hot-dip process.

b. Fittings for rigid steel conduit shall be threaded and shall conform to NEMA FB 1.

c. Gaskets shall be solid for fittings sized 1-1/2 inches and less. Conduit fittings with blank covers shall have gaskets except in clean, dry areas or at the lowest point of a conduit run where drainage is required.

d. Covers shall have captive screws and be accessible after the Work has been completed.

3. Rigid Plastic Conduit:

a. PVC Schedule 40: Conduit shall be made of polyvinyl chloride compound that shall be homogeneous plastic material free from cracks, holes or foreign inclusions. Conduit shall be rated for use with 90 degree C conductors, UL Listed. Use solvent cement to join conduits as manufactured the same as the conduit manufacturer.

b. PVC Schedule 80: Heavy wall PVC conduit that shall be made of polyvinyl chloride compound that shall be homogeneous plastic material free from cracks, holes or foreign inclusions. Conduit shall be rated for use with 90 degree C conductors, UL Listed. Use solvent cement to join conduits as manufactured the same as the conduit manufacturer.

4. Flexible Metallic Conduit:

a. Flexible metallic (FM) conduit shall meet the requirements of UL1.

b. Liquidtight flexible metallic conduit shall be provided with a protective jacket of PVC extruded over a flexible interlocked galvanized steel core to protect wiring against moisture, oil, chemicals, and corrosive fumes.

c. Fittings for flexible metallic conduit shall meet the requirements of UL 514B, Type I box connector, electrical, Type III coupling, electrical conduit, flexible steel, or Type IV adapter, electrical conduit.

5. Wireways:

a. Wireways and auxiliary gutters for use in exposed, dry locations shall be a prefabricated channel-shaped sheet metal trough with hinged or removable covers, associated fittings, and supports for housing, and protecting electrical wires and cables in accordance with UL 870.

b. Straight sections of trough, elbows, tees, crosses, closing plates, connectors, and hanging brackets shall be constructed from sheet steel of commercial quality not less than 16-gage. Sheet metal component parts shall be cleaned, phosphatized, and coated with a corrosion-resistant gray paint.

c. Straight sections of wireways and auxiliary gutters shall be solid or have knockouts as indicated in both sides and bottom, 3 inches on center.

d. Straight sections shall be not more than 5-feet long, with covers held closed with screws.

6. Conduit Seals:

a. Provide factory fabricated watertight conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls. Provide a cast in place water stop wall sleeve with a mechanical pipe seal between the conduit and the sleeve. Construct seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure clamps, and cap screws.

2.02 SUPPORTING DEVICES

A. Supports, support hardware, and fasteners shall be protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic. Products for use outdoors shall be hot dip galvanized unless material is inherently corrosion resistant.

1. Conduit Supports:

a. Single run hangers: Galvanized steel conduit straps or clamps, or cast metal beam clamps. Perforated straps and spring steel clips and clamps will not be permitted.

b. Group run hangers: Minimum 12-gauge galvanized performed U-channel rack with conduit fittings; 25 percent spare capacity.

c. Hanger rods: Threaded steel, 3/8-inch diameter, or as identified on the Drawings.

d. Vertical run supports: Minimum 12-gauge galvanized performed U-channel struts with conduit fittings.

2. Equipment and Lighting Supports:

a. U-channel: 12-gauge galvanized performed U-channel struts with fixture and conduit fittings, as applicable, unless indicated otherwise on the Drawings.

2.03 BOXES AND FITTINGS

A. Boxes must have sufficient volume to accommodate the number of conductors entering the box in accordance with the requirements of NFPA 70 and UL 514A.

B. In general, boxes that are exposed to weather, process areas, normally wet locations, and locations exposed in mechanical spaces shall be cast-metal. Boxes in all other finished areas shall be sheet metal. Boxes installed in corrosive areas, such as the chemical feed room, shall be nonmetallic.

1. Sheet Metal Outlet Boxes:

a. Sheet Metal Outlet Boxes: Standard type galvanized steel, minimum four inch square or octagon by 1-1/2 inch deep.

b. Luminaire and Equipment Supporting boxes: Rated for weight of equipment supported; include 2 inch male fixture studs where required.

c. Single Wall Type: Minimum size, four inch square by 1-1/2 inch or 2-1/8 inch deep, except as noted. Provide dry wall device covers raised 3/4 inch minimum to insure flush finish mounting.

d. Ganged Wall Type: Minimum depth three inches except as noted, ganged as required under common plate to contain devices shown. On 277 volt circuits ganged boxes for switches shall contain only one circuit or equip box with permanent barriers per NEC Art 404-8.

2. Cast Outlet Boxes:

a. Type FS shallow and type FD deep, cast feralloy.

b. Provide number of threaded hubs as required.

c. Use in all exterior, damp and locations exposed in mechanical spaces.

d. Provide gasketed cover and accessories by box manufacturer for complete weatherproofing. Provide correct box to accept weatherproof covers as specified.

3. Sheet Metal Pull & Junction Boxes:

   a. Sheet metal boxes shall be standard type galvanized steel and must conform to UL 50.

   b. Box dimensions shall be minimum four inch square or octagon by 2/1/2 inch deep.

   c. Sizes up to 12x12x6 inch: Provide screw-type or hinged covers.

   d. Sizes greater than 12x12x6 inch: Provide hinged covers.

   e. Boxes shall be sized to accommodate all incoming raceways.

4. Nonmetallic Outlet, Device, and Wiring Boxes:

   a. Conform to NEMA OS 2, "Nonmetallic Outlet Boxes, Device Boxes, Covers, and box Supports," and UL 514C, "Nonmetallic Outlet Boxes, Flush Device Boxes and Covers." Boxes shall be molded polyvinyl chloride (PVC), or fiberglass units of type, shape, size, and depth to suit location and application.

   b. Boxes shall be equipped with threaded screw holes for device and cover plate mounting. Each box shall have a molded cover of matching material suitable for the application and location installed.

PART 3 – EXECUTION

3.01 CONDUIT

A. Uses Permitted:

1. Use liquid tight flexible metal conduit for the final 24 inches of connections to motors or control items subject to movement or vibration.

2. Use RGS for all exterior aboveground installations unless otherwise noted.

3. Use Schedule 40 PVC conduit for exterior direct buried installations. Use Schedule 40 PVC conduit for exterior concrete encased installations. Use Schedule 80 PVC conduit for underground installations under driveways. The transition from underground and from concrete encasement to riser shall be rigid galvanized steel conduit to a minimum of 12” above finished floor and/or finished grade elevation. All elbows shall be prefabricated Rigid Steel to prevent wire burn through. Reference specification 26 05 43

"Underground Ducts and Raceways for Electrical Systems" for further requirements.

4. Install conduit seals for conduit penetrations of slabs on grade and exterior walls below grade and where indicated. Tighten sleeve seal screws until sealing grommets have expanded to form watertight seal. Provide seals for the interior of conduits that penetrate exterior or water bearing walls, consisting of gland type sealing bushings or RTV closed cell silicone foam.

B. Power, lighting, control, emergency light and power, and special-service systems and all related components shall be installed in accordance with NFPA 70, and shall be enclosed in separate conduit or separate conduit systems as indicated on the Contract Drawings and as specified herein.

C. Any run of conduit between outlet and outlet, between fitting and fitting, or between outlet and fitting shall contain not more than the equivalent of three 90-degree bends, including those bends located immediately at the outlet or fitting. Field bends shall be made in accordance with the manufacturer's recommendations, which normally require use of a one-size-larger bender than would be required for uncoated conduit. Installed conduit and fittings shall be free of dirt and trash and shall not be deformed or crushed. Empty conduit shall have a pull rope stalled.

D. Conduit shall be installed with a minimum of 3 inches of free air space separation from mechanical piping.

E. Conduit in finished areas shall be installed concealed. Conduit passing through masonry or concrete walls shall be installed in sleeves. Conduit shall be securely clamped and supported at least every 10 feet vertically and 8 feet horizontally. Galvanized pipe straps shall be fastened to structure with bolts, screws, and anchors. Wooden masonry plugs shall not be used.

F. Install exposed conduits, parallel or perpendicular to walls, ceilings, or structural members. Do not run through structural members. Avoid horizontal runs within partitions or sidewalls. Avoid ceiling inserts, lights, or ventilation ducts or outlets. Do not run conduits across pipe shafts or ventilation duct openings and keep conduits a minimum of 6 inches from parallel runs of flues, hot water pipes, or other sources of heat. Wherever possible, install horizontal raceway runs above water and steam piping.

G. Do not run conduits exposed on the exterior surface of buildings. Conduits penetrating exterior walls below grade, at grade floors, or below grade floors shall be sealed to prevent moisture migration. The exterior of the conduit shall be sealed with a mechanical pipe seal. The interior conduit seal shall be a gland type

sealing bushing or RTV closed cell silicone foam. Ensure that conduits do not retain water against these seals.

