

INVITATION FOR BID

WESTERN DRIVE SEWER IMPROVEMENT PROJECT



Town of Longmeadow
Massachusetts

September 26, 2019

DIVISION 0 – BIDDING AND CONTRACT REQUIREMENTS

**INVITATION FOR BID
WESTERN DRIVE SEWER IMPROVEMENT PROJECT**

DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS

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DIVISION 3

Town of Longmeadow, Massachusetts, Plan of 2019 Western Drive Sewer Main Improvement Project. Complete Set 4 Sheets

ADVERTISEMENT FOR BIDS:

Legal Notice:

**INVITATION FOR BID (IFB)
WESTERN DRIVE SEWER IMPROVEMENT**

The Town of Longmeadow invites sealed Bids for the proposed “Western Drive Sewer Improvement”. Sealed Bids will be received at the Town of Longmeadow, Attn: Chad Thompson-Procurement Manager, 735 Longmeadow Street, Suite 101, Longmeadow, MA 01106 until the bid deadline **of 1:30PM on Thursday, October 10, 2019**. Late bids will be rejected. Immediately following the bid deadline, bids will be publicly opened in the auditorium in the same building. Sealed bids must have outer envelope marked as “Western Drive Sewer Improvement”.

The work consists of the construction of sanitary sewer main, sanitary service connections, and trench patch improvements on Western Drive. Project completion shall be 90 calendar days from the date of the Notice to Proceed. All bids for this project are subject to the provisions of Massachusetts General Laws Chapter 30, Section 39M as amended.

Bid Documents may be examined and/or obtained at the office of the Longmeadow Purchasing Department between 8:00am and 4:30pm, Monday through Thursday, and 8:00am to noon on Friday. Bid documents may also be obtained online through the Purchasing Department page of the Town website, www.longmeadow.org, select the link ‘Bids & RFPs’, then link ‘Bid & RFP Finder’ to access documents online. Bidders that download documents online are encouraged to register with the Purchasing Department to receive updates. Others will be responsible to monitor the website prior to the bid deadline for additional information and issued addenda. Failure to acknowledge the receipt of addenda may result in a bid rejection.

All Bidders shall furnish with their Bid a bid guaranty in the form of a bid bond, cash or a certified check, treasurer’s check or cashier’s check issued by a responsible bank or trust company, in the amount of 5% of the total amount of the bid and made payable to the Town of Longmeadow, Massachusetts.

Performance and Labor and Materials Payment Bonds, in the full amount of the Contract Price, will be required of the Successful Bidder. No Bid may be withdrawn less than sixty (60) days after the date of the opening of bids. Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H, as amended, apply to this project. It is the responsibility of the contractor, 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 this contract.

The Town of Longmeadow, acting through the Town Manager, the Awarding Authority reserves the right to reject any and all bids, waive minor informalities, and to award the contract in the best interest of the Town.

END OF SECTION

SECTION 00200

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 DEFINED TERMS

- 1.1 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. The term "Successful Bidder" means the lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

ARTICLE 2 COPIES OF BIDDING DOCUMENTS

- 2.1 Refer to Advertisement for Bids for information on examination and procurement of documents.
- 2.2 Complete sets of Bidding Documents shall be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 QUALIFICATIONS OF BIDDERS

- 3.1 Bidders shall be experienced in the kind of Work to be performed, shall have the necessary equipment therefore, and shall possess sufficient capital to properly execute the Work within the time allowed. Bids received from Bidders who have previously failed to complete Work within the time required, or who have previously performed similar Work in an unsatisfactory manner, may be rejected. A Bid may be rejected if Bidder cannot show that he has the necessary ability, plant and equipment to commence the Work at the time prescribed and thereafter to prosecute and complete the Work at the rate or within the time specified. A Bid may be rejected if Bidder is already obligated for the performance of other Work which would delay the commencement, prosecution or completion of the Work.
- 3.2 Bidders may be investigated by OWNER to determine if they are qualified to perform the Work. All Bidders shall be prepared to submit within five days of OWNER's or ENGINEER's request, written evidence of such information and data necessary to make this determination. The investigation of a Bidder will seek to determine whether the organization is adequate in size, is authorized to do business in the jurisdiction where the project is located, has had previous experience and whether available equipment and financial resources are adequate to assure OWNER that the Work will be completed in accordance with the terms of the Agreement. OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of such Bidder fails to satisfy OWNER that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein.

ARTICLE 4 EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

- 4.1 It is the responsibility of each Bidder before submitting a Bid to:
- A. examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;
 - B. visit the Site, 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, or performance of the Work;
 - D. carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions;
 - E. obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means,

methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

- 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 bid and within the times 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 OWNER 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.
- 4.2 On request, OWNER will 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 fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.
- 4.3 Subsurface and Physical Conditions
- A. The Supplementary Conditions identify:
 - 1. Those reports, if any, of explorations and tests of subsurface conditions at or contiguous to the site that ENGINEER has used in preparing the Bidding Documents.
- 4.4 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.
- 4.5 Hazardous Environmental Condition
- A. The Supplementary Conditions identify those reports if any and drawings, if any, relating to a Hazardous Environmental Condition identified at the Site, if any, that ENGINEER has used in preparing the Bidding Documents.
- 4.6 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or

revealed at the site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.

- 4.7 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 OWNER 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 finishing the Work.

ARTICLE 5 PRE-BID CONFERENCE

- 5.1 None Scheduled.

ARTICLE 6 SITE AND OTHER AREAS

- 6.1 The Site is identified 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. 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.

ARTICLE 7 INTERPRETATIONS AND ADDENDA

- 7.1 All questions about the meaning or intent of the Bidding Documents shall be submitted to OWNER (Town of Longmeadow, Attn: Chad Thompson-Procurement Manager, 735 Longmeadow Street, Suite 101, Longmeadow, MA 01106, fax-413-565-4370, email: CTHOMPSON@LONGMEADOW.ORG) in writing. In order to receive consideration, questions must be received by ENGINEER at least 96 hours (four days) prior to the date fixed for the opening of Bids. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda emailed or faxed to all parties recorded by OWNER as having received the Bidding Documents. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.2 Addenda may be issued to clarify, correct or change the Bidding Documents. Such Addenda, if any, will be issued in the manner and within the time period stated in paragraph 7.1.
- 7.3 The Bidder must acknowledge receipt of each Addendum, if any, in the space provided on the Bid Form.

ARTICLE 8 BID SECURITY

- 8.1 Bids must be accompanied by Bid Security in an amount of 5% of the Bidder's maximum Bid price and in the form of cash, a certified check, treasurer's check or cashier's check issued by a responsible bank or trust company or a bid bond payable to OWNER.

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

ARTICLE 9 CONTRACT TIME

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

ARTICLE 10 LIQUIDATED DAMAGES

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

ARTICLE 11 SUBSTITUTE AND "OR EQUAL" ITEMS

- 11.1 The Contract, if awarded, will be on the basis of materials and equipment 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 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. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may be supplemented in the General Requirements.

ARTICLE 12 PREPARATION OF BID

- 12.1 A Bid must be made on the Bid Form included with the Project Manual. The Bid Form shall not be altered in any way. Each copy of the Bidding Documents contains a separate, unbound copy of the Bid Form to be used for submittal.
- 12.2 The Bid Form must be completed. Blank spaces in the Bid Form must be filled in correctly where indicated, and the Bidder must state, both in words and numerals, the prices for which he proposes to do each and every item of Work. Ditto marks shall not be used.
- 12.3 A Bidder shall execute his Bid as stated below.
- A. A Bid by an individual shall show his name and official address.
 - B. A Bid by a partnership must be executed in the partnership name and signed by a partner accompanied by evidence of authority to sign. His title must appear under this signature and the official address of the partnership shall be shown.
 - C. A Bid by a corporation must be executed in the corporate name by an officer of the corporation and must be accompanied by a certified copy of a resolution of the board of directors authorizing the person signing the Bid to do so on behalf of the

corporation. The corporate seal shall be affixed and attested by the secretary. The state of incorporation and the official corporate address shall be shown.

D. All names must be printed below the signature.

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

12.5 The address and telephone number to where communications regarding the Bid are to be directed shall be shown.

12.6 The following listed documents shall be submitted in addition to the Bid Form:

A. Bid Security

12.7 In order to be considered for selection, the Bidder must submit a complete bid package in accordance with these Bidding Documents. Partial Bids will not be accepted.

12.8 Any deviations in completion of the Bid Form and accompanying documents from the instructions provided in this Article 12 may be cause for rejection of the Bid.

ARTICLE 13 BASIS OF BID

13.1 Unit Price

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.

B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.

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

13.2 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

ARTICLE 14 SUBMITTAL OF BID

14.1 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement for Bids and shall be enclosed in a sealed envelope plainly marked with the Project title, the name and address of Bidder, and shall be accompanied by the Bid Security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "**Western Drive Sewer Improvement Project**". A mailed Bid shall be addressed to: Town of Longmeadow, Attn: Chad Thompson - Procurement Manager, 735 Longmeadow Street, Suite 101, Longmeadow, MA 01106.

14.2 Unexpected closure: If at the time of the bid deadline for scheduled receipt of bids the Community House (735 Longmeadow Street) is closed due to uncontrolled events such as

fire, snow, ice wind, weather, or building evacuation, etc, the bid deadline for the receipt of bids will postponed until the same bid deadline time on the next regular business day (Monday through Friday, excluding holidays). The public bid opening will also immediately follow the revised bid deadline date.

ARTICLE 15 MODIFICATION OR WITHDRAWAL OF BID

15.1 Withdrawal Prior to Bid Opening

- A. A Bidder may withdraw his Bid before the time fixed for the opening of Bids by communicating his purpose in writing to OWNER. Upon receipt of such written notice, the unopened Bid will be returned to the Bidder.

15.2 Modification Prior to Bid Opening

- A. If a Bidder wishes to modify his Bid, he must withdraw his initial Bid in the manner specified in paragraph 15.1.A and submit a new Bid.

ARTICLE 16 OPENING OF BIDS

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

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

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

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

ARTICLE 17 DISQUALIFICATION OF BIDDERS

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

ARTICLE 18 BIDS TO REMAIN OPEN

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

ARTICLE 19 AWARD OF CONTRACT

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

19.2 OWNER reserves the right to reject any Bid not accompanied by specified documentation and Bid Security.

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

- 19.4 OWNER reserves the right to reject any Bid that, in his sole discretion, is considered to be unbalanced or unreasonable as to the amount bid for any lump sum or unit price item.
- 19.5 In evaluating Bids, discrepancies between words and figures will be resolved in favor of words. Discrepancies in 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.
- 19.6 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.
- 19.7 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 must be submitted as provided in the Supplementary Conditions.
- 19.8 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 to perform the Work in accordance with the Contract Documents.
- 19.9 If a contract is to be awarded, it will be awarded to the lowest responsive and responsible Bidder who has neither been disqualified nor rejected pursuant to Article 17 or this Article 19. In the event a bid contains bid alternates, the lowest responsive and responsible bidder will be based on the Base Bid and Alternate(s) selected for contract award by the Town of Longmeadow.
- 19.10 Contents of the Bid of the Successful Bidder will become part of any contract awarded.

ARTICLE 20 CONTRACT SECURITIES

- 20.1 Performance and Labor and Materials (Payment) bonds shall be furnished by the successful Bidder. The amounts for Performance and Payment Bonds are 100%. Performance and Payment Bonds submitted shall be posted by a recognized surety company having a place of business in the Commonwealth of Massachusetts. All Performance and Payment Bonds signed by an agent must be accompanied by a certified copy of the authority to act. Additional requirements may be stated in the General or Supplementary Conditions.
- 20.2 The Successful Bidder shall within 5 days from the date of the Notice of Award deliver to OWNER and ENGINEER, for review and approval, the Performance Bond and the Payment Bond he proposes to furnish at the time of the execution of the Agreement.
- 20.3 When the Successful Bidder delivers the executed Agreement to OWNER, the Agreement shall be accompanied by the required contract securities.

ARTICLE 21 CONTRACT INSURANCE

- 21.1 The requirements for insurance to be provided by the Successful Bidder are stated in Article 5 of the General Conditions and in the Supplementary Conditions.

ARTICLE 22 EXECUTION OF AGREEMENT

- 22.1 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract

Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER. Within ten days thereafter, OWNER shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

ARTICLE 23 SALES TAXES

- 23.1 All materials provided under this Contract are exempt from the Sales and Use Taxes of the Commonwealth of Massachusetts. The tax exemption number will be provided to the Successful Bidder.

ARTICLE 24 MASSACHUSETTS WAGE RATES

- 24.1 Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H, as amended, apply to this project. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information on the Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract. The Wage Rate Determination is included in Part II of the Supplementary Conditions.
- 24.2 It is the responsibility of the Bidder before bid opening to request, if necessary, any additional information on Minimum Wage Rates for those trades-people who are not covered by the applicable Wage Rate Determination, but who may be employed for the proposed Work under this Contract.
- 24.3 In the event that the work of the contract extends to more than one year from the effective date of the contract, a Prevailing Wage update will be required for the current prevailing wage rates. The Contractor will be responsible for paying the prevailing wage update rates, however, the Contractor will not bill the Town for any fluctuation in the change of prevailing wage rates that was not anticipated based on the rates of the original bid submission and IFB document content. Bidders and the Contractor will be responsible for taking into account that there may be changes in the prevailing wage rate update and should take that into account when submitting their bid pricing which is non-conditional to change in billable rates.

ARTICLE 25 MASSACHUSETTS REQUIREMENTS

- 25.1 Applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this Contract and any provision in violation of the foregoing shall be deemed null, void, and of no effect. Where conflict between Code of Federal Regulations and State Laws and Regulations exist, the more stringent requirement shall apply.
- 25.2 The Contractor guarantees that the Work and Services to be performed under the Contract, and all workmanship, materials, and equipment performed, furnished, used, or installed in the construction of the same shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Drawings, Specifications, and other Contract documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be for a period of one year from after the date of completion and acceptance of the Work as stated in the final estimate. If part of the Work is accepted in accordance with that subsection of the Agreement titled "Partial Acceptance", the guarantee

for that part of the Work shall be for a period of one year from the date of such fixed acceptance.

If at any time within the said period of guarantee any part of the Work requires repairing, correction, or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction, or replacements. If the Contractor neglects to commence making such repairs, corrections, or replacements to the satisfaction of the Owner within seven days from the date of receipt of such notice, or having commenced fails to prosecute such Work with diligence, the Owner may employ other persons to make said repairs, correction, or replacements, and charge the costs, including compensation for additional professional services, to the Contractor.

- 25.3 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 to the Massachusetts Department of Labor and Industries, Division of Industrial Safety 'Rules and Regulations for the Prevention of Accidents in Construction Operations' (Chapter 454 CMR 10.00 et seq.). Contractors shall be familiar with the requirements of these regulations.

END OF SECTION

SECTION 00410

BID FORM

PROJECT IDENTIFICATION:

Western Drive Sewer Improvement Project

THIS BID IS SUBMITTED TO:

Town of Longmeadow
Purchasing Department
Attn: Chad Thompson, Procurement Manager
735 Longmeadow Street, Suite 101
Longmeadow, MA 01106

- 1.1 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.
- 2.1 Bidder accepts all of the terms and conditions of the Advertisement for Bids and Instructions to Bidders, including without limitation, those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.
- 3.1 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:
 - A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents and the Addenda.
 - 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 federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.
 - D. Bidder has carefully studied all: reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and reports and drawings of a Hazardous Environmental Condition, if any, which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.
 - E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Utilities) at or contiguous to the Site which may affect cost, progress, or performance

of the Work or which relate to any aspect of 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 to be employed by Bidder, and safety precautions and programs incident thereto.

- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times 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 correlated 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. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.
 - J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- 4.1 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Western Drive Sewer Improvement Project

BID FORM

ITEM NO.	EST. QUANT.	ITEM DESCRIPTION	UNIT PRICE (WRITTEN IN FIGURES & WORDS)	TOTAL AMOUNT (‘EST. QUNTY’ X ‘UNIT PRICE’= TOTAL AMOUNT)
151	320 C.Y.	Gravel Borrow	\$ _____ PER C.Y. <hr/> WORDS PER C.Y.	\$ _____
182.2	10 L.F.	Asbestos Removal	\$ _____ PER L.F. <hr/> WORDS PER L.F.	\$ _____
210	6 EACH	48" Sanitary Sewer Manhole With Invert	\$ _____ PER EACH <hr/> WORDS PER EACH	\$ _____
210.02	3 EACH	Sanitary Sewer Manhole Removed	\$ _____ PER EACH <hr/> WORDS PER EACH	\$ _____
210.5	1 EACH	Sanitary Sewer Manhole Abandoned	\$ _____ PER EACH <hr/> <hr/> WORDS PER EACH	\$ _____
221	6 EACH	Frame and Cover	\$ _____ PER EACH <hr/> WORDS PER EACH	\$ _____
223.1	4 EACH	Frame and Cover Removed and Stacked in Town Yard	\$ _____ PER EACH <hr/> WORDS PER EACH	\$ _____

250.02	20 L.F.	2" SDR-35 Polyvinyl Chloride Sanitary Sewer Pressure Pipe	\$_____ PER L.F. _____ WORDS PER L.F.	\$_____
250.06	200 L.F.	6" Polyvinyl Chloride Sanitary Sewer Pipe	\$_____ PER L.F. _____ WORDS PER L.F.	\$_____
250.08	1165 L.F.	8" Polyvinyl Chloride Sanitary Sewer Pipe	\$_____ PER L.F. _____ WORDS PER L.F.	\$_____
250.1	9 EA.	8" x 6" Polyvinyl Chloride "Wye"	\$_____ PER EACH _____ WORDS PER EACH	\$_____
452	50 GAL.	Bitumen for Tack Coat	\$_____ PER GAL. _____ WORDS PER GALLON	\$_____
482.3	2600 L.F.	Saw Cutting Bituminous Concrete Pavement	\$_____ PER L.F. _____ WORDS PER L.F.	\$_____
703.1	225 TON	Hot Mix Asphalt Trench Repair (2" Surface Course – 9.5 Over 2" Base Course 12.5)	\$_____ PER TON _____ WORDS PER TON	\$_____
748	1 Lump Sum	Mobilization and Demobilization	\$_____ PER LUMP SUM _____ WORDS PER LUMP SUM	\$_____
751	20 C.Y.	Loam Borrow	\$_____ PER C.Y. _____ WORDS PER C.Y.	\$_____
765	100 S.Y.	Seeding	\$_____ PER S.Y. _____ WORDS PER S.Y.	\$_____

852	1 Lump Sum	Safety Signing for Traffic Management	\$ _____ PER LUMP SUM <hr/> WORDS PER LUMP SUM	\$ _____ <hr/>
-----	------------------	--	---	-------------------

TOTAL BID PRICE \$ _____

The basis of award of the Contract is the lowest, responsive total bid.

This Bid includes acknowledgement of the receipt of the following addendum:

_____, _____, _____, _____, _____

- 5.1 Bidder agrees that the Work will be substantially completed and completed and ready for final payment in accordance with paragraphs 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 5.2 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in the Agreement. Liquidated damages specified in this contract are **\$100.00** per day for each calendar day beyond the contract completion date that work remains uncompleted.
- 5.3 Pursuant to M.G.L.c.62C, s49A, bidder hereby certifies under the penalties of perjury, to the best of Bidder's knowledge and belief, that Bidder has filed all State tax returns and paid all State taxes required by law.
- 5.4 The Work under this Contract shall be subject to the provisions of Chapter 30, Section 39M of the Massachusetts General Laws.
- 5.5 A labor and material or payment bond in the amount of 100% of the total contract price must be provided by the General Contractor. In addition, a performance bond in the amount of 100% of the total contract price must be provided by the General Contractor.
- 5.6 The work shall be completed within 60 days of the date of the Notice to Proceed.
- 5.7 Bidder certifies under penalties of perjury that this Bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used herein the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.
- 5.8 Bidder further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of Section Twenty-Nine F of Chapter Twenty-Nine, or any other applicable debarment provisions of any other Chapter of the General Laws or any rule or regulation promulgated thereunder.
- 5.9 The following documents are attached to and made a conditions of this Bid:

A. Bid security in the amount of _____ dollars (\$_____
_____), consisting of a bid bond or certified check, in the amount of five percent of
the total amount of bid.

B. Certified copy of Resolution of Board of Directors (if Corporation)

Date _____
(Print Name of Firm Submitting a General Bid)

(Signature of Authorized Representative)

(Print Name of Person Signing Bid and Title)

Social Security Number or _____
Federal Identification Number: (Business Address)

(City, State and Zip Code)

Phone #: _____

Fax #: _____

Email: _____

Complete the following section that is applicable to the type of business of the contracting bidder. If BIDDER is:

An Individual

By _____
(Individual's Signature)

(Printed or Typed Name of Individual)

Doing Business as _____

License or Registration Number: _____

Business Address: _____

Phone #: _____

Fax #: _____

A Partnership

By _____
(Firm's Name)

By _____
(Partner's Signature)

(Printed or Typed Name and Title of Partner)

License or Registration Number: _____

Business Address: _____

Phone #: _____

Fax #: _____

A Corporation

By _____
(Corporation's Name)

(State of Incorporation)

By _____

(Signature of Officer Authorized to Sign)

(Printed or Typed Name and Title of Officer Authorized to Sign)

(CORPORATE SEAL)

Attest _____
(Secretary)

License or Registration Number: _____

Business Address: _____

Phone #: _____

Fax #: _____

A Joint Venture

By _____
(Signature)

(Printed or Typed Name)

(Address)

Phone #: _____

Fax #: _____

By _____
(Signature)

(Printed or Typed Name)

(Address)

Phone #: _____

Fax #: _____

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

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under the penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person.

As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

(Signature of person signing bid or proposal)

(Name of Business)

(Date)

END OF SECTION

BIDDER'S QUALIFICATIONS AND REFERENCES FORM

All questions must be answered, and the data given must be clear and comprehensive. Please type or print legibly. If necessary, add additional sheet for starred items. This information will be utilized by the Town for purposes of determining bidder responsiveness and responsibility with regard to the requirements and specifications of the Contract.

1.FIRM NAME: _____

2.WHEN ORGANIZED: _____

3. INCORPORATED?

_____ YES

_____ NO DATE AND STATE OF INCORPORATION: _____

4. IS YOUR BUSINESS REGISTERED WITH SOMWBA FOR THE FOLLOWING WOMEN AND/OR MINORITY CATEGORIES:

MBE? _____ YES _____ NO

WBE? _____ YES _____ NO or

MWBE? _____ YES _____ NO

5.LIST ALL CONTRACTS CURRENTLY ON HAND, SHOWING CONTRACT AMOUNT AND ANTICIPATED DATE OF COMPLETION:

6.HAVE YOU EVER FAILED TO COMPLETE A CONTRACT AWARDED TO YOU?

_____ YES

_____ NO

IF YES, WHERE AND WHY?

7.HAVE YOU EVER DEFAULTED ON A CONTRACT? _____ YES _____ NO

IF YES, PROVIDE DETAILS.

8.

LIST YOUR VEHICLES/EQUIPMENT AVAILABLE FOR THIS CONTRACT:

9.

IN THE SPACES FOLLOWING, PROVIDE INFORMATION REGARDING **CONTRACTS COMPLETED BY YOUR FIRM LISTING ONLY PROJECTS OF SIMILAR NATURE TO THE PROJECT BEING BID**. A MINIMUM OF TWO (S) CONTRACTS SHALL BE LISTED. PUBLICLY BID CONTRACTS ARE PREFERRED.

PROJECT NAME: _____

OWNER: _____

CITY/STATE: _____

DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____

PUBLICLY BID? _____ YES _____ NO

TYPE OF WORK?: _____

CONTACT PERSON: _____ TELEPHONE #: (____) _____

CONTACT PERSON'S RELATION TO PROJECT?: _____

(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____

OWNER: _____

CITY/STATE: _____

DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____

PUBLICLY BID? _____ YES _____ NO

TYPE OF WORK?: _____

CONTACT PERSON: _____ TELEPHONE #: (____) _____

CONTACT PERSON'S RELATION TO PROJECT?: _____

(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____

OWNER: _____

CITY/STATE: _____

DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____

PUBLICLY BID? _____ YES _____ NO

TYPE OF WORK?: _____

CONTACT PERSON: _____ TELEPHONE #: (____) _____

CONTACT PERSON'S RELATION TO PROJECT?: _____

(i.e., contract manager, purchasing agent, etc.)

PROJECTNAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #:(____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

10.

The undersigned certifies that the information contained herein is complete and accurate and here by authorizes and requests any person, firm, or corporation to furnish any information requested by the Town in verification of the recitals comprising this statement of Bidder's qualifications and experience.

DATE: _____

BIDDER: _____

SIGNATURE: _____

PRINTED NAME: _____ TITLE: _____

(End Bid Submission Form)

SECTION 00500

AGREEMENT

This Agreement, made this ____ day of ____ in the year two thousand and nineteen, between the Town of Longmeadow, as requested by its Select Board with an address of 20 Williams Street, Longmeadow, MA 01106, hereinafter called OWNER and _____ hereinafter called CONTRACTOR, with an address of _____.