H. Raceways penetrating fire rated walls, floors, and partitions shall be sealed with a fire rated sealant.

I. All conduits shall be supported with materials specifically made for this purpose. Do not use wire hangers. Do not attach any parts of the raceway system to ventilation ducts. Conduit supports shall be attached to the building. Support conduits on each side of bends and on a spacing not to exceed the following: 6 feet for conduits smaller than 1 1/4 inches and 8 feet for conduits 1 1/4 inches and larger. Support riser conduits at each floor level with clamp hangers. All underground conduits shall be securely anchored to prevent movement during placement of concrete or backfill. Use precast separators and heavy gauge wire ties or other approved fasteners.

J. Conduit connections to boxes and fittings shall be supported not more than 36 inches from the connection point. Conduit bends shall be supported not more than 36 inches from each change in direction. Conduit shall be installed in neat symmetrical lines parallel to the centerlines of the building construction and the building outline. Multiple runs shall be parallel and grouped whenever possible on common supports. Exposed ends of conduit without conductors shall be sealed with watertight caps or plugs.

K. Bonding wires shall be used in flexible conduit for all circuits. Flexible conduit shall not be considered a ground conductor.

L. Liquid tight flexible metallic conduits shall be used in wet and oily locations and to complete the connection to motor-driven equipment.

M. Electrical connections to vibration-isolated equipment shall be made with flexible metallic conduit in a manner that will not impair the function of the equipment.

N. A polypropylene pull rope with a tensile strength not less than 130 pounds shall be installed in empty conduit.

O. Electrical conduit may be embedded in concrete according to the provisions of Article 6.3 of ACI 318 "Building Code Requirements for Reinforced Concrete", provided the following conditions are met:

1. Outside diameter of conduit shall not exceed 1/3 of concrete thickness. Maximum conduit outside diameter shall not exceed 3 inches when embedded in slab.

2. Conduit shall not be placed closer than three diameters on center. Route conduit to minimize crossing of different conduit runs.

3. Conduit shall not be embedded in structural concrete slabs less than four inches thick.

4. A 1 1/2 inch minimum concrete cover shall be provided for conduits in structural concrete slabs.

P. Installation of Underground Conduit:

1. Minimum of 3/4 inch conduit in or under concrete slab on grade.

2. Where conduits are installed in concrete slabs, on the ground, underground, or exposed to the weather, make all joints liquid tight and gas tight.

3. Bury all underground conduit, except under concrete slabs placed on fill, to a depth of at least 30 inches below finished grade unless otherwise indicated on the Drawings.

4. Slope ducts to drain away from buildings into manholes and/or handholes. Adjust final slopes to coordinate with existing site utilities.

5. Install on undisturbed soil where possible. Concrete encase conduits as shown on Drawings. Use pit run gravel and sand, placed 8 inch lifts and compacted for backfill.

6. Reference Specification 26 05 43 “Underground Ducts and Raceways for Electrical Systems” for further requirements.

Q. Installation of Rigid Metal Conduit:

1. Ends of conduit shall be cut square, reamed and threaded, and joints shall be brought butt-to-butt in the couplings. Joints shall be mechanically tight. Conduit shall be protected against damage and the entrance of water or foreign material during construction.

2. Ninety-degree bends of conduit with a diameter larger than 1 inch shall be made with factory-made elbows. Conduit elbows larger than 2 ½ inches shall be long radius. Field-made bends and offsets shall be made with an approved hickey or conduit-bending machine. Changes in directions of runs shall be made with symmetrical bends or cast-metal fittings.

3. At connections to sheet metal enclosures and boxes, a sufficient number of threads shall project through to permit the bushing to be drawn tight against the end of the conduit, after which the locknut shall be pulled up sufficiently tight to draw the bushing into firm electrical contact with the

box. Conduit shall be fastened to sheet metal boxes and cabinets with two locknuts where required by NFPA 70 where insulating bushings are used, where bushings cannot be brought into firm contact with the box, and where indicated.

4. Conduit joints shall be made with tapered threads set firmly. Each length of conduit cut in the field shall be reamed before installation. Where conduit is threaded in the field, each threaded end shall consist of at least five full threads. Corrosion-inhibitive compound (cold galvanizing paint) shall be used on all conduit threads or any locations where the original hot galvanized surface has been compromised.

5. Conduit stubbed-up through concrete floors for connections to free-standing equipment except motor-control centers, cubicles, and other such items of equipment shall be provided with a minimum of a 12” riser above the floor slab is of sufficient thickness; if not, a floor box shall be provided and set flush with the finished floor. Conduits installed for future use shall be terminated with a coupling and plug set flush with the floor.

3.02 SUPPORTING DEVICES

A. Install supporting devices to fasten electrical components securely and permanently in accordance with NEC requirements.

B. Coordinate with the building structural system and with other electrical installations.

C. Conform to manufacturer's recommendations for selection and installation of supports.

D. Install individual and multiple (trapeze) raceway hangers and riser clamps as necessary to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.

E. Support parallel runs of horizontal raceways together on trapeze type hangers.

F. Support individual horizontal raceways by separate pipe hangers. Spring steel fasteners may be used in lieu of hangers only for 1 1/2 inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings only. For hanger rods with spring steel fasteners, use 1/4 inch diameter or larger threaded steel. Use spring steel fasteners that are specifically designed for supporting single conduits or tubing.

G. In vertical runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports with no weight load on raceway terminals.

H. Support miscellaneous electrical components as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other devices.

I. Install sleeves in concrete slabs and walls and all other fire rated floors and walls for raceways and cable installations. For sleeves through fire rated wall or floor construction, apply UL listed fire-stopping sealant in gaps between sleeves and enclosed conduits and cables.

3.03 BOXES AND FITTINGS

A. Pullboxes shall be furnished and installed where necessary in the conduit system to facilitate conductor installation. Conduit runs longer than 100 feet or with more than three right-angle bends shall have a pull box installed at a convenient intermediate location.

B. Boxes and enclosures shall be securely mounted to the building structure with supporting facilities independent of the conduit entering or leaving the boxes.

C. Bonding jumpers shall be used around concentric or eccentric knockouts.

D. Installation of Outlet Boxes:

1. Use nonmetallic boxes in corrosive areas such as chemical feed area and as designated on the plans.

2. Use explosion proof boxes in Hazardous areas as identified on the Drawings.
3. Use cast metal boxes in all other locations. Each box with associated covers and fittings shall have a NEMA rating for each location installed.

E. Installation of Pull and Junction Boxes:

1. Use general purpose boxes (NEMA 1) in finished areas with framed construction.

2. Use dust-tight and oil-tight boxes (NEMA 12) in other dry interior areas.

3. Use watertight boxes (NEMA 3R) for exterior and wet locations on outdoor structure where moisture is present.

END OF SECTION

SECTION 26 05 43

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

A. Contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install underground duct banks, manholes and handholes including all necessary excavation, backfill and surface restoration.

B. Provide underground conduit duct banks with manholes and pullboxes for power, and lighting circuits as shown on the Drawings.

C. Coordination: Duct bank routing when shown on the Drawings is diagrammatic. Coordinate installation with piping and other underground systems and structures and locate clear of interferences. Coordinate manhole and handhole installation with piping, sheet piling and other underground systems and structures and locate clear of interferences.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Division 26, Section 20 05 00 “Common Work Results for Electrical”.

C. Division 26, Section 26 05 34 “Raceways, Boxes, & Supporting Devices”.

D. Division 26, Section 26 05 19 “Low-Voltage Electrical Power Conductors and Cables”.

E. Division 26, Section 26 05 26 “Grounding and Bonding for Electrical Systems”.

1.03 QUALITY ASSURANCE

A. Reference Standards: Electrical material and equipment shall conform in all respects to the latest approved standards of the following:

1. National Electrical Manufacturers Association (NEMA).

2. The American National Standards Institute (ANSI).

3. The Institute of Electrical and Electronic Engineers (IEEE).

4. Insulated Cable Engineers Association (ICEA).

5. National Electrical Code (NEC).

6. National Electrical Safety Code (NESC).

7. ASTM A 48, Gray Iron Castings.

8. ANSI A14.3, Safety Requirements for Fixed Ladders.

9. OSHA.

1.04 SUBMITTALS

A. Shop Drawings: Submit for approval the following:

1. Layouts showing the proposed routing of duct banks and the locations of manholes, handholes and areas of reinforcement.

2. Profiles of duct banks showing crossings with piping and other underground systems.

3. Typical cross sections.

4. Installation procedures.

5. Manufacturer's technical information for manholes, handholes and accessories proposed for use.

6. Drawings showing interior and exterior manhole and handhole dimensions and details of openings, jointing, inserts, reinforcing, size and locations of openings, and accessory locations.

7. Certificate of concrete and steel used in underground pre-cast concrete utility structures, according to ASTM C858.

8. Product Data for nonmetallic conduit and manhole accessories.

B. Record Drawings

1. Layouts showing the actual routing of duct banks including the dimensions and depth of the top of duct bank below grade. Record drawings for duct banks should also include cross sections of the duct bank indicating the circuit, use, conduit size, orientation and number of conduits.

2. Locations of manholes, handholes and areas of reinforcement.

1.05 DEFINITIONS

A. Duct: Electrical conduit and other raceway, either metallic or nonmetallic, used underground, embedded in earth or concrete.

B. Duct bank: 2 or more conduits or other raceway installed underground in the same trench or concrete envelope.

C. Handhole: An underground junction box in a duct or duct bank with cover accessible from grade.

D. Manhole: an underground utility structure, large enough for a person to enter, with facilities for installing and maintaining cables. Where required manholes shall comply with the Utility Companies requirements.

1.06 PROJECT CONDITIONS AND COORDINATION

A. Coordination with other Underground Utilities:

1. Locate all existing underground utilities through the use of an underground utility piping location services company. Locate the existing underground utilities and piping before any excavation is to begin.

2. Coordinate conduit routing, duct bank and manholes with other new and existing underground utilities. Revise locations and elevations as required to suit field conditions and ensure that conduits, duct runs, manholes and handholes do not interfere with existing and new underground utilities and piping.

PART 2 – PRODUCTS

2.01 DUCT BANK CONDUIT

A. Duct: Schedule 40 and Schedule 80 PVC conduit and fittings in accordance with Division 26 Section “Raceways, Boxes and Supporting Devices”.

B. Rigid Steel Conduit: Rigid steel conduit and fittings in accordance with Division 26 Section “Raceways, Boxes and Supporting Devices”.

C. All shielded instrumentation and communications cable shall be installed in ferrous metal, steel conduit throughout the entire run of conduit from end to end.

2.02 MANHOLES

A. Manholes shall conform to the requirements as shown and detailed on the Drawings.

B. Material and Construction:

1. Pre-cast reinforced concrete.

2. Minimum interior dimensions as indicated on the Drawings or required by the Utility Company.

3. Duct entrances sized and located to suit duct banks. Duct-bank penetration shall be watertight.

4. Modular sections with tongue-and-groove joints. Joints shall be gasketed and water tight.

5. Nominal inside dimensions as shown.

6. Base Section: Shall include sump and grate and ground rod openings.

7. Sump Covers; ASTM A48; Class 30B galvanized iron.

C. Frames and Covers:

1. Material: Cast iron conforming to ASTM A 48, Class 30A.

2. Covers: 42” minimum diameter, watertight, sealed type marked "ELECTRICAL" in raised two inch letters.

3. Frame shall be grouted on the manhole.

4. Manufacturer: Provide frames and covers of one of the following:

a. Neenah Foundry Company.

b. Flockhart Foundry Company.

c. Campbell Foundry Company.

d. Approved equal.

D. Pulling Irons:

1. Material: Galvanized steel.

2. Cast in the wall opposite to the centerline of each incoming duct bank and 12 inches below centerline of bottom line of ducts.

3. Product and Manufacturer: Provide one of the following:

a. Cat. No. DU2T3 by McGraw Edison Company.

b. Cat. No. 8119 by A.B. Chance Company.

c. Approved equal.

E. Cable Racks:

1. Cable racks shall adequately support cables with space allowed for future cables. Provide as indicated to support mounting channels and racks. Cast-in Place anchors with minimum rated pullout working capacity of 2000 pounds. Pennsylvania Insert Corp. 5/8-11-INSERT, with 5/8-11 hex head cap screw made from 316 stainless steel.

2. Each rack shall be a vertical assembly of 24 inch cable racks extending from within 6 inches of the manhole roof slab to within 6 inches of the manhole floor.

3. Cable Rack Mounting Channel: Heavy duty non-metallic stanchions. Underground Devices, Inc. model C36 or approved.

4. Cable Racks: Heavy duty non-metallic racks. 8, 14, 20 inches as indicated.

5. Product and Manufacturer: Provide one of the following:

a. Underground Devices, Inc. model RA 08, RA14, RA20 or approved.

b. Approved equal.

F. Insulators:

1. Material: Porcelain.

2. Product and Manufacturer: Provide one of the following:

a. Cat. No. J-5122 by Joslyn Manufacturing and Supply Company.

b. Cat. No. 2120 by Hubbard and Company.

c. Approved equal.

G. Manhole Steps:

1. Material: Extruded aluminum.

2. Steps spaced evenly at approximately twelve to sixteen inch centers and shall project evenly from manhole walls.

3. Manufacturer: Provide manhole steps of one of the following:

a. Flockhart Foundry Company.

b. Neenah Foundry Company.

c. Approved equal.

2.03 HANDHOLES

A. The pull/splice box underground enclosures shall be constructed of polymer concrete consisting of sand and aggregate bound together with a polymer resin. Internal reinforcement may be provided by means of steel, fiberglass, or a combination of the two. Handholes for installation in roadways shall concrete reinforced H20 traffic rated.

B. Enclosure:

1. The enclosure must be manufactured with an open or closed bottom and a removable cover. The enclosures shall be green or concrete gray in color.

2. The enclosures shall be designed to be installed flush to grade with the cover fitting flush to the box.

3. The enclosures shall be suitable for installation in either direct or buried native soil, embedded in concrete, or embedded in asphalt surfacing. (A concrete collar is required for installation in asphalt).

4. The enclosures shall be of a stackable design for greater installation flexibility.

5. All covers are to be equipped with a minimum of two stainless steel lockdown mechanisms. All covers shall have a logo recessed into the cover and it shall read electric.

6. All enclosure covers will have some type of recessed access point to allow removal of the cover with a hook. The access points will be placed in such a location to allow for the greatest amount of leverage and safety possible.

7. Enclosures shall be designed and suitable for installation and use through a temperature range of -40ºC (-40ºF) to 60ºC (140ºF).

8. A certified copy of all test reports must be signed and stamped by a registered professional engineer and submitted prior to shipment of products.

C. Material Requirements:

1. Permanent deflection of any surface shall not exceed 10 percent of the maximum allowable static design load deflection.

2. The covers shall be skid resistant and have a maximum coefficient of friction of 0.50 on the top surface of the cover. Coatings will not be allowed.

3. Any point on the covers must be able to withstand a 70 foot-pound impact administered with a 12 pound weight having a "C" tup (ASTM D-2444) without puncturing or splitting. The test shall be performed with the cover resting on a flat, rigid surface such as concrete or a 1" steel plate.

4. Covers shall have molded lettering, ELECTRIC or COMM as applicable.

5. Fastening devices used to secure the cover to the box shall be capable of withstanding a minimum torque of 15 foot-pounds and a minimum straight pullout strength of 750 pounds.

6. The material is tested according to the requirements of ASTM D543, Section 7, Procedure 1, for chemical resistance. The manufacturer is responsible for proof of compliance with the latest version of the ASTM standards.

7. Other required acceptance standards are:

   a. ASTM D756, Procedure E: Accelerated Service Exposure.

   b. ASTM G53: Recommended Practice for Operating Light and Water Exposure on Nonmetallic Materials (with a U.V.A. 340 bulb).

   c. ASTM D570, Section 5, 6.1, 6.5: Water Absorption.

   d. ASTM D790: Flexural Properties

   e. ASTM D635: Flammability Test.

D. Manufacturers: Provide handholes as manufactured by

1. Strongwell Quazite or approved equal.

PART 3 – EXECUTION

3.01 GENERAL

A. Concrete shall be measured, mixed and placed, and compacted as required in Division 03.

B. Provide not less than 3 inches of concrete between the outside of a duct and the earth. Provide not less than 2 inches of concrete between adjacent ducts. Refer to Drawings for spacing requirements. Provide side forms for each duct bank.

C. All duct line concrete pours shall be continuous between manholes or handholes and between manholes or handholes and structures.

D. Where duct lines pass through concrete walls, concrete envelopes shall be extended through the finished flush with inside surfaces. Watertight construction joints of an approved type shall be provided.

E. Duct banks shall be reinforced when laid on backfill covering new pipelines, roads, parking lots or any are subject to vehicular traffic. Beneath these areas, install reinforcing bars as shown on the Drawings, extending 10 ft beyond area needing protection.

F. Duct lines shall be laid in trenches on mats of gravel not less than 6 inches thick and well graded.

G. All electrical duct banks shall be colored red for safety purposes.

H. Install raceways to drain away from buildings. Raceways between manholes or handholes shall drain toward the manholes or handholes. Raceway slopes shall not be less than 3 in per 100 ft.