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 WORK

1.1 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents, Attachment A: Invitation for Bid (IFB), Western Drive Sewer Improvement Project, dated September 26, 2019; and Addendum No....(if any).

ARTICLE 2 ENGINEER

2.1 The Project has been designed by the Town Engineering Department. The WORK will be overseen and administered by the Town Engineer who is hereinafter called ENGINEER. ENGINEER will act as OWNER's representative, assuming all duties and responsibilities, rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 3 CONTRACT TIMES

3.1 Dates for Substantial Completion and Final Completion

A. The Work will be completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions. The work shall be completed within 60 days of the date of the Notice to Proceed for the Base Bid work, the Substantial Completion Date for the Base Bid scope of work.

3.2 Liquidated Damages

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 for the Substantial Complete Date(s) above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER \$100 for each day that expires after the Substantial Completion Date(s) specified in paragraph 3.1.

ARTICLE 4 CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents and amount in current funds equal to the prices stated in CONTRACTOR'S Bid, attached hereto as an exhibit.

4.2 The construction contract shall not exceed \$__TBD__ without a contract amendment. The total amount will be adjusted by measurement of actual installed quantities in strict conformity with the provisions contained herein.

ARTICLE 5 PROGRESS PAYMENTS

5.1 Applications for Payment shall be processed in accordance with Article 14 of the General Conditions and in accordance with Massachusetts General Law.

5.2 OWNER shall make progress payments on account of the Contract Price on the basis of processed Applications for Payment monthly during construction. All progress payments will be measured by the schedule of values established in paragraph 2.07.A of the General Conditions.

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

ARTICLE 6 CONTRACTOR'S REPRESENTATIONS

6.1 CONTRACTOR makes the following representations:

- A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.
- E. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- F. CONTRACTOR is aware of the general nature of Work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- G. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with 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.

ARTICLE 7 CONTRACT DOCUMENTS

7.1 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (section 00500, inclusive);
 - 2. 100% Performance Bond in the amount of \$____;
 - 3. 100% Payment Bond in the amount of \$____;
 - 4. Certificate of Insurance of the Contractor

5. General Conditions (Section 00700, inclusive);
 6. Supplementary Conditions (Section 800, inclusive);
 7. Specifications as listed in the Table of Contents of the Project Manual: Invitation for Bid (IFB), Western Drive Sewer Improvement Project, Dated September 26, 2019 and Addendum No....(if any).
 8. Drawings consisting of a cover sheet and sheets numbered 1 through 8, inclusive, with each sheet bearing the following general title: 'Town of Longmeadow, Massachusetts, Plan of 2017 Elmwood Avenue Sewer & Drain Improvement Project';
 9. Addenda (numbers __ to __, inclusive);
 10. Exhibits to this Agreement (enumerated as follows):
 - a. CONTRACTOR's Bid (Section 00410, inclusive);
 - b. Documentation submitted by CONTRACTOR prior to Notice of Award;
 11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed;
 - b. Written Amendments;
 - c. Work Change Directives;
 - d. Change Order(s).
- B. The documents listed in paragraph 8.1.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 8.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in paragraph 3.05 of the General Conditions.

ARTICLE 8 MISCELLANEOUS

8.1 Terms

- A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

8.2 Assignment of Contract

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

8.3 Successors and Assigns

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

8.4 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions

shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

- 8.5 For Change Order work performed by the CONTRACTOR on this project, the mark-up shall be 15 percent. Also, the CONTRACTOR's markup for Change Order work by CONTRACTOR's sub-contractor(s) shall be limited to 5 percent. Finally, the agreed upon direct labor mark-up for Change Orders on this project shall be 15 percent.

CERTIFICATE OF INSURANCE

Also reference the insurance requirements documented in the IFB Section 700, the Standard General Conditions of the Construction Contract prepared by the Engineers Joint Contract Documents Committee. Article 5 ' Bonds & Insurance', for additional insurance requirements not listed on this page.

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

1. Name of Insured _____
2. Address of Insured _____
3. Location and Description of Work _____
 _____ Project Contract No. _____

Coverage and Limits of Liability
(at least as shown below)

Bodily Injury	Property Damage	Liability	Liability
---------------	-----------------	-----------	-----------

Policy Number	Effective Date	Expiration Date	Each Occurrence	Each Aggregate	Each Occurrence	Each Aggregate
---------------	----------------	-----------------	-----------------	----------------	-----------------	----------------

A. Owners Protective Liability has been issued at the expense of Above Insured to _____ (Owner)
 _____ \$1,000,000 \$1,000,000 \$1,000,000 \$1,000,000

B. Comprehensive General Liability
 _____ \$1,000,000 \$1,000,000 \$1,000,000 \$1,000,000
 Including: 1. Operations/Premises 2. XCU 3. Products/Completed Operations
 4. Contractual as Below 5. Independent Contractors
 6. Broad Form Property Damage 7. Personal Injury

C. Auto Liability
 Including: 1. All Owned Person Accident Each
 2. Hired \$1,000,000 \$1,000,000 \$1,000,000
 3. Non-owned

D. Workman's Compensation
 _____ Compensation Statutory State(s)
 Coverage B Limit \$1,000,000 if Applicable

E. Umbrella Liability
 _____ \$ _____ Aggregate

F. Builder's Risk Insurance - "All Risk" Completed Value Form
 \$ _____
 _____ As Specified in Contract or Agreement

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

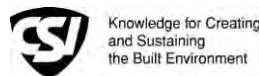
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The Associated General Contractors of America



Construction Specifications Institute

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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

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.

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.

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's 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.A 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. Shop Drawings and other Contractor submittals are not Drawings as so defined.

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 1 of the Specifications. The General Requirements pertain to 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 in connection with the Work.

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

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

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

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

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

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

30. *PCBs*--Polychlorinated biphenyls.

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

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

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. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

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

38. *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.

39. *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.

40. *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.

41. *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.

42. *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.

43. *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.

44. *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.

45. *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.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

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

48. *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 any Subcontractor.

49. *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.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *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.

52. *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.

1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following 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 requirements of and information in the Contract Documents and conformance with the design concept of the completed 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.

D. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

- a. does not conform to the Contract Documents, or
- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
- c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. Furnish, Install, Perform, Provide

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

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

F. Unless stated otherwise in the Contract Documents, words or phrases which 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 of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

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

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the 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 day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, 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.

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;

2. a preliminary Schedule of Submittals; and

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

2.06 *Preconstruction Conference*

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.

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.

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.

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 may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended 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.

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, or Engineer, or any of, their Related Entities, 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 may discover 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 any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor 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, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work

(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *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 or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, 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 Engineer's consultants, including electronic media editions; or

2. reuse any of 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 adaption by Engineer.

B. The prohibition 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. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's

sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

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

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

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

4.01 *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 of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general 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 Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

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, Owner and Engineer, and any of their Related Entities 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.

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; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

- a. reviewing and checking all such information and data,
- b. locating all Underground Facilities shown or indicated in the Contract Documents,
- c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will

promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

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

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:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general 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 Related Entities 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. 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.

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 to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to

entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, 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, 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.

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 current 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 must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *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 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 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.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed 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.

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 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

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

3. include completed operations insurance;

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

5. 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);

6. 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

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. 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.

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 under the Contract Documents.

5.06 *Property Insurance*

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

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, 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 an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than 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 additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery 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, 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 an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with 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 additional insured 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 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 to be listed as insureds or additional insureds (and the officers, directors, 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 additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, 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 to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, 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, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

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 insureds, 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 in accordance with Article 5 on the basis of non-conformance with the Contract

Documents, the objecting party shall so notify the other party 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 such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party 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. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or

received from the superintendent shall be binding on Contractor.

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.

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.

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.

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 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,

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

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

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

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that 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 in 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 or not 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 or not 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;

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

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or 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 item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the 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 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 Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents 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. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured 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, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, 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.

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, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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.

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.

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 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 primary 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.

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

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

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

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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 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. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. 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 Draw-

ings or Specifications or to the acts or omissions of Owner or Engineer or , 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).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable 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*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have 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.

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 Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

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

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

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.

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 will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal 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.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees 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.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal

shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via 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, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall 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 their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *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 actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's 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.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of 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 in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in 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. 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. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

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 and will not be changed without written consent of Owner and Engineer.

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.

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, 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.

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.

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 believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

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

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show

partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *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. 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.

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.B.

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.

10.04 *Notification to Surety*

A. If notice 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) is required by the provisions of any bond to be given to a surety, 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 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

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

1. deny the Claim in whole or in part,

2. approve the Claim, or

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

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

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

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

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 include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

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 at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and

Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have

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

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, 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, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 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 and 11.01.B.

C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall

be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 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

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. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

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

2. there is no corresponding adjustment with respect 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 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 Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

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, or acts of God.

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 God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them 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. All 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, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site 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 said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. 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, it must, if requested by Engineer, be uncovered 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.

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 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 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.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 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.

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 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, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *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 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 on the Site 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, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to 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. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

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

C. Payment Becomes Due

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

D. Reduction in Payment

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

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; 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 corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined 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.

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 Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a 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 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 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 will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

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.

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, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, 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.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. 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 or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations

under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

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

14.08 *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. 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.

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 disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

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

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

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

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

15.03 *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 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 in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

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

15.04 *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. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. 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. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

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

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

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.

SECTION 00800

SUPPLEMENTARY CONDITIONS

PART 1 AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

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

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01

1. Add the following after paragraph 1.01.A.30:
 - 1.01.A.30.a – Owner’s Project Representative – The authorized representative of OWNER who may be assigned to the Site or any part thereof.
2. Delete paragraph 1.01.A.41 in its entirety and insert the following in its place:
 41. Specifications – Sections included under Division 1 through Division 16 of the Project Manual.
3. Add the following language at the end of the first sentence of paragraph 1.01.A.43:

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

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.03 Delete paragraph 2.03 in its entirety and insert the following in its place:

- 2.03 Contract Time will commence to run on the date specified in the Notice to Proceed.

ARTICLE 3 – CONTRACT DOCUMENTS

SC-3.01.B Add the following new paragraph immediately after paragraph 3.01.B:

- 3.01.B.1 Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

ARTICLE 4 – AVAILABILITY OF LAND

SC-4.03.B Amend paragraph 4.03.B by striking out the following:

(with a copy to CONTRACTOR)

SC-4.03.C Add the following new paragraph immediately after paragraph 4.03.C.3:

4.03.C.4 Adjustment resulting from subsurface or latent physical conditions will be in accordance with Massachusetts General Law Chapter 30, Section 39N included in Part II of the Supplementary Conditions.

ARTICLE 5 - BONDS AND INSURANCE

SC-5.02.A Add the following at the end of paragraph 5.02.A:

Surety and insurance companies shall be rated B+ or higher at the time of contract award by A. M. Best.

SC-5.03.A Add the following new paragraph immediately after paragraph 5.03.A:

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

1. Clarification regarding whether the General Liability policy covers all of the CONTRACTOR'S operations or only the Work under this contract, with project specific limits.
2. Confirmation that the General Liability policy includes XCU coverage.
3. Confirmation that Automobile insurance covers all Scheduled, Hired and Non-Owned vehicles.
4. Names of all additional insureds as specified herein.

SC-5.04.B Delete paragraph 5.04.B.7 in its entirety and insert the following in its place:

5.04.B.7 be written on an occurrence basis, and not on a claims-made basis.

SC-5.04.B Add the following new paragraph immediately after paragraph 5.04.B.7

5.04.C The limits of liability for the insurance required by paragraph 5.04 shall provide coverage for not less than the following amounts or greater where required by law:

1. Worker's Compensation and Employer's Liability as required by law.

SC-5.05 Delete paragraph 5.05 in its entirety and insert the following in its place:

5.05 CONTRACTOR shall purchase and maintain a separate Owner's Protective Liability policy, issued to OWNER at the expense of CONTRACTOR, including OWNER and ENGINEER as named insured. This insurance shall provide coverage for not less than the following amounts:

Bodily Injury	\$1,000,000	Each Occurrence
Property Damage	\$1,000,000	Each Occurrence

SC-5.06 Delete Section 5.06 in its entirety.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

SC-6.01.B Add the following new paragraph immediately after paragraph 6.01.B.

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

SC-6.06 Delete paragraphs 6.06.A and 6.06.B in their entirety and insert the following in their place.

6.06.A CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization, (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom OWNER may have reasonable objection. Acceptance of any Subcontractor, other person or organization by OWNER shall not constitute a waiver of any right of OWNER to reject defective Work. CONTRACTOR shall not be required to employ any Subcontractor, other person or organization against whom CONTRACTOR has reasonable objection.

SC-6.06C Add the following language at the end of paragraph 6.06.C:

CONTRACTOR shall make payments to Subcontractors in accordance with Massachusetts General Law Chapter 30, Section 39F which is included in PART II of these Supplementary Conditions.

SC-6.06.C Add the following new paragraph immediately after paragraph 6.06.C:

6.06.C.1 OWNER or ENGINEER may furnish to any such Subcontractor, Supplier or other person or organization, to the extent practicable, information about amounts paid on their behalf to CONTRACTOR in accordance with CONTRACTOR's Applications for Payment.

SC-6.09 Add the following new paragraph immediately after paragraph 6.09.C.

6.09.D CONTRACTOR shall comply with all applicable provisions of Chapter 30, Section 39R of the Massachusetts General Laws regarding CONTRACTOR's records.

SC-6.10 Add the following sentence at the end of paragraph 6.10.A.

All materials provided under this Contract are exempt from the Sales and Use Taxes of the Commonwealth of Massachusetts. The tax exemption number will be provided to the Contractor.

SC-6.20.C Add the following new paragraph immediately after paragraph 6.20.C.

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.04 Add the following new paragraph immediately after paragraph 9.04.A.

9.04.B ENGINEER's interpretations will be made in accordance with Massachusetts General Law Chapter 30, Section 39P which is included in Part II of the Supplementary Conditions.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

SC-10.05 Amend the first sentence of paragraph 10.05.A by replacing "30 days" with "15 days".

Amend the second sentence of paragraph 10.05.A by replacing "60 days" with "30 days".

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

SC-11.01 Delete paragraph 11.01.A.5.c in its entirety and replace with the following:

11.01.A.5.c The fair rental of all machinery and equipment used on the extra work for the period of such use. The fair rental for all machinery and equipment shall be based upon the most recent edition of "Rental Rate Bluebook for Construction Equipment" (the "Bluebook"), published by Nielson/Dataquest, or a similar publication approved by ENGINEER. Reasonable rental periods shall be used. If a piece of equipment used on extra work for a short period of time (hours or days) is on the job, or has

previously been rented for a long period of time (months), then the long-term rental rate shall be used in determining costs.

SC-11.01.B.1 Insert in the first sentence after the word “architects” the word “superintendents”.

SC-11.01.B.5 Add the following new paragraph immediately after paragraph 11.01.B.5:

11.01.B.6 Costs of or rental of small tools; costs of or rental of buildings.

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

SC-13.03 Insert after the word “notice” the words “(minimum 24 hours)” in paragraph 13.03.A.

SC-13.04 Insert in the first sentence of paragraph 13.04.B after the word “others” the words “following prior written concurrence of ENGINEER to cover such work”.

SC-13.05 Add the following new paragraph immediately after paragraph 13.05.A.

13.05.B If OWNER stops work under Paragraph 13.05, CONTRACTOR shall not be entitled to an extension of Contract Time nor to an increase in Contract Price.

SC-13.06 Add the following new paragraph immediately after Paragraph 13.06.A.

13.06.B At any time during the progress of the Work, ENGINEER shall have the right to reject any work which does not conform to the requirements of the Contract Documents, even though such work has been previously inspected and paid for.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02 Delete paragraph 14.02.A.1 in its entirety and insert the following in its place:

14.02.A.1 ENGINEER shall, once in each month, make an estimate in writing of the total value of the work completed as of the date of the Application. ENGINEER shall review the Application with CONTRACTOR and CONTRACTOR shall sign the Application.

SC-14.02 Delete paragraph 14.02.B.1 in its entirety and insert the following in its place:

14.02.B.1 Progress Payments will be made in accordance with Massachusetts General Law Chapter 30, Section 39K, which is included in Part II of these Supplementary Conditions.

SC-14.02 Add the following new paragraph immediately after paragraph 14.02.B.5.d.

14.02.B.5.e OWNER is required to pay ENGINEER additional compensation because of CONTRACTOR delays or rejection of defective Work.

- SC-14.02 Delete paragraph 14.02.C.1 in its entirety and insert the following in its place:
- 14.02.C.1 Progress Payments will be made in accordance with Massachusetts General Law Chapter 30, Section 39K, which is included in Part II of these Supplementary Conditions.
- SC-14.04 Delete paragraph 14.04.A in its entirety and insert the following in its place:
- 14.04.A When CONTRACTOR considers the entire Work ready for its intended use, CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a Certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If, after consultation with OWNER, ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If, after consultation with OWNER, ENGINEER considers and the OWNER agrees that the Work is substantially complete, ENGINEER will prepare and deliver to CONTRACTOR, in a form approved by OWNER, a Certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be included in the certificate a list of items to be completed or corrected before final payment.
- SC-14.04 Add the following new paragraph immediately after paragraph 14.04.A:
- 14.04.A.1 Substantial Completion shall be as defined in Chapter 30, Section 39G of the Massachusetts General Law.
- SC-14.05 Add the following new paragraph immediately after paragraph 14.05.A.1:
- 14.05.A.2 OWNER may at any time request CONTRACTOR in writing to permit OWNER to take over operation of any part of the Work although it is not substantially complete. A copy of such request will be sent to ENGINEER, and within a reasonable time thereafter OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not object in writing to OWNER and ENGINEER that such part of the Work is not ready for separate operation by OWNER, ENGINEER will finalize the list of items to be completed or corrected and will deliver such lists to OWNER and CONTRACTOR together with a written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties, and guarantees for that part of the Work which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing and so informed ENGINEER). During such operation and prior to Substantial Completion of such part of the Work,

OWNER shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.

Paragraph 14.05.A.2 shall be renumbered to 14.05.A.3.

SC-14.07 Delete paragraphs 14.07.B. and 14.07.C in their entirety and insert the following in their place:

14.07.B 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, all 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 indicate in writing his/her recommendation of payment and present the Application to OWNER for payment. Thereupon ENGINEER will 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 to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. If the Application and accompanying documentation are appropriate as to form and substance, OWNER shall in accordance with the applicable Law, pay CONTRACTOR the amount recommended by ENGINEER.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

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

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

SC- 15.02 Add the following new paragraph immediately after paragraph 15.02.A.4:

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

ARTICLE 17 - MISCELLANEOUS

SC-17.05 Add the following new paragraphs immediately after paragraph 17.05.

17.06 Wage Rates

A. The requirements and provisions of all applicable laws and any amendments thereof or additions thereto as to the employment of labor, and to the schedule of minimum wage rates established in compliance

with laws shall be a part of these Contract Documents. Copies of the wage schedules are included in Part II of these Supplementary Conditions. If it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such rates as shall be determined by the officials administrating the laws mentioned above. Such approved minimum rate shall be retroactive to the time of the initial employment of such person in such trade or occupation.

- B. The schedules of wages referred to above are minimum rates only, and OWNER will not consider any claims for additional compensation made by CONTRACTOR because of payment by CONTRACTOR of any wage rate in excess of the applicable rate contained in these Contract Documents. All disputes in regard to the payment of wages in excess of those specified in the schedules shall be resolved by CONTRACTOR.
- C. The said schedules of wages shall continue to be the minimum rates to be paid during the life of this Agreement and a legible copy of said schedules shall be kept posted in a conspicuous place at the site of the work.

PART II – FEDERAL AND STATE GOVERNMENT PROVISIONS

Federal and State Government Provisions included herein, have been selected from those to which specific references have been made elsewhere in the Contract Documents. Each and every other provision of law or clause required by law to be inserted in this Contract shall be deemed to be also inserted herein in accordance with paragraph 3.01.B.1 of the Supplementary Conditions.

1.0 FEDERAL GOVERNMENT PROVISIONS

Not used

2.0 COMMONWEALTH OF MASSACHUSETTS PROVISIONS

- 2.1 The OWNER and CONTRACTOR agree that the following Commonwealth of Massachusetts Provisions apply to the work to be performed under this Contract and that these provisions supersede any conflicting provisions of this Contract.
- 2.2 Applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this Contract and any provision violation of the foregoing shall be deemed null, void and of no effect.
- 2.3 Massachusetts General Laws
 - 2.3.1 Chapter 30, Section 39F
 - 2.3.2 Chapter 30, Section 39I
 - 2.3.3 Chapter 30, Section 39J
 - 2.3.4 Chapter 30, Section 39K

- 2.3.5 Chapter 30, Section 39L
- 2.3.6 Chapter 30, Section 39M
- 2.3.7 Chapter 30, Section 39N
- 2.3.8 Chapter 30, Section 39O
- 2.3.9 Chapter 30, Section 39P
- 2.3.10 Chapter 30, Section 39Q
- 2.3.11 Chapter 30, Section 39R
- 2.3.12 Chapter 44, Section 31C
- 2.3.13 Chapter 82 Section 40
- 2.3.14 Chapter 149, Section 34
- 2.3.15 Chapter 149, Section 44J

2.4 State Wage Rates

END OF SECTION



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

Prevailing Wage Rates

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

CHARLES D. BAKER
Governor

ROSALIN ACOSTA
Secretary

KARYN E. POLITO
Lt. Governor

WILLIAM D MCKINNEY
Director

Awarding Authority: Town of Longmeadow
Contract Number: _____ **City/Town:** LONGMEADOW
Description of Work: Construction of sewer main, trench patch improvements, road work, paving.
Job Location: Western Drive, Longmeadow, MA & abutting 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 <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.25	\$12.41	\$12.70	\$0.00	\$59.36
	12/01/2019	\$34.25	\$12.41	\$13.72	\$0.00	\$60.38
	06/01/2020	\$35.15	\$12.41	\$13.72	\$0.00	\$61.28
	08/01/2020	\$35.15	\$12.91	\$13.72	\$0.00	\$61.78
	12/01/2020	\$35.15	\$12.91	\$14.82	\$0.00	\$62.88
	06/01/2021	\$35.95	\$12.91	\$14.82	\$0.00	\$63.68
	08/01/2021	\$35.95	\$13.41	\$14.82	\$0.00	\$64.18
	12/01/2021	\$35.95	\$13.41	\$16.01	\$0.00	\$65.37
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.32	\$12.41	\$12.70	\$0.00	\$59.43
	12/01/2019	\$34.32	\$12.41	\$13.72	\$0.00	\$60.45
	06/01/2020	\$35.22	\$12.41	\$13.72	\$0.00	\$61.35
	08/01/2020	\$35.22	\$12.91	\$13.72	\$0.00	\$61.85
	12/01/2020	\$35.22	\$12.91	\$14.82	\$0.00	\$62.95
	06/01/2021	\$36.02	\$12.91	\$14.82	\$0.00	\$63.75
	08/01/2021	\$36.02	\$13.41	\$14.82	\$0.00	\$64.25
	12/01/2021	\$36.02	\$13.41	\$16.01	\$0.00	\$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.44	\$12.41	\$12.70	\$0.00	\$59.55
	12/01/2019	\$34.44	\$12.41	\$13.72	\$0.00	\$60.57
	06/01/2020	\$35.34	\$12.41	\$13.72	\$0.00	\$61.47
	08/01/2020	\$35.34	\$12.91	\$13.72	\$0.00	\$61.97
	12/01/2020	\$35.34	\$12.91	\$14.82	\$0.00	\$63.07
	06/01/2021	\$36.14	\$12.91	\$14.82	\$0.00	\$63.87
	08/01/2021	\$36.14	\$13.41	\$14.82	\$0.00	\$64.37
	12/01/2021	\$36.14	\$13.41	\$16.01	\$0.00	\$65.56
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.25	\$7.85	\$14.22	\$0.00	\$54.32
	12/02/2019	\$33.06	\$7.85	\$14.22	\$0.00	\$55.13
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.25	\$7.85	\$12.18	\$0.00	\$52.28
	12/01/2019	\$33.04	\$7.85	\$12.18	\$0.00	\$53.07
	06/01/2020	\$33.85	\$7.85	\$12.18	\$0.00	\$53.88
	12/01/2020	\$34.66	\$7.85	\$12.18	\$0.00	\$54.69
	06/01/2021	\$35.50	\$7.85	\$12.18	\$0.00	\$55.53
	12/01/2021	\$36.33	\$7.85	\$12.18	\$0.00	\$56.36
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)</i>	06/01/2019	\$32.40	\$12.50	\$8.35	\$0.00	\$53.25
	12/01/2019	\$33.30	\$12.50	\$8.35	\$0.00	\$54.15
	06/01/2020	\$34.20	\$12.50	\$8.35	\$0.00	\$55.05
	12/01/2020	\$35.10	\$12.50	\$8.35	\$0.00	\$55.95
ASPHALT RAKER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$31.75	\$7.85	\$12.18	\$0.00	\$51.78
	12/01/2019	\$32.54	\$7.85	\$12.18	\$0.00	\$52.57
	06/01/2020	\$33.35	\$7.85	\$12.18	\$0.00	\$53.38
	12/01/2020	\$34.16	\$7.85	\$12.18	\$0.00	\$54.19
	06/01/2021	\$35.00	\$7.85	\$12.18	\$0.00	\$55.03
	12/01/2021	\$35.83	\$7.85	\$12.18	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
AUTOMATIC GRADER-EXCAVATOR (RECLAIMER) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
BATCH/CEMENT PLANT - ON SITE <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.25	\$7.85	\$14.22	\$0.00	\$54.32
	12/02/2019	\$33.06	\$7.85	\$14.22	\$0.00	\$55.13
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.25	\$7.85	\$12.18	\$0.00	\$52.28
	12/01/2019	\$33.04	\$7.85	\$12.18	\$0.00	\$53.07
	06/01/2020	\$33.85	\$7.85	\$12.18	\$0.00	\$53.88
	12/01/2020	\$34.66	\$7.85	\$12.18	\$0.00	\$54.69
	06/01/2021	\$35.50	\$7.85	\$12.18	\$0.00	\$55.53
	12/01/2021	\$36.33	\$7.85	\$12.18	\$0.00	\$56.36
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2019	\$44.71	\$7.07	\$17.72	\$0.00	\$69.50
	01/01/2020	\$46.10	\$7.07	\$17.98	\$0.00	\$71.15