I. Make raceway entrances to buildings and vaults with hot dipped rigid galvanized steel conduit not less than 10 ft long. Conduits which are not concrete encased for runs below floor slabs in slab-on-grade construction shall be hot dipped rigid galvanized steel conduit. Conduits which are concrete encased for runs below floor slabs in slab-on-grade construction shall be encased under the slab to their respective equipment.

J. Raceway terminations at manholes shall be with end bells for PVC conduit and insulated throat grounding bushings with lay-in type lugs for metal conduit.

3.02 INSTALLATION

A. Provide excavation and backfilling required for ductbank manhole and handhole installation.

B. Make duct bank installations and penetrations through foundation walls watertight.

C. Assemble duct banks using non-magnetic saddles, spacers and separators. Position separators to provide 3-inch minimum separation between the outer surfaces of the ducts.

D. Firmly fix ducts in place during pouring of concrete. Carefully spade and vibrate the concrete to insure filling of all spaces between ducts.

E. Make bends with sweeps of not less than 48-inch radius or 5 degree angle couplings.

F. Make a transition from non-metallic to rigid steel conduit where duct banks enter structures or turn upward for continuation above grade. Terminate the ducts in insulated grounding bushings. Continue ducts inside buildings with steel, metallic conduit.

G. Where ducts enter manholes and handholes, terminate the ducts in suitable end bells.

H. Provide expansion/deflection fittings in accordance with the requirements specified in Division 26, Section “Raceways, Boxes and Supporting Devices”.

I. Do not backfill with material containing large rock, paving materials, cinders, large or sharply angular substances, corrosive material or other materials which can damage or contribute to corrosion of ducts or cables or prevent adequate compaction of fill.

J. Slope duct runs for drainage toward manholes and away from buildings with a slope of approximately 3 inches per 100 feet.

K. After completion of the duct bank and prior to pulling cable, pull a mandrel, not less than 12 inches long and with a cross section approximately one-fourth inch less than the inside cross section of the duct, through each duct. Then pull a rag swab or sponge through to make certain that no particles of earth, sand or gravel have been left in the duct.

L. Install a bare stranded copper duct bank ground cable in each duct bank envelope. Make ground electrically continuous throughout the entire duct bank system. Connect ground cable to building and station ground grid or to equipment ground buses. In addition, connect ground cable to steel conduit extensions of the underground duct system. Provide ground clamp and bonding of each steel conduit extension, where necessary to maintain continuity of the ground system. Terminate ground conductor at last manhole or handhole for outlying structures.

M. Install a warning ribbon approximately 12 inches below finished grade over all underground duct banks. The identifying ribbon shall be a PVC tape, 3-inches wide, yellow color, permanently imprinted with "CAUTION BURIED ELECTRIC LINE BELOW" in black letters.

N. Plug and seal all empty spare ducts entering buildings and structures. Seal all ducts in use entering buildings and structures. Seal shall be watertight, O-Z/Gedney Type Dux Duct Sealing Compound or equal.

O. Install duct banks in conformance with National Electrical Code and National Electrical Safety Code.

P. Install manholes and handholes where shown on Drawings. Verify final locations in field.

Q. Complete installation of manholes and handholes so that structures are watertight. Provide expansion/deflection fitting for each conduit entry into the manholes.

R. Provide sump opening in manhole floor.

S. Provide grading rings or brick stacks for manholes when required to adjust manhole cover to proper grade. Stacks shall be minimum of 12 inches in height, constructed on the roof slab or cone section on which the manhole frame and cover shall be placed. The height of the stack shall be such as is necessary to bring the manhole frame to the proper grade.

T. Cable Racks:

1. Provide cable hooks to support each cable on each rack along the cable run within the manholes.

2. Individually support each cable at each hook on porcelain insulators.

3. In the manhole securely tie each cable in place at each insulator block to prevent excessive movement of insulators, cables, or fireproof tape. Tie cables with non-metallic 3/4-inch strapping tape as manufactured by 3M or tie down with nylon straps.

U. Conduits shall extend 3 inches above concrete slab surface, unless otherwise indicated. All conduits shall be bushed to protect cables and provide means for grounding.

V. Duct Bank Conduit Spacers: Non-metallic, snap together intermediate and bottom pieces, sized for conduit diameter and code spacing. Carlon “Span-Loc” or approved. Separators shall be compatible with the conduit utilized. The joints of the conduits shall be staggered by rows and layers so as to provide a duct line having the maximum strength. During construction, partially completed duct lines, shall be protected form the entrance of debris such as mud, sand, and dirt by means of suitable conduits plugs. As each section of a duct line is completed, a testing mandrel not less than 12 inches long with a diameter ¼ inch less than the size of the conduit, shall be drawn through each conduit, after which a brush having the diameter of the duct, and having stiff bristles shall be drawn through until the conduit is clear of all particles of earth, sand and/or gravel; conduit plugs shall then be immediately installed. Provide a plastic pull rope, having a minimum of 3 additional feet at each end, in all spare ducts.

3.03 DUCT BANK INSTALLATION

A. All bends shall have a radius grater than 36 inches or 12 times conduit inside diameter whichever is greater.

B. Install duct with minimum slope of 4 inches per 100 feet. Slope duct away from building entrances.

C. Install no more than equivalent of three 90-degree bends between pull points.

D. Provide suitable fittings to accommodate expansion and deflection where required.

E. Use suitable separators and chairs installed not greater than 4 feet on centers. Conduit separation shall be per code, and not less than 3 inches.

F. Securely anchor duct to prevent movement during concrete placement. Use re-bar holders at spacers and secure with #4 re-bar driven into earth minimum of 1 foot.

G. Connect to manhole wall using No. 6 re-bar dowels. Dowels shall be located at each corner, and 12 inches on center. Insert dowels minimum 3 inches into manhole and 3 feet into duct bank.

H. Tops of concrete-encased ducts shall be:

1. Not less than 24in and not less than shown on the Drawings, below finished grade.

2. Not less than 30in and not less than shown on the Drawings, below roads and other paved surfaces.

I. Tops of direct burial ducts and conduits shall be:

1. Not less than 24in and not less than shown on the Drawings, below finished grade.

2. Not less than 30in and not less than shown on the Drawings, below roads and other paved surfaces.

3.04 PRE-CAST MANHOLE INSTALLATION

A. Install and seal pre-cast sections in accordance with manufacturer’s instructions.

B. Install manholes plumb.

C. Attach cable racks to inserts after manhole installation is complete.

D. Provide 12 inches minimum gravel bedding under manholes, and 12 inches gravel fill around manholes.

E. Conduit/Ductwork penetration shall be grouted and sealed. Penetration shall be watertight.

3.05 CABLE PULLING

A. The inspection, handling, storage, temperature conditioning prior to installation, bending and training limits, pulling limits, and calculation parameters for installation of all cables must comply with the manufacturer's recommendations. For ease of installation and prevention of cable damage, the Contractor shall utilize quadrant blocks located properly along the cable run. Failure to comply with any of the above shall make this Contractor responsible for any cable failures that occur within the manufacturer's warranty period.

B. Cable lubricant shall be soapstone, graphite or talc for rubber or plastic jacketed cables.

C. Lubricants for assisting in the pulling or jacketed cables shall be those specifically recommended by the cable manufacturer.

D. Cable pulling tensions shall not exceed the maximum pulling tensions recommended by the cable manufacturer.

3.06 CABLE TERMINATING

A. Terminations of insulated power and lighting cables shall be protected from accidental contact, deterioration of coverings and moisture by the use of terminating devices and materials. Terminations shall be made using materials and method as indicated or specified herein or as designed by the written instruction of the cable manufacturer and termination kit manufacturer.

3.07 GROUNDING

A. Duct banks shall be grounded with a bare stranded copper ground wire that is run within the duct bank and is bonded and grounded at both ends. Conduit shall not be used as the ground conductor.

B. Manholes shall be grounded with ground rods. A bare stranded copper ground wire from the ground wire loop shall be used to bond together and ground the manhole cover frame, ladder support bracket, concrete inserts, cable racks, duct bank ground conductors, and the shields of any medium voltage cables that are spliced in the manhole.

C. Grounding: Install a ground rod for each manhole. Bond all exposed metal manhole accessories and the concrete reinforcing rods with bare copper wire and connect to the ground rod and to the ductbank ground cable. Provide foam sealant for rod penetration in manhole floor for water tight seal.

D. Install a bare stranded copper duct bank ground cable in each duct bank envelope. Make ground electrically continuous throughout the entire duct bank system. Connect ground cable to building and station ground grid or to equipment ground

buses. In addition, connect ground cable to steel conduit extensions of the underground duct system, manholes and handholes. Provide ground clamp and bonding of each steel conduit extension, where necessary to maintain continuity of the ground system.

END OF SECTION

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SECTION 26 56 00

EXTERIOR LIGHTING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
1. Luminaires
2. Lamps
3. Drivers
4. Photocell controls
5. Poles and brackets

B. Related Documents:
1. Section 26 05 00, Common Work Results for Electrical.

1.02 REFERENCES

A. Furnish products listed by Underwriters Laboratories, Inc., ETL Testing Laboratories, or other testing firm acceptable to the Owner.

B. Conform to requirements of ANSI/NFPA 70.

C. Conform to requirements of NFPA 101.

1.03 SUBMITTALS

A. Submit shop drawings, product data, test data, warranties, and other information as appropriate for the following:
1. Luminaires
2. Drivers
3. Time switch
4. Photocell controls
5. Poles
6. Pole bases

B. Shop Drawings: Indicate construction details for products which are not manufacturer's standard, when product data does not adequately describe fixture physical characteristics, or upon request by Engineer.

C. Product Data: Provide product data for each luminaire and lighting unit.

D. Submit luminaire shop drawings in booklet form with a separate sheet for each luminaire type. Indicate clearly on each sheet the proposed luminaire "type" designation, manufacturer, luminaire lamp, and ballast designation.

E. Submittals shall indicate materials, finishes, metal gauges, overall and detail dimensions, sizes of electrical and mechanical connections, fasteners, welds, joints, end conditions, provisions for the work of others and similar information.

F. A photometric test report showing photometric candlepower distribution, brightness, coefficients of utilization, and paint reflectance shall be included for all fixtures. Photometric reports shall be prepared for actual fixture, lamp, lens, and ballast combination. Certify data as that taken under National Bureau of Standards calibrated test conditions according to standards of the Illuminating Engineering Society; upon request, submit photometric test of proposed fixture prepared by an independent testing laboratory such as ETL.

G. The submittals shall state whether or not the fixture, as an assembly, has been UL tested and approved.

H. Upon request, submit sample products for inspection. Provide luminaires identical with approved samples; retain approved samples at site for comparison until after all other luminaires have been shipped to site and installed. Transportation charges for samples shall be paid by Contractor. Unapproved samples will be returned at Contractor's expense. Upon notification of disapproval, immediately submit new samples that meet contract requirements.

I. Upon request by Engineer, provide computerized illumination calculation data for specified interior or exterior areas in digital or isofootcandle format and in such detail as requested.

J. Operating and Maintenance Instructions: Provide maintenance and operating instructions for battery powered lighting units. Include technical data sheets and parts ordering information for components used in all luminaires.

1.04 QUALITY ASSURANCE

A. Warranty all lighting and components for one year after acceptance of the work and at no additional cost to the Owner, promptly provide and install replacements for luminaires or components which are defective in materials or workmanship; or repair installed equipment at the job site as necessary to restore first class operating condition. For any time during the warranty period that luminaires are not fully functional due to defects in materials or workmanship, provide, install, and remove suitable temporary lighting. Warrant replacement luminaires in a similar manner for a period of one year following replacement including replacement of defective replacements.

B. Warrant ballasts, batteries, and occupancy sensors as further specified herein.

C. Provide products of firms regularly engaged in the manufacture of interior luminaires or components of similar types and ratings to those required. Such products shall have been in satisfactory use in similar applications for not less than two years.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver luminaires and their components to job site, factory assembled and wired to the greatest extent practical, in strict accordance with approved shop drawings, samples, certificates and catalog cuts.

B. Protect exposed finishes during manufacture, transport, storage and handling; replace damaged materials.

C. Luminaires shall be stored under cover, above the ground, in clean, dry areas, and be tagged and/or marked as to type and site destination.

PART 2 - PRODUCTS

2.01 GENERAL

A. Provide lighting fixtures as listed on the Fixture Schedule on the drawings and as specified herein that meet the performance and quality standard for that fixture. Substitutes shall be equal in all respects including mechanical, electrical, physical, performance, photometric, and quality characteristics except minor variances in construction details which do not affect overall quality or performance are permitted.

B. Accessories: Provide required accessories for mounting and operation of each luminaire as indicated.

2.02 LED LUMINAIRE HOUSING

A. Exterior Housing: 360 low-copper die-cast aluminum alloy with five stage polyester powder paint finish, electrical components solidly heat-sink mounted to housing, type as described on the drawings.
   1. Thermoset polyester powder coat applied after five-stage conversion cleaning process and bonded by heat fusion thermosetting. Laboratory tested for weather-ability and fade resistance in accordance with ASTM B117 specifications.
   2. Optics: minimum photometric performance in accordance with fixtures listed on Lighting Fixture Schedule.

2.03 LED LUMINAIRE

A. LED Luminaires provided shall match existing or be approved by the engineer as an equal.

B. Provide type and color indicated on the Lighting, Lamping, and Fixture Schedule.

C. 60-75 Watt LED Module.
   1. ANSI Specification Number M59.
   2. Initial rated lumen output shall be at least 4,600 lumens.
   3. Average rated lamp life shall be at least 90,000 hours when operated at ten (10) hours per start.
   4. LED optics chamber and driver to be IP66 rated.
   5. Provide fixture in Gloss Black, Epoxy Prime finish with (2) coats of polyester modified acrylic polyurethane.
   6. Globe shall be a Stippled Acrylic
   7. B-U-G Rating of 1-3-1
   8. Provide luminaires with shielded optics. Upward lumen utilization not to exceed 3.3%

D. Driver shall withstand line transients as defined in ANSI/C62.41.

E. Driver shall not contain polychlorinated biphenyls (PCBs) and shall be labeled "NO PCBs."

F. Driver shall have a warranty of five (5) years and a replacement labor allowance of $10.

2.04 POLES

A. Poles provided shall match existing characteristics as indicated or be approved by the engineer as an equal.

B. Provide poles designed for wind loading of 100 miles per hour determined in accordance with AASHTO LTS-2 while supporting luminaires having effective projected areas for fixtures indicated. Poles shall be anchor base type designed for use with underground supply conductors. Anchor bolts shall be steel rod having minimum yield strength of 50,000 psi; the top 12 inches of the rod shall be galvanized per ASTM A 153.
   1. Height: 16’-3” +/-
   2. Light Center: 20’-0” +/-
   3. Base: 20” +/- Diameter Cast Iron
   4. Finish: Epoxy Primer w/(2) coats polyester modified acrylic polyurethane
   5. Color: Gloss Black
   6. Access: Located in Base to coincide with handhole in steel shaft
   7. Plaque Boss: Cast iron mounting frame for future 6” wide by 8” tall dedication plaque.

C. Steel Poles: AASHTO LTS-2. Provide steel poles having minimum 7-gage steel with minimum yield/strength of 48,000 psi and primed and painted factory finish, color as indicated on the drawings. Provide a pole grounding connection designed to prevent electrolysis when used with copper ground wire.

D. Banner Arms:

1. Style: Clamp-on 1” SCH 80 Aluminum Pipe with rubber lined formed aluminum clamps with removable ball finial
2. Length: 34”
3. Finish: Polyester Powder Coat – Gloss Black
4. Hardware: 1/2" – 13 HD Galvanized Steel hex bolts, nuts, flat and lock washers.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Luminaire Pole Bases: Construct as indicated on drawings. Furnish pole bases to site contractor for installation under Division 2, coordinate installation. Install poles centered, with no base overlap, on bases plumb; provide for adjustment.

B. Provide anchor bases with galvanized steel anchor bolts, threaded at the top end and bent 90 degrees at the bottom end. Provide galvanized nuts, washers, and ornamental covers for anchor bolts. Concrete for anchor bases, polyvinyl chloride (PVC) conduit cells, and ground rods shall be as specified in Section 26 05 26.

C. Thoroughly compact backfill with compacting arranged to prevent any pressure between conductor, jacket, or sheath and the end of conduit ells. Adjust poles as necessary to provide a permanent vertical position with the bracket arm in proper position for luminaire location.

D. Grounding: Ground noncurrent-carrying parts of equipment, including metal poles. Where the copper grounding conductor is connected to a metal other than copper, provide specially treated or lined connectors suitable for this purpose.

E. Insulation Resistance Test: Perform before and after connection of fixtures and equipment.

F. Ground Resistance Tests: Perform ground continuity test.

G. Field Tests: Upon completion of installation, conduct an operating test to show that the equipment operates in accordance with the requirements of this specification section.