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$29.06	\$7.07	\$11.52	\$0.00	\$47.65
2	65	\$29.06	\$7.07	\$11.52	\$0.00	\$47.65
3	70	\$31.30	\$7.07	\$12.40	\$0.00	\$50.77
4	75	\$33.53	\$7.07	\$13.30	\$0.00	\$53.90
5	80	\$35.77	\$7.07	\$14.18	\$0.00	\$57.02
6	85	\$38.00	\$7.07	\$15.07	\$0.00	\$60.14
7	90	\$40.24	\$7.07	\$15.95	\$0.00	\$63.26
8	95	\$42.47	\$7.07	\$16.84	\$0.00	\$66.38

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
2	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
3	70	\$32.27	\$7.07	\$12.59	\$0.00	\$51.93
4	75	\$34.58	\$7.07	\$13.49	\$0.00	\$55.14
5	80	\$36.88	\$7.07	\$14.38	\$0.00	\$58.33
6	85	\$39.19	\$7.07	\$15.29	\$0.00	\$61.55
7	90	\$41.49	\$7.07	\$16.18	\$0.00	\$64.74
8	95	\$43.80	\$7.07	\$17.09	\$0.00	\$67.96

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	08/01/2019	\$42.81	\$10.75	\$19.41	\$0.00	\$72.97
BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	02/01/2020	\$43.36	\$10.75	\$19.41	\$0.00	\$73.52
	08/01/2020	\$44.71	\$10.75	\$19.56	\$0.00	\$75.02
	02/01/2021	\$45.26	\$10.75	\$19.56	\$0.00	\$75.57
	08/01/2021	\$46.66	\$10.75	\$19.72	\$0.00	\$77.13
	02/01/2022	\$47.19	\$10.75	\$19.72	\$0.00	\$77.66

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Springfield/Pittsfield

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.41	\$10.75	\$19.41	\$0.00	\$51.57
2	60	\$25.69	\$10.75	\$19.41	\$0.00	\$55.85
3	70	\$29.97	\$10.75	\$19.41	\$0.00	\$60.13
4	80	\$34.25	\$10.75	\$19.41	\$0.00	\$64.41
5	90	\$38.53	\$10.75	\$19.41	\$0.00	\$68.69

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.68	\$10.75	\$19.41	\$0.00	\$51.84
2	60	\$26.02	\$10.75	\$19.41	\$0.00	\$56.18
3	70	\$30.35	\$10.75	\$19.41	\$0.00	\$60.51
4	80	\$34.69	\$10.75	\$19.41	\$0.00	\$64.85
5	90	\$39.02	\$10.75	\$19.41	\$0.00	\$69.18

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/POWER SHOVEL/TREE SHREDDER /CLAM SHELL OPERATING	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
ENGINEERS LOCAL 98 For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
CAISSON & UNDERPINNING BOTTOM MAN LABORERS - FOUNDATION AND MARINE	06/01/2019	\$40.25	\$7.85	\$16.05	\$0.00	\$64.15
	12/01/2019	\$41.25	\$7.85	\$16.05	\$0.00	\$65.15
	06/01/2020	\$42.24	\$7.85	\$16.05	\$0.00	\$66.14
	12/01/2020	\$43.22	\$7.85	\$16.05	\$0.00	\$67.12
	06/01/2021	\$44.24	\$7.85	\$16.05	\$0.00	\$68.14
	12/01/2021	\$45.25	\$7.85	\$16.05	\$0.00	\$69.15
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER LABORERS - FOUNDATION AND MARINE	06/01/2019	\$39.10	\$7.85	\$16.05	\$0.00	\$63.00
	12/01/2019	\$40.10	\$7.85	\$16.05	\$0.00	\$64.00
	06/01/2020	\$41.09	\$7.85	\$16.05	\$0.00	\$64.99
	12/01/2020	\$42.07	\$7.85	\$16.05	\$0.00	\$65.97
	06/01/2021	\$43.09	\$7.85	\$16.05	\$0.00	\$66.99
	12/01/2021	\$44.10	\$7.85	\$16.05	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN LABORERS - FOUNDATION AND MARINE	06/01/2019	\$39.10	\$7.85	\$16.05	\$0.00	\$63.00
	12/01/2019	\$40.10	\$7.85	\$16.05	\$0.00	\$64.00
	06/01/2020	\$41.09	\$7.85	\$16.05	\$0.00	\$64.99
	12/01/2020	\$42.07	\$7.85	\$16.05	\$0.00	\$65.97
	06/01/2021	\$43.09	\$7.85	\$16.05	\$0.00	\$66.99
	12/01/2021	\$44.10	\$7.85	\$16.05	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER <i>CARPENTERS LOCAL 336 - HAMPDEN HAMPSHIRE FRANKLIN</i>	09/02/2019	\$37.54	\$7.84	\$16.87	\$0.00	\$62.25
	03/01/2020	\$38.04	\$7.84	\$16.87	\$0.00	\$62.75
	09/01/2020	\$38.54	\$7.84	\$16.87	\$0.00	\$63.25
	03/01/2021	\$39.04	\$7.84	\$16.87	\$0.00	\$63.75
	09/01/2021	\$39.54	\$7.84	\$16.87	\$0.00	\$64.25
	03/01/2022	\$40.04	\$7.84	\$16.87	\$0.00	\$64.75
	09/01/2022	\$40.54	\$7.84	\$16.87	\$0.00	\$65.25
	03/01/2023	\$41.04	\$7.84	\$16.87	\$0.00	\$65.75

Apprentice - CARPENTER - Local 336 Hampden Hampshire Franklin

Effective Date - 09/02/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.77	\$7.84	\$1.32	\$0.00	\$27.93
2	60	\$22.52	\$7.84	\$1.32	\$0.00	\$31.68
3	70	\$26.28	\$7.84	\$12.91	\$0.00	\$47.03
4	75	\$28.16	\$7.84	\$12.91	\$0.00	\$48.91
5	80	\$30.03	\$7.84	\$14.23	\$0.00	\$52.10
6	80	\$30.03	\$7.84	\$14.23	\$0.00	\$52.10
7	90	\$33.79	\$7.84	\$15.55	\$0.00	\$57.18
8	90	\$33.79	\$7.84	\$15.55	\$0.00	\$57.18

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.02	\$7.84	\$1.32	\$0.00	\$28.18
2	60	\$22.82	\$7.84	\$1.32	\$0.00	\$31.98
3	70	\$26.63	\$7.84	\$12.91	\$0.00	\$47.38
4	75	\$28.53	\$7.84	\$12.91	\$0.00	\$49.28
5	80	\$30.43	\$7.84	\$14.23	\$0.00	\$52.50
6	80	\$30.43	\$7.84	\$14.23	\$0.00	\$52.50
7	90	\$34.24	\$7.84	\$15.55	\$0.00	\$57.63
8	90	\$34.24	\$7.84	\$15.55	\$0.00	\$57.63

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$26.05/ 3&4 \$31.09/ 5&6 \$48.35/ 7&8 \$53.42

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME <i>CARPENTERS LOCAL 336 - HAMPDEN HAMPSHIRE FRANKLIN</i>	04/01/2019	\$23.10	\$7.07	\$7.86	\$0.00	\$38.03
	10/01/2019	\$23.49	\$7.07	\$7.86	\$0.00	\$38.42

All Aspects of New Wood Frame Work

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - 336 Hampden Hampshire

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$13.86	\$7.07	\$0.00	\$0.00	\$20.93
2	60	\$13.86	\$7.07	\$0.00	\$0.00	\$20.93
3	65	\$15.02	\$7.07	\$7.86	\$0.00	\$29.95
4	70	\$16.17	\$7.07	\$7.86	\$0.00	\$31.10
5	75	\$17.33	\$7.07	\$7.86	\$0.00	\$32.26
6	80	\$18.48	\$7.07	\$7.86	\$0.00	\$33.41
7	85	\$19.64	\$7.07	\$7.86	\$0.00	\$34.57
8	90	\$20.79	\$7.07	\$7.86	\$0.00	\$35.72

Effective Date - 10/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.09	\$7.07	\$0.00	\$0.00	\$21.16
2	60	\$14.09	\$7.07	\$0.00	\$0.00	\$21.16
3	65	\$15.27	\$7.07	\$7.86	\$0.00	\$30.20
4	70	\$16.44	\$7.07	\$7.86	\$0.00	\$31.37
5	75	\$17.62	\$7.07	\$7.86	\$0.00	\$32.55
6	80	\$18.79	\$7.07	\$7.86	\$0.00	\$33.72
7	85	\$19.97	\$7.07	\$7.86	\$0.00	\$34.90
8	90	\$21.14	\$7.07	\$7.86	\$0.00	\$36.07

Notes:
 % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$17.47/ 3&4 \$24.53/ 5&6 \$31.10/ 7&8 \$33.41

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING	07/01/2019	\$40.46	\$12.70	\$17.64	\$0.62	\$71.42
BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	01/01/2020	\$41.94	\$12.70	\$17.64	\$0.62	\$72.90

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CEMENT MASONRY/PLASTERING - Springfield/Pittsfield

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.23	\$12.70	\$15.41	\$0.00	\$48.34
2	60	\$24.28	\$12.70	\$17.64	\$0.62	\$55.24
3	65	\$26.30	\$12.70	\$17.64	\$0.62	\$57.26
4	70	\$28.32	\$12.70	\$17.64	\$0.62	\$59.28
5	75	\$30.35	\$12.70	\$17.64	\$0.62	\$61.31
6	80	\$32.37	\$12.70	\$17.64	\$0.62	\$63.33
7	90	\$36.41	\$12.70	\$17.64	\$0.62	\$67.37

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.97	\$12.70	\$15.41	\$0.00	\$49.08
2	60	\$25.16	\$12.70	\$17.64	\$0.62	\$56.12
3	65	\$27.26	\$12.70	\$17.64	\$0.62	\$58.22
4	70	\$29.36	\$12.70	\$17.64	\$0.62	\$60.32
5	75	\$31.46	\$12.70	\$17.64	\$0.62	\$62.42
6	80	\$33.55	\$12.70	\$17.64	\$0.62	\$64.51
7	90	\$37.75	\$12.70	\$17.64	\$0.62	\$68.71

Notes:

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
For apprentice rates see "Apprentice- LABORER"	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16
CRANE OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$38.55	\$11.69	\$14.08	\$0.00	\$64.32
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2019	\$39.15	\$11.69	\$14.35	\$0.00	\$65.19
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2019	\$50.66	\$8.20	\$21.45	\$0.00	\$80.31
	01/01/2020	\$50.96	\$8.20	\$22.10	\$0.00	\$81.26
	07/01/2020	\$52.06	\$8.20	\$22.10	\$0.00	\$82.36
	01/01/2021	\$53.16	\$8.20	\$22.10	\$0.00	\$83.46

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.33	\$8.20	\$0.00	\$0.00	\$33.53
2	55	\$27.86	\$8.20	\$5.78	\$0.00	\$41.84
3	60	\$30.40	\$8.20	\$6.30	\$0.00	\$44.90
4	65	\$32.93	\$8.20	\$6.83	\$0.00	\$47.96
5	70	\$35.46	\$8.20	\$18.30	\$0.00	\$61.96
6	75	\$38.00	\$8.20	\$18.83	\$0.00	\$65.03
7	80	\$40.53	\$8.20	\$19.35	\$0.00	\$68.08
8	90	\$45.59	\$8.20	\$20.40	\$0.00	\$74.19

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.48	\$8.20	\$0.00	\$0.00	\$33.68
2	55	\$28.03	\$8.20	\$5.94	\$0.00	\$42.17
3	60	\$30.58	\$8.20	\$6.48	\$0.00	\$45.26
4	65	\$33.12	\$8.20	\$7.02	\$0.00	\$48.34
5	70	\$35.67	\$8.20	\$18.51	\$0.00	\$62.38
6	75	\$38.22	\$8.20	\$19.05	\$0.00	\$65.47
7	80	\$40.77	\$8.20	\$19.59	\$0.00	\$68.56
8	90	\$45.86	\$8.20	\$20.67	\$0.00	\$74.73

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$39.30	\$7.85	\$15.85	\$0.00	\$63.00
	12/01/2019	\$40.30	\$7.85	\$15.85	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$40.30	\$7.85	\$15.85	\$0.00	\$64.00
	12/01/2019	\$41.30	\$7.85	\$15.85	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$40.05	\$7.85	\$15.85	\$0.00	\$63.75
	12/01/2019	\$41.05	\$7.85	\$15.85	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$40.30	\$7.85	\$15.85	\$0.00	\$64.00
	12/01/2019	\$41.30	\$7.85	\$15.85	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$40.05	\$7.85	\$15.85	\$0.00	\$63.75
	12/01/2019	\$41.05	\$7.85	\$15.85	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$39.30	\$7.85	\$15.85	\$0.00	\$63.00
	12/01/2019	\$40.30	\$7.85	\$15.85	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$68.52	\$9.90	\$21.15	\$0.00	\$99.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN (Including Core Drilling) <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01

Apprentice - ELECTRICIAN - Local 7

Effective Date - 06/30/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.06	\$5.85	\$0.51	\$0.00	\$23.42
2	45	\$19.20	\$5.85	\$0.58	\$0.00	\$25.63
3	50	\$21.33	\$10.75	\$6.94	\$0.00	\$39.02
4	55	\$23.46	\$10.75	\$7.00	\$0.00	\$41.21
5	65	\$27.73	\$10.75	\$8.13	\$0.00	\$46.61
6	70	\$29.86	\$10.75	\$9.20	\$0.00	\$49.81

Notes:

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

Apprentice to Journeyworker Ratio:2:3****

ELEVATOR CONSTRUCTOR <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2019	\$53.11	\$15.58	\$17.51	\$0.00	\$86.20
	01/01/2020	\$54.85	\$15.73	\$18.41	\$0.00	\$88.99
	01/01/2021	\$56.69	\$15.88	\$19.31	\$0.00	\$91.88
	01/01/2022	\$58.62	\$16.03	\$20.21	\$0.00	\$94.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELEVATOR CONSTRUCTOR - Local 41

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.56	\$15.58	\$0.00	\$0.00	\$42.14
2	55	\$29.21	\$15.58	\$17.51	\$0.00	\$62.30
3	65	\$34.52	\$15.58	\$17.51	\$0.00	\$67.61
4	70	\$37.18	\$15.58	\$17.51	\$0.00	\$70.27
5	80	\$42.49	\$15.58	\$17.51	\$0.00	\$75.58

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$15.73	\$0.00	\$0.00	\$43.16
2	55	\$30.17	\$15.73	\$18.41	\$0.00	\$64.31
3	65	\$35.65	\$15.73	\$18.41	\$0.00	\$69.79
4	70	\$38.40	\$15.73	\$18.41	\$0.00	\$72.54
5	80	\$43.88	\$15.73	\$18.41	\$0.00	\$78.02

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2019	\$37.18	\$15.58	\$17.51	\$0.00	\$70.27
	01/01/2020	\$38.40	\$15.73	\$18.41	\$0.00	\$72.54
	01/01/2021	\$39.68	\$15.88	\$19.31	\$0.00	\$74.87
	01/01/2022	\$41.03	\$16.03	\$20.21	\$0.00	\$77.27
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$31.75	\$7.85	\$12.18	\$0.00	\$51.78
	12/01/2019	\$32.54	\$7.85	\$12.18	\$0.00	\$52.57
	06/01/2020	\$33.35	\$7.85	\$12.18	\$0.00	\$53.38
	12/01/2020	\$34.16	\$7.85	\$12.18	\$0.00	\$54.19
	06/01/2021	\$35.00	\$7.85	\$12.18	\$0.00	\$55.03
	12/01/2021	\$35.83	\$7.85	\$12.18	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FIELD ENG.INST/ROD-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$18.84	\$4.80	\$4.10	\$0.00	\$27.74
FIELD ENG.PARTY CHIEF:BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$21.33	\$4.80	\$4.10	\$0.00	\$30.23
FIELD ENG.SURVEY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$22.33	\$4.80	\$4.10	\$0.00	\$31.23
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIREMAN	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
<i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16

Apprentice - OPERATING ENGINEERS - Local 98 Class 3

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.71	\$11.69	\$14.08	\$0.00	\$46.48
2	70	\$24.16	\$11.69	\$14.08	\$0.00	\$49.93
3	80	\$27.62	\$11.69	\$14.08	\$0.00	\$53.39
4	90	\$31.07	\$11.69	\$14.08	\$0.00	\$56.84

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.07	\$11.69	\$14.35	\$0.00	\$47.11
2	70	\$24.58	\$11.69	\$14.35	\$0.00	\$50.62
3	80	\$28.10	\$11.69	\$14.35	\$0.00	\$54.14
4	90	\$31.61	\$11.69	\$14.35	\$0.00	\$57.65

Notes:

Steps 1-2 are 1000 hrs.; Steps 3-4 are 2000 hrs.

Apprentice to Journeyworker Ratio:1:6

FLAGGER & SIGNALER (HEAVY & HIGHWAY)	06/01/2019	\$22.50	\$7.85	\$12.18	\$0.00	\$42.53
<i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	12/01/2019	\$23.50	\$7.85	\$12.18	\$0.00	\$43.53
	06/01/2020	\$23.50	\$7.85	\$12.18	\$0.00	\$43.53
	12/01/2020	\$24.50	\$7.85	\$12.18	\$0.00	\$44.53
	06/01/2021	\$24.50	\$7.85	\$12.18	\$0.00	\$44.53
	12/01/2021	\$24.50	\$7.85	\$12.18	\$0.00	\$44.53

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

FLOORCOVERER	09/01/2019	\$37.44	\$7.84	\$16.87	\$0.00	\$62.15
<i>FLOORCOVERERS LOCAL 2168 ZONE III</i>						

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone III

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.72	\$7.84	\$1.32	\$0.00	\$27.88
2	55	\$20.59	\$7.84	\$1.32	\$0.00	\$29.75
3	60	\$22.46	\$7.84	\$12.91	\$0.00	\$43.21
4	65	\$24.34	\$7.84	\$12.91	\$0.00	\$45.09
5	70	\$26.21	\$7.84	\$14.23	\$0.00	\$48.28
6	75	\$28.08	\$7.84	\$14.23	\$0.00	\$50.15
7	80	\$29.95	\$7.84	\$15.55	\$0.00	\$53.34
8	85	\$31.82	\$7.84	\$15.55	\$0.00	\$55.21

Notes: Steps are 750 hrs.
 % After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$26.01/ 3&4 \$31.03/ 5&6 \$48.28/ 7&8 \$53.34

Apprentice to Journeyworker Ratio:1:1

FORK LIFT <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.74	\$11.69	\$14.08	\$0.00	\$60.51
	12/01/2019	\$35.34	\$11.69	\$14.35	\$0.00	\$61.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATORS/LIGHTING PLANTS <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$31.29	\$11.69	\$14.08	\$0.00	\$57.06
	12/01/2019	\$31.89	\$11.69	\$14.35	\$0.00	\$57.93
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 1333</i>	06/01/2019	\$38.18	\$10.60	\$9.90	\$0.00	\$58.68
	06/01/2020	\$39.18	\$10.80	\$10.45	\$0.00	\$60.43

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 1333

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.09	\$10.60	\$1.80	\$0.00	\$31.49
2	56	\$21.48	\$10.60	\$1.80	\$0.00	\$33.88
3	63	\$23.86	\$10.60	\$2.40	\$0.00	\$36.86
4	69	\$26.25	\$10.60	\$2.40	\$0.00	\$39.25
5	75	\$28.64	\$10.60	\$2.90	\$0.00	\$42.14
6	81	\$31.02	\$10.60	\$2.90	\$0.00	\$44.52
7	88	\$33.41	\$10.60	\$9.90	\$0.00	\$53.91
8	94	\$35.79	\$10.60	\$9.90	\$0.00	\$56.29

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.59	\$10.80	\$1.80	\$0.00	\$32.19
2	56	\$22.04	\$10.80	\$1.80	\$0.00	\$34.64
3	63	\$24.49	\$10.80	\$2.45	\$0.00	\$37.74
4	69	\$26.94	\$10.80	\$2.45	\$0.00	\$40.19
5	75	\$29.39	\$10.80	\$3.15	\$0.00	\$43.34
6	81	\$31.83	\$10.80	\$3.15	\$0.00	\$45.78
7	88	\$34.28	\$10.80	\$10.45	\$0.00	\$55.53
8	94	\$36.73	\$10.80	\$10.45	\$0.00	\$57.98

Notes:

Apprentice to Journeyworker Ratio:1:3

GRADER/TRENCHING MACHINE/DERRICK <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.25	\$7.85	\$12.18	\$0.00	\$52.28
	12/01/2019	\$33.04	\$7.85	\$12.18	\$0.00	\$53.07
	06/01/2020	\$33.85	\$7.85	\$12.18	\$0.00	\$53.88
	12/01/2020	\$34.66	\$7.85	\$12.18	\$0.00	\$54.69
	06/01/2021	\$35.50	\$7.85	\$12.18	\$0.00	\$55.53
	12/01/2021	\$36.33	\$7.85	\$12.18	\$0.00	\$56.36
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)</i>	09/01/2019	\$38.75	\$12.80	\$16.40	\$0.00	\$67.95

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

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.38	\$12.80	\$11.90	\$0.00	\$44.08
2	60	\$23.25	\$12.80	\$12.80	\$0.00	\$48.85
3	70	\$27.13	\$12.80	\$13.70	\$0.00	\$53.63
4	80	\$31.00	\$12.80	\$14.60	\$0.00	\$58.40

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (SPRINGFIELD AREA)</i>	09/16/2019	\$35.10	\$8.00	\$20.75	\$0.00	\$63.85
	03/16/2020	\$35.95	\$8.00	\$20.75	\$0.00	\$64.70
	09/16/2020	\$36.85	\$8.00	\$20.75	\$0.00	\$65.60
	03/16/2021	\$37.70	\$8.00	\$20.75	\$0.00	\$66.45

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Springfield

Effective Date - 09/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.06	\$8.00	\$20.75	\$0.00	\$49.81
2	70	\$24.57	\$8.00	\$20.75	\$0.00	\$53.32
3	75	\$26.33	\$8.00	\$20.75	\$0.00	\$55.08
4	80	\$28.08	\$8.00	\$20.75	\$0.00	\$56.83
5	85	\$29.84	\$8.00	\$20.75	\$0.00	\$58.59
6	90	\$31.59	\$8.00	\$20.75	\$0.00	\$60.34

Effective Date - 03/16/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.57	\$8.00	\$20.75	\$0.00	\$50.32
2	70	\$25.17	\$8.00	\$20.75	\$0.00	\$53.92
3	75	\$26.96	\$8.00	\$20.75	\$0.00	\$55.71
4	80	\$28.76	\$8.00	\$20.75	\$0.00	\$57.51
5	85	\$30.56	\$8.00	\$20.75	\$0.00	\$59.31
6	90	\$32.36	\$8.00	\$20.75	\$0.00	\$61.11

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
LABORER LABORERS - ZONE 3 (BUILDING & SITE)	06/03/2019	\$31.50	\$7.85	\$14.22	\$0.00	\$53.57
	12/02/2019	\$32.31	\$7.85	\$14.22	\$0.00	\$54.38

Apprentice - LABORER - Zone 3 Building & Site

Effective Date - 06/03/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$18.90	\$7.85	\$14.22	\$0.00	\$40.97
2	70	\$22.05	\$7.85	\$14.22	\$0.00	\$44.12
3	80	\$25.20	\$7.85	\$14.22	\$0.00	\$47.27
4	90	\$28.35	\$7.85	\$14.22	\$0.00	\$50.42