3.02 ADJUSTING AND CLEANING

A. Clean lenses and diffusers at completion of work.

B. Aim adjustable luminaires as indicated or as directed.

C. Clean paint splatters, dirt, and debris from installed luminaires.

D. Touch up luminaire and pole finish at completion of work.

END OF SECTION

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SECTION 31 00 00

EARTHWORK

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide excavating, filling, backfilling, stockpiling, bedding, compacting, grading, protection, installation and removal of support of excavation and other Work necessary for the construction of surface improvements, pipelines, structures, pavements, and appurtenant Work in accordance with this Section, the Drawings and applicable reference standards listed in Article 1.03.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

B. Measurement and payment means & methods outlined by Mass DOT standard specification shall not be considered part of this contract.

1.03 REFERENCES

A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections

2. MassDOT Construction Details

3. ASTM D1556: Density and Unit Weight of Soil in Place by the Sand-Cone Method

4. ASTM D1557: Laboratory Compaction Characteristics of Soil Using Modified Effort

5. ASTM D2922: Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)

6. Applicable portions of City of Quincy Code of Ordinances and Zoning Ordinances

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 SUBMITTALS

A. Submit in accordance with the Division 01 General Requirements.

1. Product Data

B. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.

C. Test Reports

1. Material gradations
2. Backfill material moisture-density relationships
3. Field compaction testing

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

B. Material sampling and pretesting per Mass DOT

PART 2 – PRODUCTS

2.01 MATERIALS

A. Pipe and Structure Bedding: 3/4 inch sized crushed stone; durable, clean angular rock fragments obtained by breaking and crushing rock material meeting the criteria of the M2.01.4 of the MassDOT Standard Specifications and Supplements for bedding beneath pipe and structures, to 6 inches above the crown of the pipe:

B. Suitable Backfill: well-graded granular material, of which at least 25 percent by weight shall be retained on the #40 sieve and contain less than 20 percent finer than a #200 sieve by weight, predominantly free from organic matter, man-made materials, ice, snow or other deleterious material and have characteristics so it can be readily placed and compacted. Place 6 inches above the crown of the pipe and around structures 6 inches above the crown of the highest pipe and up to the underside of the pavement section.

C. Ordinary Fill: 3/4" Dense Grade crushed stone material; free from ice and snow, roots, sod, rubbish and other deleterious or organic matter, having suitable moisture content to allow for proper compaction as specified in Paragraph 3.06 of this Section. Unsuitable structural fill: soil that is too wet for proper compaction.

Gradation:

Sieve Size	Percent Passing by Weight
1-1/2 inch	100
1 inch	98
3/4 inch	93
1/2 inch	70
3/8 inch	59
#4	41
#10	32
#20	24
#40	18
#50	15
#80	12
#200	7

D. Gravel Subbase: 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. Sieve analysis by weight:

Gradation:

Sieve Size	Percent Passing by Weight
2 inch	100
1/2 inch	70-100
3/4 inch	50-85
#4	30-55
#8	0-5
#50	8-29
#200	3-10

E. Structural Fill: material below miscellaneous structures, free from ice and snow, roots, sod, rubbish and other deleterious or organic matter, containing no stone greater than 2/3 the loose lift thickness and having suitable moisture content to allow for proper compaction as specified in Paragraph 3.06 of this Section. Unsuitable structural fill: soil that is too wet for proper compaction.

Gradation:

Sieve Size	Percent Passing by Weight
2/3 of loose lift thickness (6-inch max)	100
#10	30-95
#40	10- 70
#200	0- 8

F. Sand: Sieve analysis by weight:

Sieve Size	Percent Passing by Weight
3/8-inch	100
#4	95-100
#16	50-85
#100	2-10

G. 3/4 Inch Crushed Stone: Durable crushed rock or crushed gravel stone; free of ice, snow, sand, silt, clay, loam, shale, or other deleterious matter; graded within the following limits:

Sieve Size	Percent Passing by Weight
1 inch	100
3/4 inch	90-100
1/2 inch	10-50
#4	0-5
#200	Less than 1

H. Gravel Borrow: processed gravel for backfill per M1.03.1 of the MassDOT Standard Specifications and Supplements, consisting of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. Coarse aggregate percentage of wear: not more than 50 by the Los Angeles Abrasion Test.

Gradation:

Sieve Size	Percent Passing by Weight
3 inch	100
1-1/2 inch	70-100
3/4 inch	5-85
#4	30-60
#200	0-10

I. Loam: Loam Borrow shall be fertile, friable soil obtained from naturally well-drained areas or shall be the product of a commercial sand and gravel processing facility. It shall be uncontaminated by salt water, foreign matter, or substances harmful to plant growth. Loam Borrow shall be free of debris rocks, clods, and any other extraneous matter greater than 2 inches (50 mm) in diameter.

Gradation:

Sieve Size	Percent Passing by Weight
#4	100
#10	85-100
#40	35-85
#200	10-35
<20 um	<5

J. Controlled Density Fill (CDF) (Flowable Fill): excavatable and used to limit settlement, lateral movement, undermining, washout and other hazards created by earthwork operation as shown on the Drawings and when excavating around structures, utilities, sidewalks, pavements, and other facilities. Batch CDF at concrete plant.

1. Portland Cement: AASHTO M85.

2. Fly Ash: AASHTO M4.05.02.

3. Sand: M4.02.02 of MassDOT Standard Specifications and Supplements.

4. Water: M4.02.04 of MassDOT Standard Specifications and Supplements.

5. Air Entraining Admixture: M4.02.05 of MassDOT Standard Specifications and Supplements.

6. Compressive Strength: 28 day = 30-80 psi, 90 day = 100 psi

7. Slump: 10 - 12 inches

K. Unsuitable materials: material containing excessive clay, vegetation, organic matter, debris, pavement, stones or boulders over 6-inches in greatest dimension, and frozen material and will not provide a suitable foundation or structural support for the pipe or material unsuitable for use in backfill.

2.02 SHORING AND BRACING MATERIALS

A. Provide suitable shoring and bracing materials to support loads imposed. Materials may be used and in serviceable condition and are subject to inspection and approval of the Engineer once delivered to the Site

2.03 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 SITE MONITORING

A. Before starting Work, check and verify governing dimensions and elevations. Survey condition of adjoining properties with Engineer. Take digital video recording any prior settlement or cracking of structures, pavements and other improvements. Prepare a list of such damages, verified by and signed by Contractor, Engineer, and others conducting the investigation.

B. Coordinate survey. Establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations. Locate datum level used to establish benchmark elevations sufficiently distant so as not to be affected by excavation operations.

C. During excavation, resurvey benchmarks weekly, employing licensed Land Surveyor or registered Professional Engineer. Maintain accurate log of surveyed elevations for comparison with original elevations. Notify Engineer if changes in elevations occur or if cracks, sags or other damage is evident.

3.02 EXCAVATION

A. Remove materials encountered to the limits shown on the Drawings, designated in the Specifications or as required by the Owner.

1. Do not perform excavation below normal grade to remove and replace unsuitable materials until approved by the Engineer.

2. Do not perform excavation of rock, boulder or unsuitable materials until material to be excavated has been cross-sectioned and classified by Engineer.

B. Earth Excavation: removal and disposal 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 and not needed for use on the Project, as determined by the Engineer. Obtain necessary permits for legal disposal of surplus material.

C. Excavation in Asphalt Pavement Areas

1. Saw cut or mill to full depth through existing pavement prior to any excavation for pipe or structure placement. Minimize disturbance of remaining pavement. Cut and remove the minimum amount of pavement required to do the Work.

2. Use shoring and bracing where sides of excavation will not stand without undermining pavement.

3. Keep material and soil stockpiles a minimum 10 feet back from the edge of excavation, or in accordance with the approved support of excavation design, to avoid overloading of the sides of excavation and prevent slides or cave-ins.

4. Remove and dispose of existing pavements in the course of the Work. Take care to avoid mixing existing pavement material with excavation material to be used for backfill.

D. Excavation for Trenches

1. Excavate to widths shown on the Drawings.

2. Produce an evenly graded flat trench bottom at the subgrade elevation required for installation of pipe and bedding material.

3. Load excavated material directly into trucks unless otherwise permitted by the Engineer.

4. Place backfill material directly into trench or excavation. Do not stockpile material to be used as backfill in roadways.

E. Unauthorized Excavation: removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer including refilling, is at no additional cost to Owner.

1. Refilling Unauthorized Excavation

a. Trenches: Use 3/4-inch crushed stone and stabilization fabric as a separator material, if necessary, as directed by Engineer.

b. Elsewhere: Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.

F. Excavation Below Normal Grade: When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions. If unsuitable bearing materials, as defined in Paragraph 2.01 above, are encountered at required subgrade elevations, carry excavations deeper as directed by Engineer and replace excavated material with crushed stone or as directed by the Engineer.

G. Excavation Above Normal Grade: If unsuitable materials, as defined in Paragraph 2.01 above, are encountered above normal grade, remove the unsuitable material and dispose of and do not use as backfill on any portion of the Project, unless otherwise approved by the Engineer. Use suitable stockpiled material approved by the Engineer, to replace the unsuitable material to backfill the trench to the dimensions for pipe and structure bedding and backfill as shown on the Drawings. If suitable stockpile material is not sufficient to backfill the trench to required dimensions, use gravel borrow to complete the trench backfill to the elevation shown for pipe and structure backfill. Furnish and install stockpiled material and gravel borrow at no additional cost to Owner.

H. Material Storage

1. Stockpile and maintain suitable surplus excavated materials for re-use as backfill anywhere within the Project limits as directed by the Engineer. Place, grade, and shape stockpiles for proper drainage. Cover stockpiles when unused to limit infiltration by precipitation.

2. Provide erosion controls around stockpile areas as required by the local Conservation Agent and/or the Engineer at no additional cost to Owner.

3. Locate and retain soil materials at least 10 feet away from edge of excavations or as allowed approved support of excavation design.

3.03 ROADWAY EXCAVATION BY RECLAIMATION

A. Provide all equipment and materials needed to reclaim roadway as per Mass DOT Section 403.

3.04 SHORING AND BRACING

A. General

1. Provide temporary sheeting, shoring, and bracing in locations where required to protect excavated areas as required for safety or compliance with OSHA and Laws and Regulations per Section 00 73 19, at no additional cost to the Owner. If the Engineer is of the opinion that at any point sufficient or proper supports have not been provided, additional supports may be ordered to be placed at no additional cost to the Owner. Compliance with such order shall not relieve the Contractor from responsibility for the sufficiency of such supports.

2. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state and federal safety Law and Regulations per Section 00 73 19. As a minimum, follow the current OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926.

3. Provide system to resist earth and hydrostatic pressures, including surcharges from surface loads.

4. Maintain shoring and bracing while excavation is open.

5. If not leaving in place, remove systems in stages to prevent disturbance of soils and damage to structures and improvements. Fill voids as soon as sheeting is withdrawn.

B. Provide shoring and bracing designed by a Massachusetts Registered Professional Engineer to protect existing buildings, utilities, and other improvements and excavation against movement due to caving and to meet safety requirements of OSHA and Laws and Regulations per Section 00 73 19 for shoring and bracing.

1. Wood Sheeting and Bracing: used as needed to make excavation safe and secure. Leave wood sheeting in place.

2. Steel Sheet Piling: to be removed following completion of Work or remain in place when directed by the Engineer. Drive sheet piling prior to excavation where possible. Fill and compact voids outside sheeting to hold sides of excavation in place.

3. Steel sheet piling may be left in place at the Contractor's option if approved by the Engineer and at no additional cost to the Owner. Cut off sheet piling to be left in place at least 5 feet below finish grade or less if approved by the Engineer.

4. Movable box: used where a shoring system is required but steel piling is not called for as determined by Contractor as not all areas of Work will be conducive to the use of a movable box.

5. If, in the sole opinion of the Engineer, materials used for shoring and bracing are not suitable for use on the Project, immediately remove the materials from the Site if rejected by Engineer.

3.05 DEWATERING

A. Provide in accordance with Division 01 General Requirements.

3.06 BACKFILL AND FILL

A. Do not backfill excavations and trenches until new utilities have been inspected and, if required, tested satisfactorily for conformance with the Drawings and Specifications unless directed otherwise by the Engineer. Place acceptable soil material in layers to required elevations as shown on the Drawings or as specified. Fill, backfill, and compact in accordance with this Section to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material. Place material in approximately horizontal layers beginning at lowest area to be filled. Do not impair drainage. Replace fill that becomes frozen or saturated in stockpiles with suitable off-Site fill at no additional cost to Owner.

B. Ground Surface Preparation

1. Remove asphalt and concrete pavements, granular base course, existing sandy and gravelly fills, existing organic silty/clay soils, organic peat, vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface to excavation subgrade prior to placement of fills. Scarify surfaces so that fill material will bond with existing surface.

2. When existing ground surface has a density less than that specified under Article 3.07, Compaction, for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

C. Placement

1. Place backfill and fill materials in layers not more than 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. Take care to prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift.

3. Do not allow heavy machinery within 5 feet of structure during backfilling and compacting.

D. Backfilling Excavations

1. Backfill excavations promptly as Work permits, but not until completion of the following:

   a. Inspection and recording locations of underground utilities

   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. Use care in backfilling to avoid damage or displacement of underground structures and pipe.

3. Backfill under existing utility pipes crossed by new utility pipes with CDF. The CDF will extend continuously from the bedding of the new pipe to the utility pipe crossed, including a 6-inch thick envelope of CDF around the existing utility pipes.

4. Backfill with CDF when clearance between proposed structure and existing structure is 18 inches or less and sufficient clearance is not provided to obtain suitable compaction, in the opinion of the Engineer.

5. Backfill with CDF for trenches within impervious surfaces with pipes containing less than 3 feet of cover.

6. Provide that 3/4 inch crushed stone backfill stands at its own angle of repose. "Haunching" or "forming" with common fill is not allowed.

E. Backfilling Trenches

1. See Trench Detail on the Drawings.

2. Place pipe and structure bedding and gravel bedding to the extent and dimensions shown on the Drawings so that the pipes and structures have complete and uniform bearing.

3. Grade, compact and shape pipe and structure bedding so that the full length of pipe barrel has complete and uniform bearing. Dig bell holes and depressions for joints after the bedding has been graded and compacted, at proper clearance for jointing the pipes.

4. Following inspection and approval of pipe installation by Engineer, carefully hand place and properly compact additional approved bedding to the limits shown on the Drawings. Hand or mechanical tamping on the sides of the pipe.

5. Place 6 inches of suitable backfill in trenches above the crown of pipe as approved, not frozen and without stones larger than 3 inches in the greatest dimension. Spread in layers not exceeding 6 inches in loose thickness and compact each layer by at least 4 passes with an approved vibratory compactor. See Article 3.07 for compaction types and standards. Carefully place trench backfilling to avoid disturbance of new Work and of existing structures. Adjust moisture content of backfill to allow for proper compaction.

6. Bed pipe in pipe and structure bedding (sand for pile supported concrete slabs and 3/4-inch crushed stone for un-supported pipes except where otherwise indicated). Limits of bedding and requirements for remaining trench backfill are shown on the Drawings.

7. Trenches in cross-country runs: Restore surface to that existing prior to construction, as shown on the Drawings, or required by the Engineer. Mound trench 6 inches above existing grade or as required by the Engineer.

3.07 COMPACTION

A. Use methods which produce the required degree of compaction throughout the entire depth of material placed without damage to new or existing facilities and which are approved by the Engineer. Adjust moisture content of soil as required. Remove and replace material which is too wet to compact to required density. Compact each layer as Work progresses.

B. All roadway compaction shall utilize a “Medium Duty Vibratory Drum Roller” as described below. Maximum stone size shall not exceed Gravel Sub-Base gradation.

Compaction Method	Maximum Stone Size	Maximum Loose Lift Thickness		Minimum Number of Passes	
		Below Pavement	Less Critical Areas	Below Pavement	Less Critical Areas
Hand-operated vibratory plate or light roller in confined areas	4 inches	6 inches	8	4	4
Hand-operated vibratory drum rollers weighing at least 1,000 lbs. in confined areas	6 inches	10 inches	12 inches	4	4
Light vibratory drum roller min. weight at drum 5,000 lbs., min. dynapac force 10,000 lbs.	8 inches	6 inches	18 inches	4	4
Medium vibratory drum roller min. weight at drum 10,000 lbs., min. dynapac force 20,000 lbs.	8 inches	6 inches	24 inches	6	6

C. Degree of Compaction (minimum densities):

Fill and Backfill Location	Density
Top 3 feet under pavement grade	95% of max.
Below top 3 feet under pavement grade	92% of max.
Pipe Bedding	92% of max.
Beside structure foundation walls	90% of max.
Maximum density:	ASTM D1557, modified
Field density tests	ASTM D1556 (sand cone) or ASTM D2922 (nuclear methods)

Note: Fill that is too wet for proper compaction shall be disked, harrowed, or otherwise dried to proper moisture content for compaction to the required density. If the fill material cannot be dried within 48 hours of placement, remove and replace with drier fill.

D. Testing

1. Determine actual in place densities using field tests as directed by the Engineer and in accordance with Division 01 General Requirements.

2. Perform additional Work to obtain proper compaction if in-place densities do not meet the specified densities. Retesting may be required by the Engineer.

E. Minimum Number of Tests

1. Suitable Backfill: Compact backfill in maximum loose lifts per table above. For each lift make one field density test every 50 linear feet.

2. Pavement Sub base: Make at least one field density test of sub base for every 50 linear feet of paved area.

3.08 GRADING

A. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. Grade areas adjacent to structure lines to drain away from structures and to prevent ponding.