Effective Date - 12/02/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.39	\$7.85	\$14.22	\$0.00	\$41.46
2	70	\$22.62	\$7.85	\$14.22	\$0.00	\$44.69
3	80	\$25.85	\$7.85	\$14.22	\$0.00	\$47.92
4	90	\$29.08	\$7.85	\$14.22	\$0.00	\$51.15

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY)	06/01/2019	\$31.50	\$7.85	\$12.18	\$0.00	\$51.53
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2019	\$32.29	\$7.85	\$12.18	\$0.00	\$52.32
	06/01/2020	\$33.10	\$7.85	\$12.18	\$0.00	\$53.13
	12/01/2020	\$33.91	\$7.85	\$12.18	\$0.00	\$53.94
	06/01/2021	\$34.75	\$7.85	\$12.18	\$0.00	\$54.78
	12/01/2021	\$35.58	\$7.85	\$12.18	\$0.00	\$55.61

Apprentice - LABORER (Heavy & Highway) - Zone 3

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$18.90	\$7.85	\$12.18	\$0.00	\$38.93
2	70	\$22.05	\$7.85	\$12.18	\$0.00	\$42.08
3	80	\$25.20	\$7.85	\$12.18	\$0.00	\$45.23
4	90	\$28.35	\$7.85	\$12.18	\$0.00	\$48.38

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.37	\$7.85	\$12.18	\$0.00	\$39.40
2	70	\$22.60	\$7.85	\$12.18	\$0.00	\$42.63
3	80	\$25.83	\$7.85	\$12.18	\$0.00	\$45.86
4	90	\$29.06	\$7.85	\$12.18	\$0.00	\$49.09

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.50	\$7.85	\$14.22	\$0.00	\$53.57
	12/02/2019	\$32.31	\$7.85	\$14.22	\$0.00	\$54.38
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/01/2019	\$31.60	\$7.85	\$14.22	\$0.00	\$53.67
	12/01/2019	\$32.41	\$7.85	\$14.22	\$0.00	\$54.48
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.50	\$7.85	\$14.22	\$0.00	\$54.57
	12/02/2019	\$33.31	\$7.85	\$14.22	\$0.00	\$55.38
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$31.75	\$7.85	\$12.18	\$0.00	\$51.78
	12/01/2019	\$32.54	\$7.85	\$12.18	\$0.00	\$52.57
	06/01/2020	\$33.35	\$7.85	\$12.18	\$0.00	\$53.38
	12/01/2020	\$34.16	\$7.85	\$12.18	\$0.00	\$54.19
	06/01/2021	\$35.00	\$7.85	\$12.18	\$0.00	\$55.03
	12/01/2021	\$35.83	\$7.85	\$12.18	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.50	\$7.85	\$14.22	\$0.00	\$53.57
	12/02/2019	\$32.31	\$7.85	\$14.22	\$0.00	\$54.38
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.50	\$7.85	\$14.22	\$0.00	\$53.57
	12/02/2019	\$32.31	\$7.85	\$14.22	\$0.00	\$54.38
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 <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$31.75	\$7.85	\$12.18	\$0.00	\$51.78
	12/01/2019	\$32.54	\$7.85	\$12.18	\$0.00	\$52.57
	06/01/2020	\$33.35	\$7.85	\$12.18	\$0.00	\$53.38
	12/01/2020	\$34.16	\$7.85	\$12.18	\$0.00	\$54.19
	06/01/2021	\$35.00	\$7.85	\$12.18	\$0.00	\$55.03
	12/01/2021	\$35.83	\$7.85	\$12.18	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE</i>	08/01/2019	\$35.17	\$10.75	\$18.87	\$0.00	\$64.79
	02/01/2020	\$35.67	\$10.75	\$18.87	\$0.00	\$65.29
	08/01/2020	\$36.67	\$10.75	\$18.99	\$0.00	\$66.41
	02/01/2021	\$37.17	\$10.75	\$18.99	\$0.00	\$66.91
	08/01/2021	\$38.17	\$10.75	\$19.12	\$0.00	\$68.04
	02/01/2022	\$38.62	\$10.75	\$19.12	\$0.00	\$68.49

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - MARBLE-TILE FINISHER-Local 3 Marble/Tile (Spr/Pitt)

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.59	\$10.75	\$18.87	\$0.00	\$47.21
2	60	\$21.10	\$10.75	\$18.87	\$0.00	\$50.72
3	70	\$24.62	\$10.75	\$18.87	\$0.00	\$54.24
4	80	\$28.14	\$10.75	\$18.87	\$0.00	\$57.76
5	90	\$31.65	\$10.75	\$18.87	\$0.00	\$61.27

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.84	\$10.75	\$18.87	\$0.00	\$47.46
2	60	\$21.40	\$10.75	\$18.87	\$0.00	\$51.02
3	70	\$24.97	\$10.75	\$18.87	\$0.00	\$54.59
4	80	\$28.54	\$10.75	\$18.87	\$0.00	\$58.16
5	90	\$32.10	\$10.75	\$18.87	\$0.00	\$61.72

Notes:

Apprentice to Journeyworker Ratio:1:5

MARBLE MASON/TILE LAYER(SP/PT)SeeBrick
BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE

See "BRICK/STONE/ARTIFICIAL MASONRY(INCL.MASONRY WATERPROOFING)

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 98	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANIC/WELDER/BOOM TRUCK OPERATING ENGINEERS LOCAL 98	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 3) MILLWRIGHTS LOCAL 1121 - Zone 3	04/01/2019	\$37.11	\$9.90	\$18.50	\$0.00	\$65.51
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Apprentice - MILLWRIGHT - Local 1121 Zone 3

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$20.41	\$9.90	\$5.31	\$0.00	\$35.62
2	65	\$24.12	\$9.90	\$15.13	\$0.00	\$49.15
3	75	\$27.83	\$9.90	\$16.10	\$0.00	\$53.83
4	85	\$31.54	\$9.90	\$17.06	\$0.00	\$58.50

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MORTAR MIXER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
OILER <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$30.21	\$11.69	\$14.08	\$0.00	\$55.98
	12/01/2019	\$30.81	\$11.69	\$14.35	\$0.00	\$56.85
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS VI <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$28.23	\$11.69	\$14.08	\$0.00	\$54.00
	12/01/2019	\$28.83	\$11.69	\$14.35	\$0.00	\$54.87
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2019	\$50.66	\$8.20	\$21.45	\$0.00	\$80.31
	01/01/2020	\$50.96	\$8.20	\$22.10	\$0.00	\$81.26
	07/01/2020	\$52.06	\$8.20	\$22.10	\$0.00	\$82.36
	01/01/2021	\$53.16	\$8.20	\$22.10	\$0.00	\$83.46

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.33	\$8.20	\$0.00	\$0.00	\$33.53
2	55	\$27.86	\$8.20	\$5.78	\$0.00	\$41.84
3	60	\$30.40	\$8.20	\$6.30	\$0.00	\$44.90
4	65	\$32.93	\$8.20	\$6.83	\$0.00	\$47.96
5	70	\$35.46	\$8.20	\$18.30	\$0.00	\$61.96
6	75	\$38.00	\$8.20	\$18.83	\$0.00	\$65.03
7	80	\$40.53	\$8.20	\$19.35	\$0.00	\$68.08
8	90	\$45.59	\$8.20	\$20.40	\$0.00	\$74.19

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.48	\$8.20	\$0.00	\$0.00	\$33.68
2	55	\$28.03	\$8.20	\$5.94	\$0.00	\$42.17
3	60	\$30.58	\$8.20	\$6.48	\$0.00	\$45.26
4	65	\$33.12	\$8.20	\$7.02	\$0.00	\$48.34
5	70	\$35.67	\$8.20	\$18.51	\$0.00	\$62.38
6	75	\$38.22	\$8.20	\$19.05	\$0.00	\$65.47
7	80	\$40.77	\$8.20	\$19.59	\$0.00	\$68.56
8	90	\$45.86	\$8.20	\$20.67	\$0.00	\$74.73

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SIGN, PICTORIAL & DISPLAY) <i>PAINTERS LOCAL 35 - ZONE 3</i>	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER SIGN - Local 35 Zone 3

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

PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2019	\$34.03	\$8.20	\$17.55	\$0.00	\$59.78
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 3	01/01/2020	\$34.33	\$8.20	\$18.20	\$0.00	\$60.73
	07/01/2020	\$35.43	\$8.20	\$18.20	\$0.00	\$61.83
	01/01/2021	\$36.53	\$8.20	\$18.20	\$0.00	\$62.93

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - New

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.02	\$8.20	\$0.00	\$0.00	\$25.22
2	55	\$18.72	\$8.20	\$3.63	\$0.00	\$30.55
3	60	\$20.42	\$8.20	\$3.96	\$0.00	\$32.58
4	65	\$22.12	\$8.20	\$4.29	\$0.00	\$34.61
5	70	\$23.82	\$8.20	\$15.57	\$0.00	\$47.59
6	75	\$25.52	\$8.20	\$15.90	\$0.00	\$49.62
7	80	\$27.22	\$8.20	\$16.23	\$0.00	\$51.65
8	90	\$30.63	\$8.20	\$16.89	\$0.00	\$55.72

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.17	\$8.20	\$0.00	\$0.00	\$25.37
2	55	\$18.88	\$8.20	\$3.80	\$0.00	\$30.88
3	60	\$20.60	\$8.20	\$4.14	\$0.00	\$32.94
4	65	\$22.31	\$8.20	\$4.49	\$0.00	\$35.00
5	70	\$24.03	\$8.20	\$15.78	\$0.00	\$48.01
6	75	\$25.75	\$8.20	\$16.13	\$0.00	\$50.08
7	80	\$27.46	\$8.20	\$16.47	\$0.00	\$52.13
8	90	\$30.90	\$8.20	\$17.16	\$0.00	\$56.26

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2019	\$31.35	\$8.20	\$17.55	\$0.00	\$57.10
PAINTERS LOCAL 35 - ZONE 3	01/01/2020	\$31.65	\$8.20	\$18.20	\$0.00	\$58.05
	07/01/2020	\$32.75	\$8.20	\$18.20	\$0.00	\$59.15
	01/01/2021	\$33.85	\$8.20	\$18.20	\$0.00	\$60.25

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - Repaint

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$15.68	\$8.20	\$0.00	\$0.00	\$23.88
2	55	\$17.24	\$8.20	\$3.63	\$0.00	\$29.07
3	60	\$18.81	\$8.20	\$3.96	\$0.00	\$30.97
4	65	\$20.38	\$8.20	\$4.29	\$0.00	\$32.87
5	70	\$21.95	\$8.20	\$15.57	\$0.00	\$45.72
6	75	\$23.51	\$8.20	\$15.90	\$0.00	\$47.61
7	80	\$25.08	\$8.20	\$16.23	\$0.00	\$49.51
8	90	\$28.22	\$8.20	\$16.89	\$0.00	\$53.31

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$15.83	\$8.20	\$0.00	\$0.00	\$24.03
2	55	\$17.41	\$8.20	\$3.80	\$0.00	\$29.41
3	60	\$18.99	\$8.20	\$4.14	\$0.00	\$31.33
4	65	\$20.57	\$8.20	\$4.49	\$0.00	\$33.26
5	70	\$22.16	\$8.20	\$15.78	\$0.00	\$46.14
6	75	\$23.74	\$8.20	\$16.13	\$0.00	\$48.07
7	80	\$25.32	\$8.20	\$16.47	\$0.00	\$49.99
8	90	\$28.49	\$8.20	\$17.16	\$0.00	\$53.85

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	07/01/2019	\$32.63	\$8.20	\$17.55	\$0.00	\$58.38
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 3	01/01/2020	\$32.93	\$8.20	\$18.20	\$0.00	\$59.33
	07/01/2020	\$34.03	\$8.20	\$18.20	\$0.00	\$60.43
	01/01/2021	\$35.13	\$8.20	\$18.20	\$0.00	\$61.53

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 3 - BRUSH NEW

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$16.32	\$8.20	\$0.00	\$0.00	\$24.52
2	55	\$17.95	\$8.20	\$3.63	\$0.00	\$29.78
3	60	\$19.58	\$8.20	\$3.96	\$0.00	\$31.74
4	65	\$21.21	\$8.20	\$4.29	\$0.00	\$33.70
5	70	\$22.84	\$8.20	\$15.57	\$0.00	\$46.61
6	75	\$24.47	\$8.20	\$15.90	\$0.00	\$48.57
7	80	\$26.10	\$8.20	\$16.23	\$0.00	\$50.53
8	90	\$29.37	\$8.20	\$16.89	\$0.00	\$54.46

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$16.47	\$8.20	\$0.00	\$0.00	\$24.67
2	55	\$18.11	\$8.20	\$3.80	\$0.00	\$30.11
3	60	\$19.76	\$8.20	\$4.14	\$0.00	\$32.10
4	65	\$21.40	\$8.20	\$4.49	\$0.00	\$34.09
5	70	\$23.05	\$8.20	\$15.78	\$0.00	\$47.03
6	75	\$24.70	\$8.20	\$16.13	\$0.00	\$49.03
7	80	\$26.34	\$8.20	\$16.47	\$0.00	\$51.01
8	90	\$29.64	\$8.20	\$17.16	\$0.00	\$55.00

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2019	\$29.95	\$8.20	\$17.55	\$0.00	\$55.70
PAINTERS LOCAL 35 - ZONE 3	01/01/2020	\$30.25	\$8.20	\$18.20	\$0.00	\$56.65
	07/01/2020	\$31.35	\$8.20	\$18.20	\$0.00	\$57.75
	01/01/2021	\$32.45	\$8.20	\$18.20	\$0.00	\$58.85

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 3 - BRUSH REPAINT

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$14.98	\$8.20	\$0.00	\$0.00	\$23.18
2	55	\$16.47	\$8.20	\$3.63	\$0.00	\$28.30
3	60	\$17.97	\$8.20	\$3.96	\$0.00	\$30.13
4	65	\$19.47	\$8.20	\$4.29	\$0.00	\$31.96
5	70	\$20.97	\$8.20	\$15.57	\$0.00	\$44.74
6	75	\$22.46	\$8.20	\$15.90	\$0.00	\$46.56
7	80	\$23.96	\$8.20	\$16.23	\$0.00	\$48.39
8	90	\$26.96	\$8.20	\$16.89	\$0.00	\$52.05

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$15.13	\$8.20	\$0.00	\$0.00	\$23.33
2	55	\$16.64	\$8.20	\$3.80	\$0.00	\$28.64
3	60	\$18.15	\$8.20	\$4.14	\$0.00	\$30.49
4	65	\$19.66	\$8.20	\$4.49	\$0.00	\$32.35
5	70	\$21.18	\$8.20	\$15.78	\$0.00	\$45.16
6	75	\$22.69	\$8.20	\$16.13	\$0.00	\$47.02
7	80	\$24.20	\$8.20	\$16.47	\$0.00	\$48.87
8	90	\$27.23	\$8.20	\$17.16	\$0.00	\$52.59

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	06/01/2019	\$31.50	\$7.85	\$12.18	\$0.00	\$51.53
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2019	\$32.29	\$7.85	\$12.18	\$0.00	\$52.32
	06/01/2020	\$33.10	\$7.85	\$12.18	\$0.00	\$53.13
	12/01/2020	\$33.91	\$7.85	\$12.18	\$0.00	\$53.94
	06/01/2021	\$34.75	\$7.85	\$12.18	\$0.00	\$54.78
	12/01/2021	\$35.58	\$7.85	\$12.18	\$0.00	\$55.61

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

PANEL & PICKUP TRUCKS DRIVER	08/01/2019	\$34.08	\$12.41	\$12.70	\$0.00	\$59.19
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2019	\$34.08	\$12.41	\$13.72	\$0.00	\$60.21
	06/01/2020	\$34.98	\$12.41	\$13.72	\$0.00	\$61.11
	08/01/2020	\$34.98	\$12.91	\$13.72	\$0.00	\$61.61
	12/01/2020	\$34.98	\$12.91	\$14.82	\$0.00	\$62.71
	06/01/2021	\$35.78	\$12.91	\$14.82	\$0.00	\$63.51
	08/01/2021	\$35.78	\$13.41	\$14.82	\$0.00	\$64.01
	12/01/2021	\$35.78	\$13.41	\$16.01	\$0.00	\$65.20

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2019	\$43.79	\$9.90	\$21.15	\$0.00	\$74.84
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PILE DRIVER LOCAL 56 (ZONE 3)

For apprentice rates see "Apprentice- PILE DRIVER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$43.79	\$9.90	\$21.15	\$0.00	\$74.84

Apprentice - PILE DRIVER - Local 56 Zone 3

Effective Date - 08/01/2019

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

Notes: Apprentice wages shall be no less than the following Steps;
(Same as set in Zone 1)
1\$54.34/2\$58.99/3\$63.65/4\$65.98/5\$68.31/6\$68.31/7\$72.96/8\$72.96

Apprentice to Journeyworker Ratio:1:5

PIPELAYER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$31.75	\$7.85	\$12.18	\$0.00	\$51.78
	12/01/2019	\$32.54	\$7.85	\$12.18	\$0.00	\$52.57
	06/01/2020	\$33.35	\$7.85	\$12.18	\$0.00	\$53.38
	12/01/2020	\$34.16	\$7.85	\$12.18	\$0.00	\$54.19
	06/01/2021	\$35.00	\$7.85	\$12.18	\$0.00	\$55.03
	12/01/2021	\$35.83	\$7.85	\$12.18	\$0.00	\$55.86

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

PLUMBER & PIPEFITTER <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
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Apprentice - PLUMBER/PIPEFITTER - Local 104

Effective Date - 03/17/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.09	\$8.75	\$9.60	\$0.00	\$36.44
2	50	\$20.11	\$8.75	\$9.60	\$0.00	\$38.46
3	55	\$22.12	\$8.75	\$9.60	\$0.00	\$40.47
4	60	\$24.13	\$8.75	\$9.60	\$0.00	\$42.48
5	65	\$26.14	\$8.75	\$9.60	\$0.00	\$44.49
6	70	\$28.15	\$8.75	\$9.60	\$0.00	\$46.50
7	75	\$30.16	\$8.75	\$9.60	\$0.00	\$48.51
8	80	\$32.17	\$8.75	\$9.60	\$0.00	\$50.52
9	80	\$32.17	\$8.75	\$16.35	\$0.00	\$57.27
10	80	\$32.17	\$8.75	\$16.35	\$0.00	\$57.27

Notes: **1:1,2:5,3:9,4:12

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$31.75	\$7.85	\$12.18	\$0.00	\$51.78
	12/01/2019	\$32.54	\$7.85	\$12.18	\$0.00	\$52.57
	06/01/2020	\$33.35	\$7.85	\$12.18	\$0.00	\$53.38
	12/01/2020	\$34.16	\$7.85	\$12.18	\$0.00	\$54.19
	06/01/2021	\$35.00	\$7.85	\$12.18	\$0.00	\$55.03
	12/01/2021	\$35.83	\$7.85	\$12.18	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWDERMAN & BLASTER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.50	\$7.85	\$14.22	\$0.00	\$54.57
	12/02/2019	\$33.31	\$7.85	\$14.22	\$0.00	\$55.38
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.50	\$7.85	\$12.18	\$0.00	\$52.53
	12/01/2019	\$33.29	\$7.85	\$12.18	\$0.00	\$53.32
	06/01/2020	\$34.10	\$7.85	\$12.18	\$0.00	\$54.13
	12/01/2020	\$34.91	\$7.85	\$12.18	\$0.00	\$54.94
	06/01/2021	\$35.75	\$7.85	\$12.18	\$0.00	\$55.78
	12/01/2021	\$36.58	\$7.85	\$12.18	\$0.00	\$56.61
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 404 - Construction Service (Northampton)</i>	05/01/2016	\$20.54	\$10.57	\$8.39	\$0.00	\$39.50
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
ROLLER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$33.91	\$11.69	\$14.08	\$0.00	\$59.68
	12/01/2019	\$34.51	\$11.69	\$14.35	\$0.00	\$60.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Coal tar pitch) <i>ROOFERS LOCAL 248</i>	07/16/2019	\$32.66	\$10.05	\$16.20	\$0.00	\$58.91
For apprentice rates see "Apprentice- ROOFER"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) <i>ROOFERS LOCAL 248</i>	07/16/2019	\$32.16	\$10.05	\$15.70	\$0.00	\$57.91

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ROOFER - Local 248

Effective Date - 07/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.30	\$10.05	\$0.00	\$0.00	\$29.35
2	65	\$20.90	\$10.05	\$15.70	\$0.00	\$46.65
3	70	\$22.51	\$10.05	\$15.70	\$0.00	\$48.26
4	75	\$24.12	\$10.05	\$15.70	\$0.00	\$49.87
5	80	\$25.73	\$10.05	\$15.70	\$0.00	\$51.48
6	85	\$27.34	\$10.05	\$15.70	\$0.00	\$53.09
7	90	\$28.94	\$10.05	\$15.70	\$0.00	\$54.69
8	95	\$30.55	\$10.05	\$15.70	\$0.00	\$56.30

Notes:

Steps are 750 hrs.Roofeer(Tear Off)1:1; Same as above

Apprentice to Journeyworker Ratio:1:3

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 248</i>	07/16/2019	\$32.66	\$10.05	\$16.20	\$0.00	\$58.91
For apprentice rates see "Apprentice- ROOFER"						
SCRAPER <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-POWERED ROLLERS AND COMPACTORS (TAMPERS) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$33.91	\$11.69	\$14.08	\$0.00	\$59.68
	12/01/2019	\$34.51	\$11.69	\$14.35	\$0.00	\$60.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-PROPELLED POWER BROOM <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$31.29	\$11.69	\$14.08	\$0.00	\$57.06
	12/01/2019	\$31.89	\$11.69	\$14.35	\$0.00	\$57.93
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62

Apprentice - SHEET METAL WORKER - Local 63

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$16.08	\$6.21	\$4.67	\$0.00	\$26.96
2	50	\$17.87	\$6.55	\$5.19	\$0.00	\$29.61
3	55	\$19.66	\$6.88	\$9.33	\$1.08	\$36.95
4	60	\$21.44	\$7.22	\$9.33	\$1.14	\$39.13
5	65	\$23.23	\$7.55	\$9.33	\$1.20	\$41.31
6	70	\$25.02	\$7.88	\$9.33	\$1.27	\$43.50
7	75	\$26.81	\$8.22	\$9.33	\$1.33	\$45.69
8	80	\$28.59	\$9.30	\$15.18	\$1.59	\$54.66
9	85	\$30.38	\$9.64	\$15.18	\$1.66	\$56.86
10	90	\$32.17	\$9.98	\$15.18	\$1.72	\$59.05

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$16.65	\$6.21	\$4.67	\$0.00	\$27.53
2	50	\$18.50	\$6.55	\$5.19	\$0.00	\$30.24
3	55	\$20.34	\$6.88	\$9.33	\$1.08	\$37.63
4	60	\$22.19	\$7.22	\$9.33	\$1.14	\$39.88
5	65	\$24.04	\$7.55	\$9.33	\$1.20	\$42.12
6	70	\$25.89	\$7.88	\$9.33	\$1.27	\$44.37
7	75	\$27.74	\$8.22	\$9.33	\$1.33	\$46.62
8	80	\$29.59	\$9.30	\$15.18	\$1.59	\$55.66
9	85	\$31.44	\$9.64	\$15.18	\$1.66	\$57.92
10	90	\$33.29	\$9.98	\$15.18	\$1.72	\$60.17

Notes:

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	08/01/2019	\$34.54	\$12.41	\$12.70	\$0.00	\$59.65
	12/01/2019	\$34.54	\$12.41	\$13.72	\$0.00	\$60.67
	06/01/2020	\$35.44	\$12.41	\$13.72	\$0.00	\$61.57
	08/01/2020	\$35.44	\$12.91	\$13.72	\$0.00	\$62.07
	12/01/2020	\$35.44	\$12.91	\$14.82	\$0.00	\$63.17
	06/01/2021	\$36.24	\$12.91	\$14.82	\$0.00	\$63.97
	08/01/2021	\$36.24	\$13.41	\$14.82	\$0.00	\$64.47
	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.83	\$12.41	\$12.70	\$0.00	\$59.94
	12/01/2019	\$34.83	\$12.41	\$13.72	\$0.00	\$60.96
	06/01/2020	\$35.73	\$12.41	\$13.72	\$0.00	\$61.86
	08/01/2020	\$35.73	\$12.91	\$13.72	\$0.00	\$62.36
	12/01/2020	\$35.73	\$12.91	\$14.82	\$0.00	\$63.46
	06/01/2021	\$36.53	\$12.91	\$14.82	\$0.00	\$64.26
	08/01/2021	\$36.53	\$13.41	\$14.82	\$0.00	\$64.76
	12/01/2021	\$36.53	\$13.41	\$16.01	\$0.00	\$65.95
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 669</i>	01/01/2019	\$41.51	\$10.02	\$13.08	\$0.00	\$64.61

Apprentice - SPRINKLER FITTER - Local 669

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.68	\$7.75	\$0.00	\$0.00	\$26.43
2	50	\$20.76	\$7.75	\$0.00	\$0.00	\$28.51
3	55	\$22.83	\$10.02	\$7.25	\$0.00	\$40.10
4	60	\$24.91	\$10.02	\$7.25	\$0.00	\$42.18
5	65	\$26.98	\$10.02	\$7.50	\$0.00	\$44.50
6	70	\$29.06	\$10.02	\$7.50	\$0.00	\$46.58
7	75	\$31.13	\$10.02	\$7.50	\$0.00	\$48.65
8	80	\$33.21	\$10.02	\$7.50	\$0.00	\$50.73
9	85	\$35.28	\$10.02	\$7.50	\$0.00	\$52.80
10	90	\$37.36	\$10.02	\$7.50	\$0.00	\$54.88

Notes:

Apprentice to Journeyworker Ratio:1:1

TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 7

Effective Date - 06/30/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.06	\$5.85	\$0.51	\$0.00	\$23.42
2	45	\$19.20	\$5.85	\$0.58	\$0.00	\$25.63
3	50	\$21.33	\$10.75	\$6.94	\$0.00	\$39.02
4	55	\$23.46	\$10.75	\$7.00	\$0.00	\$41.21
5	65	\$27.73	\$10.75	\$8.13	\$0.00	\$46.61
6	70	\$29.86	\$10.75	\$9.20	\$0.00	\$49.81

Notes:

Steps are 800 hours

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE</i>	08/01/2019	\$53.34	\$10.75	\$21.30	\$0.00	\$85.39
	02/01/2020	\$53.98	\$10.75	\$21.30	\$0.00	\$86.03
	08/01/2020	\$55.33	\$10.75	\$21.45	\$0.00	\$87.53
	02/01/2021	\$55.97	\$10.75	\$21.45	\$0.00	\$88.17
	08/01/2021	\$57.37	\$10.75	\$21.61	\$0.00	\$89.73
	02/01/2022	\$57.96	\$10.75	\$21.61	\$0.00	\$90.32

Apprentice - TERRAZZO FINISHER-Local 3 Marble/Tile (Spr/Ptt)

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.67	\$10.75	\$21.30	\$0.00	\$58.72
2	60	\$32.00	\$10.75	\$21.30	\$0.00	\$64.05
3	70	\$37.34	\$10.75	\$21.30	\$0.00	\$69.39
4	80	\$42.67	\$10.75	\$21.30	\$0.00	\$74.72
5	90	\$48.01	\$10.75	\$21.30	\$0.00	\$80.06

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.99	\$10.75	\$21.30	\$0.00	\$59.04
2	60	\$32.39	\$10.75	\$21.30	\$0.00	\$64.44
3	70	\$37.79	\$10.75	\$21.30	\$0.00	\$69.84
4	80	\$43.18	\$10.75	\$21.30	\$0.00	\$75.23
5	90	\$48.58	\$10.75	\$21.30	\$0.00	\$80.63

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO MECHANIC <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE</i>	08/01/2019	\$54.42	\$10.75	\$21.30	\$0.00	\$86.47
	02/01/2020	\$55.05	\$10.75	\$21.30	\$0.00	\$87.10
	08/01/2020	\$56.40	\$10.75	\$21.45	\$0.00	\$88.60
	02/01/2021	\$57.04	\$10.75	\$21.45	\$0.00	\$89.24
	08/01/2021	\$58.44	\$10.75	\$21.61	\$0.00	\$90.80
	02/01/2022	\$59.01	\$10.75	\$21.61	\$0.00	\$91.37

Apprentice - TERRAZZO MECH - Local 3 Marble/Tile (Spr/Pitt)

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.21	\$10.75	\$21.30	\$0.00	\$59.26
2	60	\$32.65	\$10.75	\$21.30	\$0.00	\$64.70
3	70	\$38.09	\$10.75	\$21.30	\$0.00	\$70.14
4	80	\$43.54	\$10.75	\$21.30	\$0.00	\$75.59
5	90	\$48.98	\$10.75	\$21.30	\$0.00	\$81.03

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.53	\$10.75	\$21.30	\$0.00	\$59.58
2	60	\$33.03	\$10.75	\$21.30	\$0.00	\$65.08
3	70	\$38.54	\$10.75	\$21.30	\$0.00	\$70.59
4	80	\$44.04	\$10.75	\$21.30	\$0.00	\$76.09
5	90	\$49.55	\$10.75	\$21.30	\$0.00	\$81.60

Notes:

Apprentice to Journeyworker Ratio:1:5

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2019	\$40.50	\$7.85	\$16.05	\$0.00	\$64.40
	12/01/2019	\$41.50	\$7.85	\$16.05	\$0.00	\$65.40
	06/01/2020	\$42.49	\$7.85	\$16.05	\$0.00	\$66.39
	12/01/2020	\$43.47	\$7.85	\$16.05	\$0.00	\$67.37
	06/01/2021	\$44.49	\$7.85	\$16.05	\$0.00	\$68.39
	12/01/2021	\$45.50	\$7.85	\$16.05	\$0.00	\$69.40

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2019	\$39.22	\$7.85	\$16.05	\$0.00	\$63.12
	12/01/2019	\$40.22	\$7.85	\$16.05	\$0.00	\$64.12
	06/01/2020	\$41.21	\$7.85	\$16.05	\$0.00	\$65.11
	12/01/2020	\$42.19	\$7.85	\$16.05	\$0.00	\$66.09
	06/01/2021	\$43.21	\$7.85	\$16.05	\$0.00	\$67.11
	12/01/2021	\$44.22	\$7.85	\$16.05	\$0.00	\$68.12

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2019	\$39.10	\$7.85	\$16.05	\$0.00	\$63.00
	12/01/2019	\$40.10	\$7.85	\$16.05	\$0.00	\$64.00
	06/01/2020	\$41.09	\$7.85	\$16.05	\$0.00	\$64.99
	12/01/2020	\$42.07	\$7.85	\$16.05	\$0.00	\$65.97
	06/01/2021	\$43.09	\$7.85	\$16.05	\$0.00	\$66.99
	12/01/2021	\$44.10	\$7.85	\$16.05	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
TRACTORS <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$33.91	\$11.69	\$14.08	\$0.00	\$59.68
	12/01/2019	\$34.51	\$11.69	\$14.35	\$0.00	\$60.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$35.12	\$12.41	\$12.70	\$0.00	\$60.23
	12/01/2019	\$35.12	\$12.41	\$13.72	\$0.00	\$61.25
	06/01/2020	\$36.02	\$12.41	\$13.72	\$0.00	\$62.15
	08/01/2020	\$36.02	\$12.91	\$13.72	\$0.00	\$62.65
	12/01/2020	\$36.02	\$12.91	\$14.82	\$0.00	\$63.75
	06/01/2021	\$36.82	\$12.91	\$14.82	\$0.00	\$64.55
	08/01/2021	\$36.82	\$13.41	\$14.82	\$0.00	\$65.05
	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2019	\$51.38	\$7.85	\$16.45	\$0.00	\$75.68
	12/01/2019	\$52.38	\$7.85	\$16.45	\$0.00	\$76.68
	06/01/2020	\$53.37	\$7.85	\$16.45	\$0.00	\$77.67
	12/01/2020	\$54.35	\$7.85	\$16.45	\$0.00	\$78.65
	06/01/2021	\$55.37	\$7.85	\$16.45	\$0.00	\$79.67
	12/01/2021	\$56.38	\$7.85	\$16.45	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2019	\$53.38	\$7.85	\$16.45	\$0.00	\$77.68
	12/01/2019	\$54.38	\$7.85	\$16.45	\$0.00	\$78.68
	06/01/2020	\$55.37	\$7.85	\$16.45	\$0.00	\$79.67
	12/01/2020	\$56.35	\$7.85	\$16.45	\$0.00	\$80.65
	06/01/2021	\$57.37	\$7.85	\$16.45	\$0.00	\$81.67
	12/01/2021	\$58.38	\$7.85	\$16.45	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2019	\$43.45	\$7.85	\$16.45	\$0.00	\$67.75
	12/01/2019	\$44.45	\$7.85	\$16.45	\$0.00	\$68.75
	06/01/2020	\$45.44	\$7.85	\$16.45	\$0.00	\$69.74
	12/01/2020	\$46.42	\$7.85	\$16.45	\$0.00	\$70.72
	06/01/2021	\$47.44	\$7.85	\$16.45	\$0.00	\$71.74
	12/01/2021	\$48.45	\$7.85	\$16.45	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2019	\$45.45	\$7.85	\$16.45	\$0.00	\$69.75
	12/01/2019	\$46.45	\$7.85	\$16.45	\$0.00	\$70.75
	06/01/2020	\$47.44	\$7.85	\$16.45	\$0.00	\$71.74
	12/01/2020	\$48.42	\$7.85	\$16.45	\$0.00	\$72.72
	06/01/2021	\$49.44	\$7.85	\$16.45	\$0.00	\$73.74
	12/01/2021	\$50.45	\$7.85	\$16.45	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.54	\$12.41	\$12.70	\$0.00	\$59.65
	12/01/2019	\$34.54	\$12.41	\$13.72	\$0.00	\$60.67
	06/01/2020	\$35.44	\$12.41	\$13.72	\$0.00	\$61.57
	08/01/2020	\$35.44	\$12.91	\$13.72	\$0.00	\$62.07
	12/01/2020	\$35.44	\$12.91	\$14.82	\$0.00	\$63.17
	06/01/2021	\$36.24	\$12.91	\$14.82	\$0.00	\$63.97
	08/01/2021	\$36.24	\$13.41	\$14.82	\$0.00	\$64.47
	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
WAGON DRILL OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.75	\$7.85	\$14.22	\$0.00	\$53.82
	12/02/2019	\$32.56	\$7.85	\$14.22	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$31.75	\$7.85	\$12.18	\$0.00	\$51.78
	12/01/2019	\$32.54	\$7.85	\$12.18	\$0.00	\$52.57
	06/01/2020	\$33.35	\$7.85	\$12.18	\$0.00	\$53.38
	12/01/2020	\$34.16	\$7.85	\$12.18	\$0.00	\$54.19
	06/01/2021	\$35.00	\$7.85	\$12.18	\$0.00	\$55.03
	12/01/2021	\$35.83	\$7.85	\$12.18	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WATER METER INSTALLER <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - West						
EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$44.67	\$8.00	\$12.55	\$0.00	\$65.22
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$30.58	\$8.00	\$5.48	\$0.00	\$44.06
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN / TRUCK DRIVER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$39.97	\$8.00	\$10.96	\$0.00	\$58.93
For apprentice rates see "Apprentice- LINEMAN"						
HEAVY EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$47.01	\$8.00	\$13.22	\$0.00	\$68.23
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$51.71	\$8.00	\$15.55	\$0.00	\$75.26

Apprentice - LINEMAN (Outside Electrical) - West Local 42

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$31.03	\$8.00	\$3.43	\$0.00	\$42.46
2	65	\$33.61	\$8.00	\$3.51	\$0.00	\$45.12
3	70	\$36.20	\$8.00	\$3.59	\$0.00	\$47.79
4	75	\$38.78	\$8.00	\$5.16	\$0.00	\$51.94
5	80	\$41.37	\$8.00	\$5.24	\$0.00	\$54.61
6	85	\$43.95	\$8.00	\$5.32	\$0.00	\$57.27
7	90	\$46.54	\$8.00	\$7.40	\$0.00	\$61.94

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$30.73	\$4.70	\$3.17	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TRACTOR-TRAILER DRIVER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$44.67	\$8.00	\$12.55	\$0.00	\$65.22
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.						
Rental of Equipment - West						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.25	\$12.41	\$0.00	\$0.00	\$46.66
	12/01/2019	\$34.25	\$12.41	\$0.00	\$0.00	\$46.66
	06/01/2020	\$35.15	\$12.41	\$0.00	\$0.00	\$47.56
	08/01/2020	\$35.15	\$12.91	\$0.00	\$0.00	\$48.06
	12/01/2020	\$35.15	\$12.91	\$0.00	\$0.00	\$48.06
	06/01/2021	\$35.95	\$12.91	\$0.00	\$0.00	\$48.86
	08/01/2021	\$35.95	\$13.41	\$0.00	\$0.00	\$49.36
	12/01/2021	\$35.95	\$13.41	\$0.00	\$0.00	\$49.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.32	\$12.41	\$0.00	\$0.00	\$46.73
	12/01/2019	\$34.32	\$12.41	\$0.00	\$0.00	\$46.73
	06/01/2020	\$35.22	\$12.41	\$0.00	\$0.00	\$47.63
	08/01/2020	\$35.22	\$12.91	\$0.00	\$0.00	\$48.13
	12/01/2020	\$35.22	\$12.91	\$0.00	\$0.00	\$48.13
	06/01/2021	\$36.02	\$12.91	\$0.00	\$0.00	\$48.93
	08/01/2021	\$36.02	\$13.41	\$0.00	\$0.00	\$49.43
	12/01/2021	\$36.02	\$13.41	\$0.00	\$0.00	\$49.43
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.44	\$12.41	\$0.00	\$0.00	\$46.85
	12/01/2019	\$34.44	\$12.41	\$0.00	\$0.00	\$46.85
	06/01/2020	\$35.34	\$12.41	\$0.00	\$0.00	\$47.75
	08/01/2020	\$35.34	\$12.91	\$0.00	\$0.00	\$48.25
	12/01/2020	\$35.34	\$12.91	\$0.00	\$0.00	\$48.25
	06/01/2021	\$36.14	\$12.91	\$0.00	\$0.00	\$49.05
	08/01/2021	\$36.14	\$13.41	\$0.00	\$0.00	\$49.55
	12/01/2021	\$36.14	\$13.41	\$0.00	\$0.00	\$49.55
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$102.78	\$9.90	\$0.00	\$0.00	\$112.68
For apprentice rates see "Apprentice- PILE DRIVER"						
BACKHOE/FRONT-END LOADER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$0.00	\$0.00	\$46.74
	12/01/2019	\$35.65	\$11.69	\$0.00	\$0.00	\$47.34
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BATCH/CEMENT PLANT - ON SITE <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$0.00	\$0.00	\$46.21
	12/01/2019	\$35.12	\$11.69	\$0.00	\$0.00	\$46.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BULLDOZER/POWER SHOVEL/TREE SHREDDER <i>ENGINEERS LOCAL 98</i> <i>/CLAM SHELL OPERATING</i>	06/01/2019	\$35.05	\$11.69	\$0.00	\$0.00	\$46.74
	12/01/2019	\$35.65	\$11.69	\$0.00	\$0.00	\$47.34
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$0.00	\$0.00	\$46.21
	12/01/2019	\$35.12	\$11.69	\$0.00	\$0.00	\$46.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CRANE OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$38.55	\$11.69	\$0.00	\$0.00	\$50.24
	12/01/2019	\$39.15	\$11.69	\$0.00	\$0.00	\$50.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$68.52	\$9.90	\$0.00	\$0.00	\$78.42
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$48.94	\$9.90	\$0.00	\$0.00	\$58.84
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$73.41	\$9.90	\$0.00	\$0.00	\$83.31
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$102.78	\$9.90	\$0.00	\$0.00	\$112.68
For apprentice rates see "Apprentice- PILE DRIVER"						
FIREMAN <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$0.00	\$0.00	\$46.21
	12/01/2019	\$35.12	\$11.69	\$0.00	\$0.00	\$46.81

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 98 Class 3

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.71	\$11.69	\$0.00	\$0.00	\$32.40
2	70	\$24.16	\$11.69	\$0.00	\$0.00	\$35.85
3	80	\$27.62	\$11.69	\$0.00	\$0.00	\$39.31
4	90	\$31.07	\$11.69	\$0.00	\$0.00	\$42.76

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.07	\$11.69	\$0.00	\$0.00	\$32.76
2	70	\$24.58	\$11.69	\$0.00	\$0.00	\$36.27
3	80	\$28.10	\$11.69	\$0.00	\$0.00	\$39.79
4	90	\$31.61	\$11.69	\$0.00	\$0.00	\$43.30

Notes:

Steps 1-2 are 1000 hrs.; Steps 3-4 are 2000 hrs.

Apprentice to Journeyworker Ratio:1:6

FLAGGER & SIGNALER (HEAVY & HIGHWAY)	06/01/2019	\$22.50	\$7.85	\$0.00	\$0.00	\$30.35
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2019	\$23.50	\$7.85	\$0.00	\$0.00	\$31.35
	06/01/2020	\$23.50	\$7.85	\$0.00	\$0.00	\$31.35
	12/01/2020	\$24.50	\$7.85	\$0.00	\$0.00	\$32.35
	06/01/2021	\$24.50	\$7.85	\$0.00	\$0.00	\$32.35
	12/01/2021	\$24.50	\$7.85	\$0.00	\$0.00	\$32.35

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

FORK LIFT/CHERRY PICKER	06/01/2019	\$34.74	\$11.69	\$0.00	\$0.00	\$46.43
27F WEST OPERATING ENGINEERS LOCAL 98	12/01/2019	\$35.34	\$11.69	\$0.00	\$0.00	\$47.03

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATORS/LIGHTING PLANTS	06/01/2019	\$31.29	\$11.69	\$0.00	\$0.00	\$42.98
OPERATING ENGINEERS LOCAL 98	12/01/2019	\$31.89	\$11.69	\$0.00	\$0.00	\$43.58

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GRADER/TRENCHING MACHINE/DERRICK	06/01/2019	\$35.05	\$11.69	\$0.00	\$0.00	\$46.74
OPERATING ENGINEERS LOCAL 98	12/01/2019	\$35.65	\$11.69	\$0.00	\$0.00	\$47.34

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

LABORER	06/03/2019	\$31.50	\$7.85	\$0.00	\$0.00	\$39.35
LABORERS - ZONE 3 (BUILDING & SITE)	12/02/2019	\$32.31	\$7.85	\$0.00	\$0.00	\$40.16

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LABORER - Zone 3 Building & Site

Effective Date - 06/03/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$18.90	\$7.85	\$0.00	\$0.00	\$26.75
2	70	\$22.05	\$7.85	\$0.00	\$0.00	\$29.90
3	80	\$25.20	\$7.85	\$0.00	\$0.00	\$33.05
4	90	\$28.35	\$7.85	\$0.00	\$0.00	\$36.20

Effective Date - 12/02/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.39	\$7.85	\$0.00	\$0.00	\$27.24
2	70	\$22.62	\$7.85	\$0.00	\$0.00	\$30.47
3	80	\$25.85	\$7.85	\$0.00	\$0.00	\$33.70
4	90	\$29.08	\$7.85	\$0.00	\$0.00	\$36.93

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY)	06/01/2019	\$31.50	\$7.85	\$0.00	\$0.00	\$39.35
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2019	\$32.29	\$7.85	\$0.00	\$0.00	\$40.14
	06/01/2020	\$33.10	\$7.85	\$0.00	\$0.00	\$40.95
	12/01/2020	\$33.91	\$7.85	\$0.00	\$0.00	\$41.76
	06/01/2021	\$34.75	\$7.85	\$0.00	\$0.00	\$42.60
	12/01/2021	\$35.58	\$7.85	\$0.00	\$0.00	\$43.43

Apprentice - LABORER (Heavy & Highway) - Zone 3

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$18.90	\$7.85	\$0.00	\$0.00	\$26.75
2	70	\$22.05	\$7.85	\$0.00	\$0.00	\$29.90
3	80	\$25.20	\$7.85	\$0.00	\$0.00	\$33.05
4	90	\$28.35	\$7.85	\$0.00	\$0.00	\$36.20

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.37	\$7.85	\$0.00	\$0.00	\$27.22
2	70	\$22.60	\$7.85	\$0.00	\$0.00	\$30.45
3	80	\$25.83	\$7.85	\$0.00	\$0.00	\$33.68
4	90	\$29.06	\$7.85	\$0.00	\$0.00	\$36.91

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MECHANIC/WELDER/BOOM TRUCK <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$0.00	\$0.00	\$46.21
	12/01/2019	\$35.12	\$11.69	\$0.00	\$0.00	\$46.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$30.21	\$11.69	\$0.00	\$0.00	\$41.90
	12/01/2019	\$30.81	\$11.69	\$0.00	\$0.00	\$42.50
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS VI <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$28.23	\$11.69	\$0.00	\$0.00	\$39.92
	12/01/2019	\$28.83	\$11.69	\$0.00	\$0.00	\$40.52
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PANEL & PICKUP TRUCKS DRIVER <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.08	\$12.41	\$0.00	\$0.00	\$46.49
	12/01/2019	\$34.08	\$12.41	\$0.00	\$0.00	\$46.49
	06/01/2020	\$34.98	\$12.41	\$0.00	\$0.00	\$47.39
	08/01/2020	\$34.98	\$12.91	\$0.00	\$0.00	\$47.89
	12/01/2020	\$34.98	\$12.91	\$0.00	\$0.00	\$47.89
	06/01/2021	\$35.78	\$12.91	\$0.00	\$0.00	\$48.69
	08/01/2021	\$35.78	\$13.41	\$0.00	\$0.00	\$49.19
	12/01/2021	\$35.78	\$13.41	\$0.00	\$0.00	\$49.19
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$0.00	\$0.00	\$46.74
	12/01/2019	\$35.65	\$11.69	\$0.00	\$0.00	\$47.34
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$0.00	\$0.00	\$46.21
	12/01/2019	\$35.12	\$11.69	\$0.00	\$0.00	\$46.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROLLER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$33.91	\$11.69	\$0.00	\$0.00	\$45.60
	12/01/2019	\$34.51	\$11.69	\$0.00	\$0.00	\$46.20
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SCRAPER <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$0.00	\$0.00	\$46.21
	12/01/2019	\$35.12	\$11.69	\$0.00	\$0.00	\$46.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-PROPELLED POWER BROOM <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$31.29	\$11.69	\$0.00	\$0.00	\$42.98
	12/01/2019	\$31.89	\$11.69	\$0.00	\$0.00	\$43.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.54	\$12.41	\$0.00	\$0.00	\$46.95
	12/01/2019	\$34.54	\$12.41	\$0.00	\$0.00	\$46.95
	06/01/2020	\$35.44	\$12.41	\$0.00	\$0.00	\$47.85
	08/01/2020	\$35.44	\$12.91	\$0.00	\$0.00	\$48.35
	12/01/2020	\$35.44	\$12.91	\$0.00	\$0.00	\$48.35
	06/01/2021	\$36.24	\$12.91	\$0.00	\$0.00	\$49.15
	08/01/2021	\$36.24	\$13.41	\$0.00	\$0.00	\$49.65
	12/01/2021	\$36.24	\$13.41	\$0.00	\$0.00	\$49.65

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.83	\$12.41	\$0.00	\$0.00	\$47.24
	12/01/2019	\$34.83	\$12.41	\$0.00	\$0.00	\$47.24
	06/01/2020	\$35.73	\$12.41	\$0.00	\$0.00	\$48.14
	08/01/2020	\$35.73	\$12.91	\$0.00	\$0.00	\$48.64
	12/01/2020	\$35.73	\$12.91	\$0.00	\$0.00	\$48.64
	06/01/2021	\$36.53	\$12.91	\$0.00	\$0.00	\$49.44
	08/01/2021	\$36.53	\$13.41	\$0.00	\$0.00	\$49.94
	12/01/2021	\$36.53	\$13.41	\$0.00	\$0.00	\$49.94
TRACTORS <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$33.91	\$11.69	\$0.00	\$0.00	\$45.60
	12/01/2019	\$34.51	\$11.69	\$0.00	\$0.00	\$46.20
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$35.12	\$12.41	\$0.00	\$0.00	\$47.53
	12/01/2019	\$35.12	\$12.41	\$0.00	\$0.00	\$47.53
	06/01/2020	\$36.02	\$12.41	\$0.00	\$0.00	\$48.43
	08/01/2020	\$36.02	\$12.91	\$0.00	\$0.00	\$48.93
	12/01/2020	\$36.02	\$12.91	\$0.00	\$0.00	\$48.93
	06/01/2021	\$36.82	\$12.91	\$0.00	\$0.00	\$49.73
	08/01/2021	\$36.82	\$13.41	\$0.00	\$0.00	\$50.23
	12/01/2021	\$36.82	\$13.41	\$0.00	\$0.00	\$50.23
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.						
VAC-HAUL/CATCH BASIN CLEANING <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2019	\$34.54	\$12.41	\$0.00	\$0.00	\$46.95
	12/01/2019	\$34.54	\$12.41	\$0.00	\$0.00	\$46.95
	06/01/2020	\$35.44	\$12.41	\$0.00	\$0.00	\$47.85
	08/01/2020	\$35.44	\$12.91	\$0.00	\$0.00	\$48.35
	12/01/2020	\$35.44	\$12.91	\$0.00	\$0.00	\$48.35
	06/01/2021	\$36.24	\$12.91	\$0.00	\$0.00	\$49.15
	08/01/2021	\$36.24	\$13.41	\$0.00	\$0.00	\$49.65
	12/01/2021	\$36.24	\$13.41	\$0.00	\$0.00	\$49.65

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.

WEEKLY PAYROLL RECORDS REPORT
& STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, Section 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 next 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.