C. Finish surfaces: free from irregular surface changes and as follows.

1. Lawn or Other Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 feet above or below required subgrade elevations.

2. Pavements: 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.

D. Compaction: After grading, compact subgrade surfaces to the percentage of maximum density for each area classification.

3.09 MAINTENANCE

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. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction. Immediately repair any subsequent settling and provide such maintenance for the remainder of the Contract at no additional expense to the Owner.

C. Prior to paving upon the sub-grade, remove soft or unsuitable material and replace with suitable backfill material. Bring low sections, holes, or depressions to the required grade with approved material. Shape entire sub-grade to line, grade, and cross section and thoroughly compact.

D. Provide erosion control measures in accordance with Laws and Regulations and in accordance with Division 01 General Requirements. Keep roads free of debris. Use suitable watertight vehicles for hauling wet materials over roads and streets. Clean up materials dropped from or spread by vehicles promptly or when directed by the Engineer.

3.10 DISPOSAL OF EXCESS MATERIALS

A. Legally dispose of excess or unsuitable material at no additional cost to Owner.

3.02 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION

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SECTION 32 05 23

CEMENT AND CONRETE FOR EXTERIOR IMPROVEMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide structural cement concrete and steel reinforcements in accordance with this Section and applicable reference standards listed in Article 1.03.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections

2. MassDOT Construction Details

3. Applicable portions of City of Quincy Code of Ordinances and Zoning Ordinances

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 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.

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.01 CONCRETE

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 901 and MassDOT Construction Details.

B. Materials and composition of mix: per MassDOT Standard Specifications and Supplements Section M4.02.00 and meet the requirements of 4,000 psi (28 days), 3/4-inch, 610 Cement Concrete.

C. Source Quality Control: in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Place structural cement concrete and steel reinforcement accordance with Section 901 of the MassDOT Standard Specifications where required for use in the construction of collars, plugs, thrust blocks, concrete steps, curbs, gutters, paved areas, bridging for trenches, conduit encasement, footings, foundation pads, walls, walkways and other miscellaneous items and as shown on the Drawings.

3.02 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION

SECTION 32 12 16

ASPHALT PAVING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Furnish and install tack prime coat, hot mix asphalt pavement base and surface courses and miscellaneous patching in accordance with this Section and applicable reference standards listed in Article 1.03.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections

2. MassDOT Construction Details

3. Applicable portions of City of Quincy Code of Ordinances and Zoning Ordinances

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 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.

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.01 BITUMEN FOR TACK PRIME COAT

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 460 and MassDOT Construction Details.

2.02 HOT POURED RUBBERIZED ASPHALT SEALANT

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 460 and MassDOT Construction Details.

2.03 HOT MIX ASPHALT SURFACE COURSE

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 460, M3.11.03 HMA surface course – standard top and MassDOT Construction Details.

2.04 HOT MIX ASPHALT BASE COURSE

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 460, M3.11.03 HMA hase course – dense binder and MassDOT Construction Details.

2.05 HOT MIX ASPHALT FOR MISCELLANEOUS USES

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 472 and MassDOT Construction Details.

2.06 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Place hot mix asphalt base and top courses on roadways, sidewalks and other areas to maintain traffic access/egress to all properties abutting any Work and for the safe passage of pedestrian and vehicular traffic in accordance with MassDOT Standard Specifications and Supplements Section 460 and MassDOT Construction Details.

1. Provide 3-inch minimum compacted thickness depth of hot mix asphalt base course to achieve the necessary base course grade in support of finish grade pavement elevations indicated on the Drawings or as directed by the Engineer.

2. Apply bitumen for prime/tack coat at a rate of 1/10 to 1/20 gallons per square yard over the hot mix asphalt base course immediately prior to the installation of top course, as shown on the Drawings or as directed by the Engineer. Clean surface of sand and foreign matter and dry before applying the prime coat.

3. Provide 2-inch minimum compacted thickness depth of hot mix asphalt surface course (Standard Top) to achieve the finish grades indicated on the Drawings or as directed by the Engineer.

4. Apply hot poured rubberized asphalt sealant to longitudinal and transverse joints.

B. Install hot mix asphalt for patching and handwork on roadway surfaces that cannot be installed mechanically and when directed by the Engineer in accordance with MassDOT Standard Specifications and Supplements Section 472 and MassDOT Construction Details.

3.02 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION

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SECTION 32 16 14

CURBS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Remove and reset or provide new granite, cement concrete and hot mix asphalt curb in accordance with this Section and applicable reference standards listed in Article 1.03.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections

2. MassDOT Construction Details

3. Applicable portions of City of Quincy Code of Ordinances and Zoning Ordinances

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 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.

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.01 GRANITE CURBS

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 501 and MassDOT Construction Details.

B. Type: VA-3.

C. Source Quality Control: in accordance with Division 01 General Requirements.

2.02 CEMENT CONCRETE CURB

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 501 and MassDOT Construction Details.

B. Type: Pre-cast.

C. Source Quality Control: in accordance with Division 01 General Requirements.

2.03 HOT MIX ASPHALT CURB

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 501 and MassDOT Construction Details.

B. Type: Type-2.

D. Source Quality Control: in accordance with Division 01 General Requirements

PART 3 – EXECUTION

3.01 REMOVAL AND RESETTING

A. Remove and reset curbs, curb inlets and curb corners at locations where required in accordance with Section 580 of the MassDOT Standard Specifications, and the

MassDOT Construction Details. Incorporate existing curbs, curb inlets and curb corners before the installation of new curb.

3.02 INSTALLATION

A. Install new curbs in accordance with Section 500 of the MassDOT Standard Specifications and the Drawings.

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 (exposed portion) of curb stone: uniform thickness and surface finish.

3. Radii of the curved curb stone: per the Drawings shall be as shown on drawings.

3.03 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION

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SECTION 32 17 25

PAVEMENT MARKINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide pavement markings in accordance with this Section and applicable reference standards listed in Article 1.03.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections

2. MassDOT Construction Details

3. MUTCD and Mass Amendments

4. Applicable portions of City of Quincy Code of Ordinances and Zoning Ordinances

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 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.

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.01 PAVEMENT MARKINGS

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 860 and MassDOT Construction Details.

B. Type: thermoplastic reflectorized type conforming to M7.01.03 (White) and M7.01.04 (Yellow).

C. Source Quality Control: per Division 01 General Requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Apply and install pavement markings in accordance MassDOT Standard Specifications and Supplements Section 860, the MUTCD and Mass Amendments, and the Drawings.

3.02 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION

SECTION 32 90 00

PLANTING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes

1. Provide loam borrow, seeding, and supporting materials in accordance with this Section and applicable reference standards listed in Article 1.03.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and payment requirements: per Division 01 General Requirements.

1.03 REFERENCES

A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections

2. MassDOT Construction Details

3. Applicable portions of City of Quincy Code of Ordinances and Zoning Ordinances

4. ANSI Z60.1 Standard Nursery Stock

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

1.05 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.

1.06 QUALITY ASSURANCE

A. Provide in accordance with Division 01 General Requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Provide in accordance with Division 01 General Requirements.

1.08 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

PART 2 – PRODUCTS

2.01 LOAM BORROW

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 751and MassDOT Construction Details.

B. Type: per MassDOT Standard Specifications and Supplements Section M1.05.0.

2.02 SEED AND SUPPORTING MATERIAL

A. Provide seed, limestone, fertilizers, plant materials, water for irrigation and soil conditioners in accordance with MassDOT Standard Specifications and Supplements Section 765.40 and MassDOT Construction Details, and ANSI Z60.1.

B. Provide New England wetland seed mixture in accordance with regional industry standard.

2.03 PLANTING TREES, SHRUBS AND GROUNDCOVER

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 771 and MassDOT Construction Details.

B. Type: per MassDOT Standard Specifications and Supplements Section M6.06.1

2.04 SOURCE QUALITY CONTROL

A. Provide in accordance with Division 01 General Requirements.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Place loam borrow at designated locations where plant material (grasses, bushes, and trees) are to be installed or re-installed in accordance with Section 751 of the MassDOT Standard Specifications and the Drawings or as directed by the Engineer.

3.02 SEED AND SUPPORTING MATERIAL

A. Install and apply seed and supporting materials at the rates of application and in accordance with MassDOT Standard Specifications and Supplements Section 765.40 and the Drawings.

3.03 PLANTING TREES, SHRUBS AND GROUNDCOVER

A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 771 and MassDOT Construction Details.

B. Type: per MassDOT Standard Specifications and Supplements Section M6.06.1

3.04 CLOSEOUT ACTIVITIES

A. Provide in accordance with Division 01 General Requirements.

END OF SECTION

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