In addition, each such contractor, subcontractor or public body shall furnish to the Department of Labor & Industries within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE	
_____, 20____	
I, _____	_____
(Name of signatory party)	(Title)
do hereby state:	
That I pay or supervise the payment of the persons employed by	
_____	_____
(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 _____	



The Commonwealth of Massachusetts
Pursuant to G.L. c. 82A §1 and 520 CMR 14.00 et seq.
(as amended)



TOWN OF LONGMEADOW

ROAD OPENING AND TRENCH PERMIT APPLICATION

SECTION 1 - SITE INFORMATION

ENTER DIG SAFE NUMBER: _____

1.1 Property Address:

Street Name

City / Town

Zip Code _____

1.3 Description, location and purpose of proposed trench:

1.4 Anticipated Date to Begin Trench Operation

1.5 Anticipated Date Conclude Trench Operation

1.2 Map Number _____ Lot/Parcel Number _____
Builder's Lot No _____ Block _____

SECTION 2 - PROPERTY OWNERSHIP AND PERMIT HOLDER INFORMATION

2.1 Owner of Record:

Name: (Print) _____ Address : _____
Signature _____ Telephone: _____

2.2 Excavator Permit Holder Information:

Name: (Print) _____ Address _____
Signature: _____ Telephone/Emergency Contact Number _____

2.3 Name and Contact Information of Insurer:

Company Name _____ Telephone _____
Address _____
Insurance Certificate #: _____ Policy Expiration Date _____

THEY ARE FAMILIAR WITH, OR, BEFORE COMMENCEMENT OF THE WORK, WILL BECOME FAMILIAR WITH, ALL LAWS AND REGULATIONS APPLICABLE TO WORK PROPOSED, INCLUDING OSHA REGULATIONS, G.L. c. 82A, 520 CMR 7.00 et seq., AND ANY APPLICABLE MUNICIPAL ORDINANCES, BY-LAWS AND REGULATIONS AND THEY COVENANT AND AGREE THAT ALL WORK DONE UNDER THE PERMIT ISSUED FOR SUCH WORK WILL COMPLY THEREWITH IN ALL RESPECTS AND WITH THE CONDITIONS SET FORTH BELOW.

THE UNDERSIGNED OWNER AUTHORIZES THE APPLICANT/EXCAVATOR TO APPLY FOR THE PERMIT AND THE EXCAVATOR TO UNDERTAKE SUCH WORK ON THE PROPERTY OF THE OWNER, AND ALSO, FOR THE DURATION OF CONSTRUCTION, AUTHORIZES PERSONS DULY APPOINTED BY THE MUNICIPALITY TO ENTER UPON THE PROPERTY TO MONITOR AND INSPECT THE WORK FOR CONFORMITY WITH THE CONDITIONS ATTACHED HERETO AND THE LAWS AND REGULATIONS GOVERING SUCH WORK.

THE UNDERSIGNED APPLICANT/EXCAVATOR AND OWNER AGREE JOINTLY AND SEVERALLY TO REIMBURSE THE MUNICIPALITY FOR ANY AND ALL COSTS AND EXPENSES INCURRED BY THE MUNICIPALITY IN CONNECTION WITH THIS PERMIT AND THE WORK CONDUCTED THEREUNDER, INCLUDING BUT NOT LIMITED TO ENFORCING THE REQUIREMENTS OF STATE LAW AND CONDITIONS OF THIS PERMIT, INSPECTIONS MADE TO ASSURE COMPLIANCE THEREWITH, AND MEASURES TAKEN BY THE MUNICIPALITY TO PROTECT THE PUBLIC WHERE THE APPLICANT OWNER OR EXCAVATOR HAS FAILED TO COMPLY THEREWITH INCLUDING POLICE DETAILS AND OTHER REMEDIAL MEASURES DEEMED NECESSARY BY THE MUNICIPALITY. THE UNDERSIGNED APPLICANT/EXCAVATOR AND OWNER AGREE JOINTLY AND SEVERALLY TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE MUNICIPALITY AND ALL OF ITS AGENTS AND EMPLOYEES FROM ANY AND ALL LIABILITY, CAUSES OR ACTION, COSTS, AND EXPENSES RESULTING FROM OR ARISING OUT OF ANY INJURY, DEATH, LOSS, OR DAMAGE TO ANY PERSON OR PROPERTY DURING THE WORK CONDUCTED UNDER THIS PERMIT.

_____ DATE _____
EXCAVATOR SIGNATURE

_____ DATE _____
OWNER'S SIGNATURE (IF DIFFERENT)

For City/Town use -- Do not write in this section

PERMIT NUMBER _____

PERMITTING AUTHORITY _____ **Town Engineer** **Date** _____
Director of Public Works
Town Manager

CONDITIONS AND REQUIREMENTS PURSUANT TO G.L.C.82A AND 520 CMR 14.00 et seq. (as amended)

By signing the application, the applicant/excavator understands and agrees to comply with the following:

- i. No trench may be excavated unless the requirements of sections 40 through 40D of chapter 82, and any accompanying regulations, have been met and this permit is invalid unless and until said requirements have been complied with by the excavator applying for the permit including, but not limited to, the establishment of a valid excavation number with the underground plant damage prevention system as said system is defined in section 76D of chapter 164 (DIG SAFE);
- ii. Trenches may pose a significant health and safety hazard. Pursuant to Section 1 of Chapter 82 of the General Laws, an excavator shall not leave any open trench unattended without first making every reasonable effort to eliminate any recognized safety hazard that may exist as a result of leaving said open trench unattended. Excavators should consult regulations promulgated by the Department of Public Safety in order to familiarize themselves with the recognized safety hazards associated with excavations and open trenches and the procedures required or recommended by said department in order to make every reasonable effort to eliminate said safety hazards which may include covering, barricading or otherwise protecting open trenches from accidental entry.
- iii. Persons engaging in any in any trenching operation shall familiarize themselves with the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CFR 1926.650 et.seq., entitled Subpart P "Excavations".
- iv. Excavators engaging in any trenching operation who utilize hoisting or other mechanical equipment subject to chapter 146 shall only employ individuals licensed to operate said equipment by the Department of Public Safety pursuant to said chapter and this permit must be presented to said licensed operator before any excavation is commenced;
- v. By applying for, accepting and signing this permit, the applicant hereby attests to the following: (1) that they have read and understands the regulations promulgated by the Department of Public Safety with regard to construction related excavations and trench safety; (2) that he has read and understands the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CFR 1926.650 et.seq., entitled Subpart P "Excavations" as well as any other excavation requirements established by this municipality; and (3) that he is aware of and has, with regard to the proposed trench excavation on private property or proposed excavation of a city or town public way that forms the basis of the permit application, complied with the requirements of sections 40-40D of chapter 82A.

The permit shall be posted in plain view on the site of the trench.

Summary of Excavation and Trench Safety Regulation (520 CMR 14.00 et seq.)

This summary was prepared by the Massachusetts Department of Public Safety pursuant to G.L.c.82A and does not include all requirements of the 520 CMR 14.00. To view the full regulation and G.L.c.82A, go to www.mass.gov/dps

Pursuant to M.G.L. c. 82, § 1, the Department of Public Safety, jointly with the Division of Occupational Safety, drafted regulations relative to trench safety. The regulation is codified in section 14.00 of title 520 of the Code of Massachusetts Regulations. The regulation requires all excavators to obtain a permit prior to the excavation of a trench made for a construction-related purpose on public or private land or rights-of-way. All municipalities must establish a local permitting authority for the purpose of issuing permits for trenches within their municipality. Trenches on land owned or controlled by a public (state) agency requires a permit to be issued by that public agency unless otherwise designated.

In addition to the permitting requirements mandated by statute, the trench safety regulations require that all excavators, whether public or private, take specific precautions to protect the general public and prevent unauthorized access to unattended trenches. Accordingly, unattended trenches must be covered, barricaded or backfilled. Covers must be road plates at least ¾" thick or equivalent; barricades must be fences at least 6' high with no openings greater than 4" between vertical supports or openings greater than 4" may be protected by solid guards or suitable materials, including plywood or wood planks; backfilling must be sufficient to eliminate the trench. Alternatively, excavators may choose to attend trenches at all times, for instance by hiring a police detail, security guard or other attendant who will be present during times when the trench will be unattended by the excavator.

The regulations further provide that local permitting authorities, the Department of Public Safety, or the Division of Occupational Safety may order an immediate shutdown of a trench in the event of a death or serious injury; the failure to obtain a permit; or the failure to implement or effectively use adequate protections for the general public. The trench shall remain shutdown until re-inspected and authorized to re-open provided, however, the excavators shall have the right to appeal an immediate shutdown. Re-inspection must occur within two (2) business days of written notifications by the excavator to the Permitting Authority that it has complied with all repairs/corrections ordered. Permitting authorities are further authorized to suspend or revoke a permit following a hearing. Excavators may also be subject

to administrative fines issued by the Department of Public Safety for identified violations.

The Applicant or his/her representative shall notify the Longmeadow DPW immediately upon commencement of the work, and again three (3) hours prior to backfilling, and is required to complete the work in accordance with the Town of Longmeadow's Road Opening Specifications. **A road opening permit is required for any construction that is to take place within the town roadway right of way regardless of whether the road surface is physically cut into.** At the time of submittal, all road opening permits shall include a site location drawing clearly indicating the edge of roadway pavement and the bounds of the utility cut/impacted area. At the time of the work the Applicant shall have this permit, approved by the DPW, in his/her possession. Conditions of this Permit are spelled out on the attached sheets. A "Typical Trench Detail" is provided upon request.

The Applicant and/or their representative is required upon disruption to any utilities encountered to notify the following departments immediately:

Longmeadow DPW

Longmeadow Police Dept.

The Applicant must also notify the owner of the utility. The following is a list of the various utility owners and their phone numbers:

Conditions and Permit Requirements

- No backfilling of the trench is permitted before an inspection is made by the DPW Director or his/her agent. Inspection times of 8:00 AM and 2:00 PM have been established.
- Traffic shall be maintained at all times. The holder of this permit shall contact the Police Chief before any construction work begins to determine if police will be required. The Grantee will be responsible for all police expenses.
- The Grantee shall provide adequate signs, barriers and lights to warn pedestrians and motorists of construction. The type and number shall meet current standards as approved by the Massachusetts Highway Department. The contractor shall hold the Town harmless for any deficiencies.
- The new overlay shall be placed immediately after the edges of the cut have been prepared with hot rubberized asphalt, not liquid track coat. If this material cannot be provided within reason, the DPW Director/agent will determine what material can be used in its place with this permit.
- If the DPW Director deems it necessary, an inspector shall be assigned, to the work area and the cost of the inspector shall be charged to the Grantee. The holder of this permit is obligated to pay all expenses in conjunction with this permit.
- When necessary as in the opinion of the DPW, the Grantee shall notify residents in the area of the excavation, by certified letter, 48 hours prior to commencing work.
- The requested road excavation permit shall not be later than November 15 or no sooner than April 1 except by special permission of the DPW Director or alternately Town Engineer, of the Department.

Road Cut Requirements on Longmeadow Street (RT. 5)

- Maintain Traffic flow at all time. One lane closure is permitted at a time.
- Trench Backfill and pavement restoration:
 1. All Trenches shall be backfilled with excavatable flowable fill up to Concrete base layer.
 2. Existing road base (8" thick concrete) shall be sawcut, drilled and doweled with #4 rebar (at 18-24" off center) prior to placement of concrete slab. Concrete mix shall be of at least 4000psi strength.
 3. Three inches of bituminous concrete pavement (modified top) shall be placed in two lifts over the newly cured concrete base. Concrete base shall meet minimum 4000 psi strength prior to placement of HMA overlayment.
 4. Pavement markings shall be replaced as needed to meet prior striping.

Road Cut Requirements on Newly Paved Roads

- No trench cut shall be permitted in reconstructed roads or roads that have been overlaid for a period of 5 years from the date of completion.
- At the discretion of the Superintendent of Public Works, a roadway surface may be disturbed within the 5 year moratorium, as an exception, only under the strict adherence of the following conditions:
 1. All Trenches shall be backfilled with excavatable flowable fill.
 2. The full width of the roadway shall be cold paned to a depth of 2 inches for a total distance of 20 feet minimum from the outside edge of the trench in each direction longitudinal to the Roadway.

3. Two inches of bituminous concrete pavement (modified top) shall be installed in the cold Planed area.
4. Pavement markings shall be replaced as needed to meet prior striping.

Summary of 1926 CFR Subpart P -OSHA Excavation Standard

This is a worker protection standard, and is designed to protect employees who are working inside a trench. This summary was prepared by the Massachusetts Division of Occupational Safety and not OSHA for informational purposes only and does not constitute an official interpretation by OSHA of their regulations, and may not include all aspects of the standard.

For further information or a full copy of the standard go to www.osha.gov.

- **Trench Definition per the OSHA standard:**
 - An excavation made below the surface of the ground, narrow in relation to its length.
 - In general, the depth is greater than the width, but the width of the trench is not greater than fifteen feet.
- **Protective Systems** to prevent soil wall collapse are always required in trenches deeper than 5', and are also required in trenches less than 5' deep when the competent person determines that a hazard exists. Protection options include:
 - Shoring. Shoring must be used in accordance with the OSHA Excavation standard appendices, the equipment manufacturer's tabulated data, or designed by a registered professional engineer.
 - Shielding (Trench Boxes). Trench boxes must be used in accordance with the equipment manufacturer's tabulated data, or a registered professional engineer.
 - Sloping or Benching. In Type C soils (what is most typically encountered) the excavation must extend horizontally 1 ½ feet for every foot of trench depth on both sides, 1 foot for Type B soils, and ¾ foot for Type A soils.
 - A registered professional engineer must design protective systems for all excavations greater than 20' in depth.
- **Ladders** must be used in trenches deeper than 4'.
 - Ladders must be inside the trench with workers at all times, and located within 25' of unobstructed lateral travel for every worker in the trench.
 - Ladders must extend 3' above the top of the trench so workers can safely get onto and off of the ladder.
- **Inspections** of every trench worksite are required:
 - Prior to the start of each shift, and again when there is a change in conditions such as a rainstorm.
 - Inspections must be conducted by the competent person (see below).
- **Competent Person(s) is:**
 - Capable (i.e., trained and knowledgeable) in identifying existing and predictable hazards in the trench, and other working conditions which may pose a hazard to workers, and
 - Authorized by management to take necessary corrective action to eliminate the hazards. Employees must be removed from hazardous areas until the hazard has been corrected.
- **Underground Utilities** must be:
 - Identified prior to opening the excavation (e.g., contact Digsafe).
 - Located by safe and acceptable means while excavating.
 - Protected, supported, or removed once exposed.
- **Spoils** must be kept back a minimum of 2' from the edge of the trench.
- **Surface Encumbrances** creating a hazard must be removed or supported to safeguard employees. Keep heavy equipment and heavy material as far back from the edge of the trench as possible.
- **Stability of Adjacent Structures:**
 - Where the stability of adjacent structures is endangered by creation of the trench, they must be underpinned, braced, or otherwise supported.
 - Sidewalks, pavements, etc. shall not be undermined unless a support system or other method of protection is provided.
- **Protection from water accumulation hazards:**
 - It is not allowable for employees to work in trenches with accumulated water. If water control such as pumping is used to prevent water accumulation, this must be monitored by the competent person.
 - If the trench interrupts natural drainage of surface water, ditches, dikes or other means must be

used to prevent this water from entering the excavation.

• **Additional Requirements:**

- For mobile equipment operated near the edge of the trench, a warning system such as barricades or stop logs must be used.
- Employees are not permitted to work underneath loads. Operators may not remain in vehicles being loaded unless vehicles are equipped with adequate protection as per 1926.601(b)(6).
- Employees must wear high-visibility clothing in traffic work zones.
- Air monitoring must be conducted in trenches deeper than 4' if the potential for a hazardous atmosphere exists. If a hazardous atmosphere is found to exist (e.g., O₂ <19.5% or >23.5%, 20% LEL, specific chemical hazard), adequate protections shall be taken such as ventilation of the space.
- Walkways are required where employees must cross over the trench. Walkways with guardrails must be provided for crossing over trenches > 6' deep.
- Employees must be protected from loose rock or soil through protections such as scaling or protective barricades.

Permits Requesting (Check all that apply)

X	PERMIT	COST
X	Street Occupancy (\$165.00)	Fee Waived Town Project
X	Inspection Fee (\$80.00)	Fee Waived Town Project
X	Trench Safety (\$40.00)	Fee Waived Town Project

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

- A. Work of the Contract is shown and described in Drawings and Specifications entitled:
 Invitation for Bid (IFB): Western Drive Sewer Improvement Project
 Town of Longmeadow, MA
 September 26, 2019
- B. No materials, labor or equipment shall be furnished by the Owner under this Contract.
- C. Obtain all local permits and licenses necessary for the contemplated Work.
- D. Comply with the requirements of all permits issued for all portions of the Work under this Contract. Copies of permits, order of conditions, etc. appended to the document shall become part of this Contract.
- E. All Work shall be completed within the contract time as set forth in the Agreement Section 00500.

1.2 PROJECT SUMMARY

- A. The Work of this Contract includes but is not limited to the following:
 - 1. Construction of a new sanitary sewer main and services, sewer manholes, trench patch, and appurtenant work on Western Drive in Longmeadow as shown on the drawings. Full restoration of other items within the project limits disturbed by construction activities is required.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01140

WORK RESTRICTIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Project Management
 - 2. Work Hours
 - 3. Coordination
 - 4. Project meetings

1.2 PROJECT MANAGEMENT

- A. Retain on the Site, a competent, full time Superintendent, satisfactory to the Owner. The Superintendent shall not be changed, except with the consent of the Owner and shall be in full charge of the work. All instructions given to this person by the Engineer or the Owner shall be binding.
- B. The work must be completed in a continuous uninterrupted operation. Use sufficient personnel and adequate equipment to complete all the necessary work requirements within the period of time required by the Agreement.

1.3 WORK HOURS

- A. Unless specifically authorized by the Owner, the Work must be conducted during daylight hours on Monday through Friday, and within the time between 7:00 a.m. and 4:00 p.m. No work is to be done on holidays, Saturdays, Sundays or outside of the work hours described above, without prior written permission of the Owner.

1.4 COORDINATION

- A. Supply to the Owner the telephone/beeper number of a responsible person who may be contacted during off-hours for emergencies 24 hours a day, seven days a week.
- B. Prepare a contact list of phone numbers for all project personnel. Project list should include the Contractor, Engineer, Owner and local personnel including police, fire and ambulance.
- C. All utility shutdowns shall be coordinated with the Owner and the affected utility. No shutdown is to occur without authorization.

1.5 PROJECT MEETINGS

- A. Subject to the Owner's discretion, project meetings will be held on a weekly basis.
- B. Scheduling shall be discussed with all parties to be affected by upcoming work.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 DIVISION 0 AND DIVISION 1 WORK INCIDENTAL TO THE CONTRACT PRICE

- A. No separate measurement or payment will be made for work called for in Division 0 or Division 1 of the Contract Specifications, unless specifically covered under the Bid Items listed below. All costs associated with this work shall be considered incidental to the Contract Bid Price.
- B. Division 2 through Division 16 work will be measured and paid for at the Contractor's unit bid price or lump sum item cost as indicated on the Bid Form. Those payable work items, and related prices as bid, shall be the basis for all compensation to the Contractor for work performed under this Contract. Work not specifically included as a bid item, but which is required to properly and satisfactorily complete the work is considered ancillary and incidental to the bid item work, and payment for such work is considered to be included in the values as bid for payable items. Compensation for all work shall be made as a measured quantity of work under the appropriate bid items.

1.2 GRAVEL BORROW (ITEM #151)

- A. Measurement
 - 1. 'Gravel Borrow for Roadway' shall be measured by weight slips delivered to the site and countersigned by the Engineer. The conversion from tonnage to cubic yards shall be 1.8 tons per cubic yard regardless of actual volume placed.
- B. Payment
 - 1. 'Gravel Borrow' will be paid for at the contract unit price per cubic yard. Price shall include material, placement, and compaction, complete in place.

1.3 ASBESTOS REMOVAL (ITEM #182.2)

- A. Measurement
 - 1. ITEM 182.2 will be measured by the FOOT for the complete removal and disposal of the asbestos containing material regardless of material diameter.
- B. Payment
 - 1. This item will be paid for at the contract unit price per linear foot, and shall be full compensation for all labor, equipment, and materials incidental to this work. Payment will be at the contract unit price per FOOT for ITEM 182.2 REMOVAL OF ASBESTOS, as specified above including all materials, tools, equipment and labor necessary to complete the work specified above.
 - 2. All costs in connection with the protection of the general public, private property and all costs associated with the proper disposal of the material

removed shall be included in the price and no additional compensation will be allowed.

1.4 48" SANITARY SEWER MANHOLE WITH INVERT (ITEM #210)

A. Measurement

1. Sanitary Manholes will be measured by each regardless of depth.

B. Payment

1. This item will be paid for at the contract unit price per each complete in-place regardless of depth, including brick invert, backfill compacted to subgrade elevation and accepted. This item will also include all work necessary, and materials required, for adequately maintaining existing sanitary sewer flow throughout the project duration.

1.5 SANITARY SEWER MANHOLE REMOVED (ITEM #210.02)

A. Measurement

1. Sanitary Sewer Manholes Removed will be measured by each regardless of depth.

B. Payment

1. Removal of sanitary sewer manhole will be paid for at the contract unit price per each. Payment of the bid price shall be full compensation for all excavation, removal/disposal of structure, capping of existing pipes, and backfill compacted to subgrade elevation. Such price shall include all labor, equipment, and materials required for or incidental to the work. This item will also include all work necessary, and materials required, for adequately maintaining existing sanitary sewer flow throughout the project duration.

1.6 SANITARY SEWER MANHOLE ABANDONED (ITEM #210.05)

A. Measurement

1. Sanitary Sewer Manholes Abandoned will be measured by each regardless of depth.

B. Payment

Abandonment of sanitary sewer manhole will be paid for at the contract unit price per each. Payment of the bid price shall be full compensation for all excavation, removal/disposal of top of structure, capping of existing pipes, stone backfill, filter fabric, and backfill compacted to subgrade elevation. Such price shall include all labor, equipment, and materials required for or incidental to the work. This item will also include all work necessary, and materials required, for adequately maintaining existing sanitary sewer flow throughout the project duration

1.7 FRAME AND COVER (ITEM #221)

A. Measurement

1. Frame and Cover will be measured by each.

B. Payment

Frame and Cover will be paid for at the contract unit price per each. Payment of the bid price shall be full compensation of the furnishing, delivering, and installation of Frame and Cover to the site as shown on the Plans, and as directed by the Engineer. Such price shall include all labor, equipment, concrete collars, and materials required for or incidental to the work.

1.8 FRAME AND COVER REMOVED AND STACKED IN TOWN YARD (ITEM #223.1)

A. Measurement

1. Frame and Cover Removed and Stacked in Town Yard will be measured by each.

B. Payment

1. Frame and Cover Removed and Stacked will be paid for at the contract unit price per each. Payment of the bid price shall be full compensation of the removal and delivering to the Town of Longmeadow Department of Public Works yard as directed by the Engineer. Such price shall include all labor and equipment required for or incidental to the work.

1.9 2-INCH SDR-35 PVC SEWER PRESSURE PIPE (ITEM #250.02)

A. Measurement

1. '2-inch PVC SDR-35 Pressure Pipe Sanitary Service' shall be measured in place and the quantity to be paid for shall be the length in feet actually constructed as directed. Including a drop into the closed structure.

B. Payment

1. This item will be paid for at the contract unit price per linear foot of '2-inch PVC SDR-35 Sanitary Service', installed and complete in place. Price shall include all trench excavation, disposal of excess material, furnishing of pipe materials, metallic warning tape, fittings, installation, placement of bedding material, and compaction to subgrade, including all labor, equipment, and materials required and incidental to the work. Also included in this work is the installation of an inside drop into the manhole, and the removal of the existing sanitary lateral.

1.10 6-INCH PVC SDR-35 SANITARY SERVICE (ITEM #250.06)

A. Measurement

1. '6-inch PVC SDR-35 Sanitary Service' shall be measured in place and the quantity to be paid for shall be the length in feet actually constructed as directed. No deductions will be made for the length of fittings. Allowances for the cost of bends shall be included in the pipe unit price.
2. The end of pipe in closed structures shall not be considered for measurement.
3. Dense graded stone backfill required for the installation of 6-inch PVC SDR-35 pipe foundation and up to 6 inches above the pipe shall be included as part of the installation cost.

B. Payment

1. This item will be paid for at the contract unit price per linear foot of '6-inch PVC SDR-35 Sanitary Service', installed and complete in place. Price shall include all trench excavation, disposal of excess material, furnishing of pipe materials, metallic warning tape, bends/fittings, installation, stone, placement of re-used bedding material, and compaction to subgrade, including all labor, equipment, and materials required and incidental to the work.
2. Also included in this item is the work necessary for capping the existing sanitary sewer main per the Town of Longmeadow regulations.

1.11 8-INCH PVC SDR-35 SEWER MAIN (ITEM #250.08)

A. Measurement

1. '8-inch PVC SDR-35' shall be measured in place and the quantity to be paid for shall be the length in feet actually constructed as directed. The end of pipe in closed structures shall not be considered for measurement.
2. Dense graded stone backfill required for the installation of 8-inch PVC SDR-35 pipe foundation and up to 6 inches above the pipe shall be included as part of the installation cost.

B. Payment

1. This item will be paid for at the contract unit price per linear foot of '8-inch PVC SDR-35 sewer main, installed and complete in place. Price shall include all trench excavation, disposal of excess material, furnishing of pipe materials, installation, metallic warning tape, stone, placement of re-used bedding material, and compaction to subgrade, including all labor, equipment, and materials required and incidental to the work. Also included in this work is the work necessary for testing the sanitary sewer per the Town of Longmeadow regulations.

1.12 8-INCH X 6-INCH PVC "WYE" (ITEM #250.1)

A. Measurement

1. 8 inch x 6 inch PVC "WYE" will be measured by each installed in place. No deductions will be made for the length of fittings. Allowances for the cost of bends shall be included in the pipe unit price.

2. Dense graded stone backfill required for the installation of PVC “WYE” foundation and up to 6 inches above the pipe shall be included as part of the installation cost.

B. Payment

1. This item will be paid for at the contract unit price each of ‘8-inch x 6-inch PVC “WYE”, installed and complete in place. Price shall include all trench excavation, disposal of excess material, furnishing of pipe materials, installation, stone, placement of re-used bedding material, and compaction to subgrade, including all labor, equipment, and materials required and incidental to the work. Also included in this work is the work necessary for testing the sanitary sewer per the Town of Longmeadow regulations.

1.13 BITUMEN FOR TACK COAT (ITEM #452)

A. Measurement

1. Bitumen used as tack coat will be measured by the methods specified in the Mass Highway Standard Specifications for Highways and Bridges Section 452

B. Payment

1. Bitumen for Tack Coat shall be paid for at the contract unit price per gallon, complete in place.

1.14 SAW CUTTING BITUMINOUS CONCRETE PAVEMENT (ITEM #482.3)

A. Measurement

1. ‘Saw Cutting Bituminous Concrete Pavement’ will be measured along the actual saw cut as shown on the drawings or as ordered by the Engineer.

B. Payment

1. This item will be paid for at the contract unit price per linear foot, and shall be full compensation for all labor, equipment, and materials incidental to this work.

1.15 HOT MIX ASPHALT TRENCH REPAIR (2 INCH SURFACE COURSE – 9.5 OVER 2 INCH BASE COURSE – 12.5) (ITEM #703.1)

A. Measurement

1. ‘Hot Mix Asphalt Trench Repair’ shall be measured by the ton and shall be the actual and verified tonnage complete in place and approved. The quantity shall be determined only by weight slips that have been properly countersigned by the Engineer at time of delivery.
2. The maximum trench repair pay line widths will be seven feet. When the actual surface trench repair is less, the actual width shall be paid for at the applicable

unit price. The conversion from tonnage to square yard @ 4 Inches of Hot Mix Asphalt per square yard shall be .23 Ton's.

B. Payment

1. The tonnage of bituminous concrete determined as provided above, will be paid for at the contract unit price per ton regardless of the kind of bituminous concrete required, complete in place including joint sealant, if required.

1.16 MOBILIZATION AND DEMOBILIZATION (ITEM #748)

A. Measurement

1. There shall be no measurement for the mobilization and demobilization to the project locations as this work shall be paid for on a lump sum basis.

B. Payment

1. Payment of the lump sum bid price shall be paid in two equal installments. The first installment will occur at the time the first pay requisition is submitted when the Contractor has initiated full-time construction activity. This payment will be 80% of the item's bid price. The second installation will be paid when the Contractor has completed all construction activity including final cleanup and punch list items. The second payment will be 20% of the item's bid price. In no case shall the total of both installments exceed 5 percent of the base bid price.

1.17 LOAM BORROW (ITEM #751)

A. Measurement

1. 'Loam Borrow' shall be measured by weight slips delivered to the site, countersigned by the Engineer. The conversion from tonnage to cubic yards shall be 1.8 tons per cubic yard regardless of actual volume placed. Should the delivery slips read by volume, the measurement will be taken by the delivery slips.

B. Payment

1. Payment 'Loam Borrow' will be paid for at the contract unit price per cubic yard. Price shall include material, placement, and raking, complete in place.

1.18 SEEDING (ITEM #765)

A. Measurement

1. This work will be measured for payment by the number of square yards of surface area accepted established perennial grass as specified.

SEED	PROPORTION	GERMINATION MINIIMUM	PURITY MINIMUM
Creeping Red Fescue	50%	85%	95%
	01270-6	Measurement and Payment	

Kentucky Blue	25%	85%	90%
Domestic Rye	10%	90%	98%
Red Top	10%	85%	92%
Ladino Clover	5%	85%	96%

- This work will be measured for payment by the number of square yards of surface area accepted established fertilizer as specified.

10-20-10

Nitrogen (N)	10% Minimum
Available Phosphoric Acid	20% Minimum
Water Soluble Potash	10% Minimum

B. Payment

- This work will be paid for at the Contract unit price per square yard for 'Seeding' including "Fertilizer" which price shall include all materials, mowing, maintenance, equipment, tools, labor, and work incidental thereto.

1.19 TRAFFIC CONTROL (ITEM #852)

A. Measurement

- There shall be no measurement for the traffic control signage as this work shall be on a lump sum basis.

B. Payment

- Payment of the lump sum bid price shall be full compensation for all labor, equipment, and materials required or incidental to the traffic control work.
- Payment will be made on a monthly basis as a percentage of the base bid lump sum price.

END OF SECTION

SECTION 01310

COORDINATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Coordinate progress of the Work to minimize interference with the operation of the existing facilities and other utilities in the roadway.
 - 2. Perform all coordination necessary to complete tie-ins to the existing water main.
- B. Related Sections
 - 1. Section 01325 – Scheduling of Construction
- C. Related Work Not Included
 - 1. Operation of existing facilities will be performed by the Owner unless otherwise specified. The Owner will assist in arranging operation of any existing valves and pipelines required by the Contractor to connect to existing pipelines, and no existing valves shall be operated without the Owner's knowledge.

1.2 SUBMITTALS

- A. Submit to the Owner and Engineer all requests for temporary shutdowns of facilities or interruption of operations at least 7 days prior to the beginning of any shutdown. No shutdown shall occur without the approval of the Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 GENERAL

- A. Owner will perform all operations of the existing water distribution system. Owner will assist in arranging operation of any existing facilities or equipment required by the Contractor to connect to existing facilities, and no existing equipment shall be operated without the Owner's knowledge.
- B. Maintain existing facilities in operation unless otherwise specifically permitted in these Specifications or approved by the Owner.
- C. Perform all construction activities so as to avoid interference with operations of the facility and the work of others.
- D. The Owner shall have the authority to order work stopped or prohibited, which would in his opinion, unreasonably result in stopping the necessary functions of the water distribution system. Any costs and/or delays associated with Owner authorized work stoppages due to the Contractor's operation shall be borne by the Contractor.
- E. Owner and Engineer shall be kept fully informed at least one week before the beginning of all work by Contractor which may affect Owner's operations.

3.2 SEQUENCE OF CONSTRUCTION

- A. Constructing the proposed improvements while maintaining existing operations will require a specific sequence of constructing portions of this project. The Contractor will be allowed as much flexibility as possible in scheduling the details of the project. The Contractor shall provide a detailed schedule as required in Section 01325.
- B. The Contractor shall incorporate the following project scheduling requirements into development of the schedule submitted as required in Section 01325:
 - 1. All components of the existing sanitary system must remain in operation throughout construction of the new mains unless otherwise specified herein.

END OF SECTION

SECTION 01325

SCHEDULING OF CONSTRUCTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Before starting work, Contractor shall submit to Engineer a Schedule of Operations and Construction within ten days after the date of the Notice to Proceed, and no later than one week before the start of construction. No work shall be started without approval of the schedule. When working on the project, Contractor must carry on his activities with full crews and in an efficient manner, so as to cause the minimum inconvenience to the public.
 - a. The schedule shall reflect the proposed methods, the sequence of work, and the time of completion of various phases of the work within the completion time specified in the Contract.
 - b. The schedule shall be detailed with daily activities and milestone completion dates.
 - c. The schedule shall reflect the completion of all work including punch list work and clean-up.
 - d. The work shall be rescheduled by Contractor if changes in the work scope alter the original schedule or he fails to comply with the original schedule. The revised schedule shall be submitted within 7 days of the receipt of Engineer's request.
 - e. Contractor shall inform Engineer at least two weeks in advance of commencing work under this Contract.
2. Before starting work, Contractor shall submit to Engineer an estimate of rate of contract payments for the project on a monthly basis. If, in the opinion of Engineer, Contractor has deviated significantly from this projection during the course of the project, Contractor shall submit a revised rate of expenditure schedule to Engineer.

END OF SECTION

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Product Data
2. Shop Drawings
3. Product Listing and Manufacturers Qualifications
4. Samples
5. Certificates of Compliance

1.2 SUBMITTALS

A. Product Data

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

B. Shop Drawings

1. Shop Drawings include, but are not necessarily limited to, custom-prepared data such as fabrication and erection/installation drawings, schedule information, piece part drawings, actual shopwork manufacturing instructions, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certification, as applicable to the Work.
2. Submit Shop Drawings at the proper time so as to prevent delays in delivery of materials. Coordinate submittals for related or interdependent equipment; fragmented submittals will not be accepted for review by the Engineer. Advise the Engineer in writing of any deviations from the requirements of the Contract Documents.
3. Check all Shop Drawings regarding measurements, size of members, materials, and details to determine if they conform to the Contract Documents. Drawings found to be inaccurate, not in compliance, or otherwise in error shall be returned to the subcontractors for correction before submission to the Engineer. Drawings that are current shall be marked with the date, name, and approval stamp of the Contractor.

4. All details on Shop Drawings submitted for approval shall show clearly the relation of the various parts to the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the Shop Drawings before being submitted for approval.
5. No material or equipment shall be purchased or fabricated until the required Shop Drawings have been submitted and approved. Materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by the Shop Drawings.
6. Until the necessary approval has been given, do not proceed with any portion of the work, the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which approval is required.
7. The Engineer's review and approval of Shop Drawings shall not be construed as a complete check nor does it relieve the Contractor from responsibility for any departures or deviations from the requirements of the Contract Documents unless he has, in writing, called the Engineer's attention to such deviations at the time of submission. The Engineer's review of the shop drawings shall not relieve the Contractor from the responsibility for proper fitting of the Work, or the responsibility of furnishing any work required by the Contract Documents which may not be indicated on the Shop Drawings. The Contractor shall be solely responsible for any quantities shown on the Shop Drawings.
8. Should the Contractor submit for approval equipment that requires modifications to the structures, piping, layout, or other details shown on the Drawings, he shall also submit for approval details of the proposed modifications. If such equipment and modifications are approved, perform all work necessary to make such modifications at no additional cost to the Owner.

C. Product Listing and Manufacturers Qualifications

1. Within 7 calendar days after execution of the Notice to Proceed, submit to the Engineer the names and addresses of the manufacturers and suppliers of materials and equipment to be incorporated into the Work.
2. Within 30 days after Notice to Proceed, submit complete list of major products proposed for use, with specification section number, name of manufacturer, trade name, and model number of each product. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation and reference standards. Specifically identify the products, the anticipated schedule for delivery and storage, and the estimated value thereof for materials which the Contractor intends to request approval for off-site storage.

D. Contractor's Responsibilities

1. Review Shop Drawings, product data, and samples prior to submission and verify and determine:
 - a. Field measurements

- b. Conformance with the Contract Documents. Advise the Engineer in writing of any deviations from the requirements of the Contract Documents.
2. Provide submittal identification and information including:

The date of submission and dates of previous submissions, project title, Contractor identification, Specification section, manufacturer and supplier, identified field dimensions, applicable standards and identification of deviations from Contract Documents.
 3. Provide 2 sets of submittals, 1 of which will be retained by the Engineer. A maximum of 3 sets will be returned by the Engineer with notations to the Contractor.
 4. Apply the Contractor's stamp, initials, or signature certifying that the submission has been thoroughly reviewed for completeness, compliance with the Contract Documents, coordination with adjacent construction and dimensional compatibility. Items submitted without the stamp or that are incomplete will be returned by the Engineer for rework and resubmission.
 5. Provide space for the Engineer's review stamps and comments. The Engineer will review Shop Drawings for design, general methods of construction and detailing.
 6. Submittals shall be accompanied by a transmittal form referencing the project name and applicable Specification section. Submittals shall be referenced with consecutive numbering. Resubmittals shall bear the same transmittal number with a sequential letter suffix commencing with "A".
 7. Revise and resubmit submittals as required, identify all changes made since last submittal.
 8. Distribute copies of reviewed submittals to concerned parties with instructions to promptly report any inability to comply with the provisions or integrate the requirements with interfacing work.

1.3 REVIEW OF SHOP DRAWINGS

- A. Submittals will be returned under one of the following codes:
 1. APP – “Approved” is assigned when there are no notations or comments on the submittal. Equipment or materials may be released for manufacture.
 2. AAN – “Approved as Noted” is assigned when there are notations or comments on the submittal, but the equipment or materials may still be released for manufacture. All notations and comments must be incorporated in the final product.
 3. R&R – “Revise and Resubmit” is assigned when there are extensive notations and comments requiring a resubmittal of the package. It may also be assigned when there is a significant amount of missing material required for the Engineer to perform a complete review.
 4. NA – “Not Approved” is assigned when the submittal does not meet the requirements of the Contract Documents. The entire package must be

resubmitted, revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the requirements of the Contract Documents.

5. REV – “Reviewed – No Action Taken” is assigned to submittals that are reviewed but for which there is no approval required by the Engineer. Examples of the type of submittals that receive this stamp include, but are not limited to, design calculations stamped by another Professional Engineer and submittals of the Contractor’s means and methods that have not been expressly specified.

1.4 QUALITY ASSURANCE

A. Certificates of Compliance

1. Provide sworn certificates from the manufacturer or material supplier that the materials and fabrications provided under the Specification section conform to the Contract Documents.
2. Submit Certificates of Compliance in triplicate.
3. Certificates shall be signed by an officer of the manufacturer’s corporation and witnessed by a Notary Public.

1.5 SEQUENCING

A. General Procedures for Submission and Resubmission of Shop Drawings, Product Data, and Samples

1. Coordination
 - a. Prepare and submit documentation in advance of fabrication and product manufacturer, so that the installation will not be delayed, other related work can be properly coordinated, and there is adequate time for review and resubmission, if required.
 - b. No extension of time will be authorized due to failure to provide approvable submittals sufficiently in advance of the Work.
 2. Resubmission
 - a. Make corrections and modifications required by the Engineer and resubmit until approved.
 - b. Clearly identify changes made to Shop Drawings and product data and indicate other changes that have been made other than those requested by the Engineer.
 3. Distribution
 - a. Distribute approved Shop Drawings and approved product data to the Project Site and elsewhere as required to communicate the information to Suppliers, Subcontractors, and field personnel.
- B. Samples will be retained by the Engineer on the Site.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01550

TRAFFIC CONTROL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Traffic requirements
2. Traffic officers

B. Payment

1. OWNER is responsible for paying for traffic officers, in the event they are required. CONTRACTOR is responsible for scheduling the traffic officers, with OWNER's approval, and for providing all documentation.
2. OWNER will deduct from monies due CONTRACTOR for the following abnormal and unreasonable expenses:
 - a. CONTRACTOR caused delays in the prosecution of work that result in hiring traffic officers for more hours than would have been required during normal prosecution of work.
 - b. Reconstruction and/or reinstallation of any portions of the work, as a result of improper initial installation, for which traffic officers are required.
 - c. Traffic officers required at a site where CONTRACTOR is not working or outside of CONTRACTOR's standard work day as a result of obstructions to traffic that remain in the traveled way.
 - d. All other incidents resulting from CONTRACTOR'S operations requiring traffic officers that would not normally be encountered during the progress of a well-organized project employing proper construction methods.
 - e. When traffic officers are requested for the convenience of CONTRACTOR and are not otherwise considered necessary to the work.

1.2 REFERENCES

- A. Manual of Uniform Traffic Control Devices, U.S. Department of Transportation

1.3 TRAFFIC REQUIREMENTS

- A. Arrange construction activity so that all streets shall remain open to at least one-way traffic during periods of actual work, and to unimpeded, two-way traffic during all other periods. Temporary total road closures can only be approved by the Owner.
- B. Provide a traffic control plan to ENGINEER for approval showing traffic control signs, barrels, cones, traffic officers, including detour signs, meeting the approval of ENGINEER, OWNER and local Police Departments in accordance with the Manual of Uniform Traffic Control Devices.

- C. Determine the location of each day's work and implement the approved traffic control plan. If the plan requires the use of traffic officers, notify the Police Department.
- D. CONTRACTOR shall have no claim of delay if he does not notify the Police Department of his scheduled location in time to arrange for traffic officers.
- E. Hand deliver written notice to individual houses affected by driveway and side road closings or detours a minimum 24 hours in advance. A recommended parking area outside the work limits shall be included in the notice.
- F. No separate payment will be made for traffic control. Contractor shall be responsible for scheduling Police Details should they be required as determined by the Owner. The Town of Longmeadow will make payment for all Police Details approved by the Owner.

1.4 TRAFFIC OFFICERS

- A. Uniformed traffic officers shall be required at locations deemed necessary by OWNER, working in conjunction with local Police and Fire Departments, for the protection of the public.
- B. The Police Chief or his representative, in consultation with OWNER's representative, will determine the number of officers required for the work.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01570

TEMPORARY EROSION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Dust control
 - 2. Drainage and erosion control
 - 3. Haybales and siltation fence
- B. Related Sections
 - 1. Section 02920 – Lawns and Grasses

1.2 TEMPORARY DUST CONTROL

- A. Exercise particular care to control dust both during and after construction. A mechanical street sweeper shall be used as needed.
- B. Prevent dust from becoming a nuisance or hazard. During construction, excavated material and open or stripped areas are to be properly policed and controlled so as to prevent spreading of the material.
- C. Control dust during and after construction using calcium chloride and/or salt. The Engineer may direct the Contractor to employ sprinkling of water in lieu of calcium chloride for dust control.
- D. During and after construction, all paved road and driveway surfaces are to be scraped and broomed free of excavated materials on a daily basis. The surfaces are to be hosed down or otherwise treated to eliminate active or potential dust conditions and the natural road or wearing surface is to be exposed.

1.3 DRAINAGE AND EROSION CONTROL

- A. Install and maintain sediment trapping systems at all catchbasins within the project limits.
- B. Discharge surface runoff from any disturbances to the site into silt containment basins. Siltation prevention measures utilizing haybale and geotextile fences for containment shall be taken before discharge to drainage systems.
- C. Provide additional work if necessary to control erosion and siltation throughout the duration of construction activities.

PART 2 PRODUCTS

2.1 HAYBALES

- A. Bales of hay required for siltation control shall be wire tied bales of the type normally used for siltation or erosion control or construction projects.

2.2 FILTER FABRIC

- A. Filter fabric siltation fencing shall be a woven filter fabric having a weight of at least 2.5 ounces per square yard, a thickness of at least 17 mils, a coefficient of permeability of not less than 0.0009 centimeters per second and allows a water flow rate of a minimum 40 gallons per minute per square yard. The material shall have a high sediment filtration capacity, high slurry flow and minimum clogging characteristics. The material shall be equal to 100x as manufactured by Mirafi, Inc., Charlotte, North Carolina.

PART 3 EXECUTION

3.1 EXECUTION

- A. Control of erosion and siltation during the construction is expected to require mulching, haybales, siltation fencing, diversion and control of storm water run-off, ponding areas and similar methods.
- B. Place filtration fabric under catchbasin grates.
- C. Control surface waters within the construction area through the use of temporary culverts or other means.
- D. Salvage existing loam and topsoil and stockpile this material for re-spreading where originally removed. On backfilling, grading shall be returned to preconstruction contours as much as possible and the stockpile of loam shall be spread over areas disturbed during construction activities.
- E. Maintain the restored areas until such time as the Work is accepted by the Owner. Maintenance shall include all grading, refertilizing, reseeding, remulching and/or netting which may be necessary.
- F. Seed shall be as specified under Section 02920.

3.2 CLEANING

- A. Remove any sediment that builds up around the haybales or catchbasins.
- B. Catchbasins that collect sediment as a result of the Work shall be thoroughly cleaned.

3.3 PAYMENT

- A. All work associated with temporary erosion controls will not be paid for separately, but included under the general cost of the work, unless otherwise specified.

END OF SECTION

SECTION 01600

CONTROL OF MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Products and Material
 - 2. Packaging, Handling and Storage of Materials
 - 3. Inspection of Offsite Work

1.2 QUALITY ASSURANCE

- A. Review all contract Drawings and Specifications with respect to specific system characteristics, applicability of materials and equipment for the intended purposes, sizes, orientation, and interface with other systems, both existing and proposed, and certify that the materials and equipment proposed will perform as specified prior to submitting shop drawings.
- B. Provide sworn certificates as to quality and quantity of materials where specified or requested by the Engineer.
- C. Obtain concurrence of the Engineer prior to processing, fabricating, or delivering material or equipment.

1.3 PRODUCTS AND MATERIAL

- A. Use in the Work only new and first quality material, conforming to the requirements of these Specifications and approved by the Engineer. If, after trial, it is found that sources of supply that have been approved do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved materials from other approved sources.
- B. Immediately remove defective materials and equipment from the site.

1.4 PACKAGING, HANDLING, AND STORAGE OF MATERIALS

- A. Progressively deliver materials and equipment to the Site so there will be neither delay in progress of the Work nor an accumulation of material that is not to be used within a reasonable time.
- B. Deliver products to the Site in their manufacturer's original container, with labels intact and legible.
 - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
 - 2. The Engineer may reject as non-complying such material and products that do not bear identification satisfactory to the Engineer as to the manufacturer, grade, quality, source, and other pertinent information.
- C. Except as otherwise approved by the Engineer, determine and comply with the manufacturer's recommendations on product storage, handling, and protection.

Provide manufacturer's documentation on recommended storage procedures when requested by the Engineer.

- D. Familiarize workmen and subcontractors with hazards associated with materials, equipment, and chemicals specified herein and take all necessary safety precautions.
- E. Areas available on the construction site for storage of material and equipment is very limited. Any such proposed locations shall be approved in advance by the Engineer.
- F. Store mechanical equipment subject to corrosive damage by the outdoor atmosphere (covered or not) in a heated, secured, insured commercial warehouse facility satisfactory to the Engineer. Equip drive motors with thermostatically controlled strip heaters.
- G. Outdoor storage with plastic, canvas, plywood or other cover will not be allowed except where specific approval for designated items not containing electrical components or bearings is obtained from the Engineer.
- H. No item judged rusty, corroded or otherwise damaged during storage will be accepted. Any electrical or instrumentation item determined by the Engineer to be damaged shall be removed from the Site and replaced by a completely new item in first class condition. Items not properly stored shall not be considered for any partial payment.
- I. Do not store material or equipment in any wetland or environmentally sensitive area. Stockpile sites shall be level, devoid of mature stands of natural vegetation, and removed from drainage facilities and features, wetlands, and stream corridors.
- J. Provide protective and preventive maintenance during storage consisting of manually exercising equipment where required, inspecting mechanical surfaces for signs of corrosion or other damage, lubricating, applying any coatings as recommended by the equipment manufacturer as necessary for its protection and other precautions as necessary to assure proper protection of equipment stored.
- K. Treat ferrous surfaces not receiving finish coats of paint with rust preventive coating, and protect non-ferrous metal work and devices with suitable wrappings.

1.5 INSPECTION OF OFFSITE WORK

- A. Work to be done away from the construction site is subject to inspection on behalf of the Owner during its fabrication, manufacture, testing, or before shipment. Notify the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01630

PRODUCT SUBSTITUTION DURING CONSTRUCTION

1.1 SUMMARY

A. Section Includes

1. Procedures for requesting product, material or construction method substitution.

1.2 CONTRACTOR'S OPTIONS

- A. For materials or equipment (hereinafter products) specified only by performance or reference standard, select product meeting that standard, by any manufacturer, fabricator, supplier or distributor (hereinafter manufacturer). To the maximum extent possible, provide products of the same generic kind from a single source.
- B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which fully complies with the Drawings and Specifications.
- C. For products specified by naming one or more products or manufacturers and stating "or equal", submit a request for a substitution of any product or manufacturer that is not specifically named.
- D. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is permitted, there is no option and no substitution will be allowed.
- E. Where more than one choice is available as a Contractor's option, select product that is compatible with other products already selected or specified.

1.3 SUBSTITUTIONS

- A. If in the Engineer's sole discretion, a product proposed by the Contractor is not functionally equal to that named and is not sufficiently similar so that no change in related Work will be required, it will not be considered a proposed substitute item.
- B. During a period of 15 days after date of commencement of Contract Time, the Engineer will consider written requests from the Contractor for substitution of products or manufacturers, and construction methods (if specified).
 1. After the end of specified period, request will be considered only in case of unavailability of product or other conditions beyond control of the Contractor.
- C. Submit 2 copies of request for substitution. Submit separate request for each substitution. Include in request the following:
 1. For products or manufacturers:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature with product description, performance and test data, and reference standards.
 - c. Samples, if appropriate.

- d. Name and address of similar projects on which product was used, and date of installation.
 2. For construction methods (if specified):
 - a. Detailed description of proposed method.
 - b. Drawings illustrating method.
 3. Such other data as the Engineer may require to determine that the proposed substitution is equal to the product, manufacturer or method specified.
- D. In making request for substitution, the Contractor represents that:
 1. The proposed substitution has been investigated, and determined that it is equal to or superior in all respects to the product, performance, manufacturer or method specified.
 2. The same or better guarantees, warranties or bonds for proposed substitution as for product, manufacturer or method specified will be provided.
 3. All claims for additional costs, either to the Contractor or Subcontractors, or extension of time related to proposed substitution will be waived.
- E. A proposed substitution will not be accepted if:
 1. Acceptance will require changes in the design concept or a substantial revision of the Contract Documents.
 2. It will delay completion of the Work.
 3. It is intended or implied on a Shop Drawing and is not accompanied by a formal request for substitution from the Contractor.
- F. If the Engineer determines that a proposed substitute is not equal to that specified, the Contractor shall furnish the product, manufacturer or method specified at no additional cost to Owner.
- G. Approval of a substitution will not relieve the Contractor from the requirement for submission of Shop Drawings as set forth in the Contract Documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01720

FIELD ENGINEERING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Establishment of lines, benchmarks, and elevations required to layout and construct the Work
2. Property line survey and delineation

1.2 SUBMITTALS

- A. Submit the qualifications of the Registered Professional Engineer and/or Registered Land surveyor to be hired to perform various portions of the Work, if applicable.
- B. Provide documentation verifying the accuracy of field engineering work.
- C. Submit 2 copies of final record drawings of field engineering layouts and as-built survey.

1.3 RECORDS

- A. Maintain a complete, accurate log of control and survey work as it progresses.

1.4 QUALITY ASSURANCE

- A. Employ competent person skilled in construction staking and field measurement, as required for the particular characteristics of the work being performed.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PROCEDURES

- A. The competent employee in charge of field engineering/stakeout shall establish and maintain lines, elevations and reference marks needed during the progress of the Work and shall re-establish stakes and marks that are lost or destroyed through the course of the Work. Verify such work by instrument or other appropriate means.
- B. The Engineer shall be permitted at all times to check the lines, elevations, and reference marks, set by the Contractor, who shall correct any errors disclosed by such check. Such a check shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish the responsibility of the Contractor for the accurate and satisfactory construction and completion of the entire Work.
- C. Make, check, and be responsible for measurements and dimensions necessary for the proper construction of and the prevention of misfittings in the Work.

- D. Furnish all protective stakes and temporary structures for marking and maintaining points and lines for the building of the Work, and give the Engineer such facilities and materials for verifying said lines and points as he may require.
- E. Revisions to the layout and elevations of the Work as defined by the Contract Documents shall be approved by the Engineer.
- F. Maintain and prepare final record drawings of field engineering layouts and as-built survey conducted after completion of the Work.
- G. All work associated with field engineering will not be paid for separately, but included in the general cost of the work.

END OF SECTION

SECTION 01725

PRESERVATION AND RESTORATION OF PROJECT FEATURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Protection and replacement of trees, shrubs, signs, property markers, fences, and related project features.
2. Taking precautions, providing programs, and taking actions necessary to protect public and private property and facilities.

1.2 DEFINITIONS

A. Underground Structures

1. Underground structures are defined to include, but not be limited to, sewer, water, gas, and other piping, and manholes, chambers, electrical and signal conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.
2. Underground structures known to the Engineer are shown on the Drawings to the extent that locations are available. This information is shown for the assistance of the Contractor in accordance with the best information available, but is not guaranteed to be correct or complete. The Contractor shall be responsible for checking on the actual locations of water, sewer, gas electric and telephone service connection lines to avoid potential interferences. The project site has not been surveyed.

B. Surface Structures

1. Surface structures are defined as existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 REPAIR/RESTORATION

- A. Trees, shrubs, and similar items shall not be removed except where necessary, as approved by the Engineer. Items to be removed shall be clearly marked as directed by the Engineer. If objects not to be removed are damaged or removed, they shall be repaired or replaced to their original condition.
- B. Trees and shrubs on private property, which are removed or damaged by the Contractor shall be replaced in kind.

- C. Signs, fences, property markers, walls, guardrails and other public or private property shall be replaced in kind if damaged. Supports and protective devices required shall be provided.
- D. Underground and Surface Structures
1. In the event of damage, injury or loss to existing utilities and, whether shown on the Drawings or not, make all reasonable efforts to facilitate repairs and to mitigate the impact of such events upon the utility or structure owner's normal operations. Restore the existing utility or structure to the condition required by the owner of the utility or structure or at least to the condition found immediately prior to the Work. In the event that the utility owner elects to make the repairs, provide all reasonable access and assistance, and reimburse the utility owner for the cost of repairs. If utility service is interrupted due to damage to facilities, alternate facilities shall be provided.
 2. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers and curbs which are temporarily removed to facilitate the Work shall be replaced and restored to their original condition at the Contractor's expense unless otherwise indicated in other sections of these specifications.
 3. Wherever water, sewer, gas or petroleum mains, electric or telephone lines, cables or other utilities and structures are encountered and may be in any way interfered with, inform the Engineer and the appropriate utility company. Cooperate with the Engineer and utility company in the protection, removal, relocation, and replacement of structures and facilities.
 4. Prior to proceeding with any construction, notify in writing owners of utilities and structures within the vicinity of the proposed Work.
 5. Work affecting water distribution systems, which will take fire hydrants out of service, must be coordinated with the local fire department. The Contractor shall be prepared to restore fire flows in the event of an emergency or to provide for temporary fire flow service in accordance with the requirements of the local fire department.
 6. Materials used for relocation or replacement of utilities and structures shall be of an equivalent material, type, class, grade and construction as the existing or as approved by the respective owners thereof, unless otherwise shown or specified.
 7. When any survey monument or property marker, whether of stone, concrete, wood or metal, is in the line of any trench or other construction work and may have to be removed, notify the Engineer in advance of removal. Under no circumstances shall any monument or marker be removed or disturbed by the Contractor or by any of his Subcontractors, employees or agents, without the permission of the Engineer. Monuments or markers removed or disturbed shall be reset by a land surveyor licensed in the State where the Work is located at the Contractor's expense. Should any monuments or markers be destroyed through accident, neglect or as a result of the Work under this Contract, the Contractor shall, at his own expense, employ a land surveyor licensed in the State where the Work is located to re-establish the monument or marker.

3.2 PROTECTION

- A. The construction of certain portions of the project may require excavation within the root systems of trees. Roots with a diameter of 2 inches or more within the excavation shall not be cut. If necessary, excavation shall be made with small powered equipment or by hand to comply with this requirement. It may be necessary to excavate from more than one direction to avoid damage to the roots.
- B. The trunks of trees that are to remain and are within the swing radius of the excavating machine bucket when fully extended shall be wrapped with burlap and 2 inch by 4 inch protective wood slats (8 inch spacing maximum) wired around the circumference of the trees to protect them from damage. No separate payment for this work will be provided, but included in the general cost of the work.
- C. Tree limbs shall not be cut except upon written approval of the Owner and the Engineer. Tree limbs cut shall be painted with approved forestry paint manufactured specifically for that purpose.
- D. Underground and Surface Structures
 - 1. Sustain in their places and protect from direct or indirect injury underground and surface structures within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, satisfy the Engineer that the methods and procedures to be used have been approved by the party owning same.
 - 2. Pay utility service company charges related to the temporary support of utility poles if required to complete the Work.
 - 3. Assume risks associated with the presence of underground and surface structures within or adjacent to the limits of the Work. The Contractor shall be responsible for damage and expense for direct or indirect injury caused by his Work to any structure. Immediately repair damage caused by the Work to the satisfaction of the owner of the damaged structure.

END OF SECTION

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Documentation for Completed Work
 - 2. Final Clean-up

1.2 SUBMITTALS

- A. Closeout Submittals
 - 1. The closeout submittals include but are not necessarily limited to
 - a. Evidence of payment and release of liens.

1.3 SEQUENCING

- A. Substantial Completion
 - 1. Prior to requesting final inspection and project close-out, the Contractor shall assure that the work is completed in accordance with the specified requirements and is ready for the requested inspection.
 - 2. Within a reasonable period of time after receipt of the request, the Engineer will inspect the work to review compliance, completeness, and issue a listing of unsatisfactory work. The Contractor shall remedy the deficiencies and the work will be reinspected.
- B. Completion
 - 1. The Contract shall be considered complete and final payment made, only when:
 - a. All provisions of the Contract Documents have been strictly adhered to.
 - b. The project and premises have been left in good order, including removal of all temporary construction, Contractor-owned and extraneous materials as required.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 CLEANING

- A. Where material or debris has washed, flowed, or has been placed in existing watercourses, ditches, gutters, drains, pipe, or structures, for work done under the Contract work limits or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the Work, and the ditches, channels, drains, pipes, structures, and

watercourses shall, upon completion of the Work, be left in a clean and neat condition.

- B. Restore or replace, when and as directed, any public or private property damaged or removed by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end, complete as required all necessary highway or driveway, walk, and landscaping work. Suitable materials, equipment and methods shall be used for such restoration. The restoration of existing property, signs or structures shall be done as promptly as practicable, as work progresses, and shall not be left until the end of the contract period.

END OF SECTION

DIVISION 2 – SITE WORK

SECTION 02315

EXCAVATION, BACKFILL, COMPACTION AND DEWATERING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Excavation, backfill and compaction for subsurface utilities
 - 2. Earth retention systems
 - 3. Test pits
 - 4. Temporary dewatering systems
- B. Related Sections
 - 1. Section 01570 – Temporary Erosion Controls
 - 2. Section 02320 - Borrow Materials
 - 3. Section 02740 – Bituminous Concrete and Gravel Road Repair

1.2 REFERENCES

- A. ASTM D698 - Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ [600 kN-m/m³]), Annual Book of ASTM Standards - Volume 04.08. - Soil and Rock
- B. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method. Annual Book of ASTM Standards - Volume 04.08 - Soil and Rock
- C. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System). Annual Book of ASTM Standards - Volume 04.08 - Soil and Rock
- D. ASTM D2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth), Annual Book of ASTM Standards - Volume 04.08. - Soil and Rock
- E. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth), Annual Book of ASTM Standards - Volume 04.08. - Soil and Rock
- F. 29 CFR Part 1926 Subpart P - OSHA Excavation Regulations 1926.560 through 1926.562 including Appendices A through F

1.3 DEFINITIONS

- A. Benching - A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

- B. Earth Retention Systems - Any structural system, such as sheeting and bracing or cofferdams, designed to retain in-situ soils in place and prevent the collapse of the sides of an excavation in order to protect employees and adjacent structures.
- C. Excavation - Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.
- D. Protective System - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include earth retention systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.
- E. Registered Professional Engineer - A person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.
- F. Shield System - A structure that is designed to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with 29 CFR 1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."
- G. Sloping - A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.
- H. Temporary Dewatering System – A system to lower and control water to maintain stable, undisturbed subgrades at the lowest excavation levels. Dewatering shall be provided for all pipelines, structures and for all other miscellaneous excavations.
- I. Trench - A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m).

1.4 SUBMITTALS

- A. Drawings and calculations for each Earth Retention System required in the Work. The submittal shall be in sufficient detail to disclose the method of operation for each of the various stages of construction required for the completion of the Earth Retention Systems.
 - 1. Submit calculations and drawings for Earth Retention Systems prepared, signed and stamped by a Professional Engineer registered in the state where the work is performed.
 - 2. All Excavation, Trenching, and related Earth Retention Systems shall comply with the requirements of OSHA excavation safety standards (29 CFR Part 1926 Subpart P) and State requirements. Where conflict between OSHA and State regulations exists, the more stringent requirements shall apply.

- B. Performance data for the compaction equipment to be utilized
- C. Construction methods that will be utilized for the removal of rock

1.5 PROJECT CONDITIONS

- A. Notify Dig Safe and obtain Dig Safe identification numbers.
- B. Notify utility owners in reasonable advance of the work and request the utility owner to stake out on the ground surface the underground facilities and structures. Notify the Engineer in writing of any refusal or failure to stake out such underground utilities after reasonable notice.
- C. Make explorations and Excavations to determine the location of existing underground structures, pipes, house connection services, and other underground facilities in accordance with Paragraph 3.2.D of this Section.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

- A. Fill material is subject to the approval of the Engineer and may be either material removed from excavations or borrow from off site. Fill material, whether from the excavations or from borrow, shall be of such nature that after it has been placed and properly compacted, it will make a dense, stable fill.
- B. Satisfactory fill materials shall include materials classified by ASTM D 2487 as GW, GP, GM, GP-GM, GW-GM, GC, GP-GC, SW, and SP.
- C. Satisfactory fill materials shall not contain trash, refuse, vegetation, masses of roots, individual roots more than 18 inches long or more than 1/2 inch in diameter, or stones over 6 inches in diameter. Organic matter shall not exceed minor quantities and shall be well distributed.
- D. Satisfactory fill materials shall not contain frozen materials nor shall backfill be placed on frozen material.
- E. Excavated surface and/or pavement materials such as gravel or trap rock that are salvaged may be used as a sub-grade material. In no case shall salvaged materials be substituted for the required gravel base.

2.2 DEWATERING MATERIALS

- A. Provide haybales and silt fence in accordance with Section 01570.
- B. Provide silt filter bags (Dandy Dewatering Bag, Dirtbag, JMP Environ-Protection Filter Bag, or equal) of adequate size to match flow rate.

PART 3 EXECUTION

3.1 PREPARATION

- A. Public Safety and Convenience
 - 1. Take precautions for preventing injuries to persons or damage to property in or about the Work.
 - 2. Provide safe access for the Owner's representatives at site during construction.

3. Do not obstruct site drainage, natural watercourses or other provisions made for drainage.

3.2 CONSTRUCTION

A. Earth Retention Systems

1. Provide Earth Retention Systems necessary for safety of personnel and protection of the Work, adjacent work, utilities and structures.
2. Maintain Earth Retention Systems for the duration of the Work.
3. Systems shall be constructed using interlocking corner pieces at the four corners. Running sheet piles by at the corners, in lieu of fabricated corner pieces, will not be allowed.
4. Drive sheeting ahead of and below the advancing trench excavation to avoid loss of materials from below and from in front of the sheeting.
5. Sheeting is to be driven to at least the depth specified by the designer of the earth retention system, but no less than 2 feet below the bottom of the Excavation.
6. Remove sheeting, unless designated to be left in place, in a manner that will not endanger the construction or other structures. Backfill and properly compact all voids left or caused by the withdrawal of sheeting.
7. Remove earth retention systems, which have been designated by the Engineer to be left in place, to a depth of 3 feet below the established grade.

B. Excavation

1. Perform excavation to the lines and grades indicated on the Drawings. Backfill unauthorized over-excavation in accordance with the provisions of this Section, at no additional cost to the Owner.
2. Excavate with equipment selected to minimize damage to existing utilities or other facilities. Hand excavate as necessary to locate utilities or avoid damage.
3. Sawcut the existing pavement in the vicinity of the excavation prior to the start of excavation in paved areas, so as to prevent damage to the paving outside the requirements of construction.
4. During excavation, material satisfactory for backfill shall be stockpiled in an orderly manner at a distance from the sides of the excavation equal to at least one half the depth of the excavation, but in no case closer than 2 feet.
 - a. Excavated material not required or not suitable for backfill shall be removed from the site.
 - b. Perform grading to prevent surface water from flowing into the excavation.
 - c. Pile excavated material in a manner that will endanger neither the safety of personnel in the trench nor the Work itself. Avoid obstructing sidewalks and driveways.

- d. Hydrants under pressure, valve pit covers, valve boxes, manholes, curb stop boxes, fire and police call boxes, or other utility controls shall be left unobstructed and accessible until the Work is completed.
5. Make pipe trenches as narrow as practicable and keep the sides of the trenches undisturbed until backfilling has been completed. Provide a clear distance of 12 inches on each side of the pipe.
6. The final 6 inches of excavation and grading of the trench bottom shall be performed by hand so as not to disturb the material below the grade required for setting the pipe or appurtenances.
 - a. Where suitable bedding materials will be placed and compacted throughout the length of the trench, hand excavation of the final 6 inches will not be required.
 - b. Grade the trench bottom to provide uniform bearing and support for the bottom quadrant of each section of pipe.
 - c. Excavate bell holes at each joint to eliminate point bearing.
 - d. Remove stones greater than 6 inches in any dimension from the bottom of the trench to avoid point bearing.
7. If satisfactory materials are not encountered at the design subgrade level, excavate unsatisfactory materials to the depth directed by the Engineer and properly dispose of the material. Backfill the resulting extra depth of excavation with satisfactory fill materials and compact in accordance with the provisions of this Section.

C. Backfill and Compaction

1. Unless otherwise specified or indicated on the Drawings, use satisfactory material removed during excavation for backfilling trenches. The Engineer may require stockpiling, drying, blending and reuse of materials from sources on the Project.
2. Spread and compact the material promptly after it has been deposited. When, in the Engineer's judgment, equipment is inadequate to spread and compact the material properly, reduce the rate of placing of the fill or employ additional equipment.
3. When excavated material is specified for backfill and there is an insufficient amount of this material at a particular location on the Project due to rejection of a portion thereof, consideration will be given to the use of excess material from one portion of the Project to make up the deficiency existing on other portions of the Project. Moving this excess material from one portion of the Project and placing it in another portion of the Project will be at no additional cost to the Owner.
 - a. Use borrow material if there is no excess of excavated material available at other portions of the Project.

4. Backfilling and compaction methods shall attain 95% of maximum dry density at optimum moisture content as determined in accordance with ASTM D698, Method C.
5. Do not place stone or rock fragment larger than six inches in greatest dimension in the backfill.
6. Maximum loose lift height for backfilling existing or borrow material shall be 8 inches, unless satisfactory compaction is demonstrated otherwise to the Engineer through field-testing. In no case shall loose lift height for backfilling exceed 12 inches.
7. Do not drop large masses of backfill material into the trench endangering the pipe or adjacent utilities.
8. Install pipe in rock excavated trenches on a dense graded stone bedding with a minimum depth of 6 inches. Shape the stone bedding at the pipe bells to provide uniform support. Encase the pipe in the dense graded crushed stone bedding to a grade 6 inches over the top of the pipe and 12 inches on each side of the pipe.
9. Backfill from the bottom of the trench to the centerline of the pipe with the specified material. This initial backfill is to be placed in lifts of no more than 6 inches and thoroughly tamped under and around the pipe. This initial backfilling shall be deposited in the trench for its full width on both sides of the pipe, fittings and appurtenances simultaneously.
10. Electrical conduit not encased in concrete, shall be backfilled with sand borrow conforming to the requirements of Section 02320. The backfill shall be placed in the trench for its full width and shall extend to 12 inches over the pipe.
11. Where excavation is made through permanent pavements, curbs, paved driveways or paved sidewalks, or where such structures are undercut by the excavation, place the entire backfill to sub-grade with granular materials and compact in 6 inch lifts. Use approved mechanical tampers for the full depth of the trench. If required, sprinkle the backfill material with water before tamping so as to improve compaction.
12. Place and compact backfill around manholes, vaults, pumping stations, gate boxes or other structures in six inch layers, from a point 1 foot over the pipe. Exercise care to protect and prevent damage to the structures.
13. Install impervious trench dams where stone borrow is used for pipe bedding to prevent groundwater from following along the stone bedding. Install dams every 100 feet.

D. Test Pit Excavation

1. Excavate test pits at locations as are indicated on the Drawings, as necessary, or as required by the Engineer. Test pits are required to locate underground facilities whose location, depth or size are not precisely known and are critical to the Work. Brace, sheet, and pump test pit excavations for safe excavation and examination of the structure or utility to be exposed.

2. Determine the material and construction characteristics of the existing pipeline exposed during the test pit excavation.
3. Measure the depth to the top of each pipe and utility, from the ground surface, at each test pit location.
4. Clear the site, excavate and backfill all test pits. Cut and remove roadway surfaces; remove cement, concrete and bituminous concrete sidewalks; remove, handle, rehandle, backfill and dispose of materials encountered within the limits of the Work.
5. Conduct all subsurface investigations in accordance 29 CFR Part 1926 Subpart P – OSHA Excavation Regulations 1926.560 through 1926.562 including Appendices A through F.
6. Upon completion of the examination by the Engineer backfill and compact the test pits in accordance with this Section.
7. Repair paved surfaces in accordance with Section 02740.

E. Dewatering

1. Provide, operate and maintain adequate pumping, diversion and drainage facilities to maintain the excavated area sufficiently dry from groundwater and/or surface runoff so as not to adversely affect construction procedures nor cause excessive disturbance of underlying natural ground. Locate dewatering system components so that they do not interfere with construction under this or other contracts.
2. Take actions necessary to ensure that dewatering discharges comply with permits applicable to the Project. Dispose of water from the trenches and excavations in such a manner as to avoid public nuisance, injury to public health or the environment, damage or public or private property, or damage to public or private property, or damage to the work completed or in progress.
3. Repair any damage resulting from the failure of the dewatering operations and any damage resulting from the failure to maintain all the areas of work in a suitable dry condition, at no additional cost to the Owner.
4. Exercise care to ensure that water does not collect in the bell or collar holes to sufficient depth to wet the bell or collar of pipes waiting to be jointed.
5. Take precautions to protect new work from flooding during storms or from other causes. Control the grading in the areas surrounding all excavations so that the surface of the ground will be properly sloped to prevent water from running into the excavated area. Where required, provide temporary ditches for drainage. Upon completion of the work, all areas shall be restored to original condition.
6. Brace or otherwise protect pipelines and structures not stable against uplift during construction.
7. Do not excavate until the dewatering system is operational and the excavation may proceed without disturbance to the final subgrade.

8. Unless otherwise specified, continue dewatering uninterrupted until the structures, pipes, and appurtenances to be installed have been completed such that they will not float or be otherwise damaged by an increase in groundwater elevation.
9. If open pumping from sumps and ditches results in “boils”, loss of fines, or softening of the ground, submit a dewatering plan to the Engineer within 48 hours. Implement the approved modified plan and repair any damage incurred at no additional cost to the Owner.
10. Where subgrade materials are unable to meet the subgrade density requirements due to improper dewatering techniques, remove and replace the materials in accordance with Section 02320 at no additional cost to the Owner.
11. Notify the Engineer immediately if any settlement or movement is detected of survey points adjacent to excavations being dewatered. If settlement is deemed by the Engineer to be related to the dewatering, submit a modified dewatering plan to the Engineer within 24 hours. Implement the approved modified plan and repair any damage incurred to the adjacent structure at no additional cost to the Owner.
12. Dewatering discharge:
 - a. Install sand and gravel filters in conjunction with well points and deep wells to prevent the migration of fines from the existing soil during the dewatering operation.
 - b. Do not discharge water into any sanitary sewer system.
 - c. Provide separately controllable pumping lines.
 - d. The Engineer reserves the right to sample discharge water at any time.
13. Removal
 - a. Do not remove dewatering system without written approval from the Engineer.
 - b. Backfill and compact sumps or ditches with screened gravel or crushed rock in accordance with Section 02320.
 - c. Remove well points and deep wells. Backfill abandoned well holes with cement grout having a water cement ratio of 1 to 1 by volume.

END OF SECTION

SECTION 02317

UNDERGROUND WARNING TAPE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Underground Warning Tape

1.2 SUBMITTALS

- A. Shop Drawing Submittals
 - 1. Product Data

PART 2 PRODUCTS

2.1 MATERIALS

- A. Metallic warning tape for underground piping shall be polyethylene tape with metallic core for easy detection and location of piping with a metal detector.
- B. Tape shall be colored and printed with the words per the nature of the specific pipeline.
- C. Tape shall be 6 inches wide.
- D. Tape shall be as manufactured by Seton Name Plate Corp., New Haven, CT; Presco Detectable Underground Warning tape, Sherman, Texas; Blackburn Manufacturing, Neligh, NE; Mercotape, Hachensach, NJ; or approved equal.
- E. The warning tape shall be heavy gauge 0.004 inch polyethylene and shall be resistant to acids, alkalis and other soil components. It shall be highly visible in the following color with the associated phrases stamped in black letters and repeated at a maximum interval of 40 inches.

<u>Type of Utility</u>		WARNING MESSAGE
Sewer	Green	CAUTION – SEWER LINE BURIED BELOW

- F. The tape shall be of the type specifically manufactured for marking and locating utilities.

PART 3 EXECUTION

3.1 INSTALLATION

- A. All buried pipe and fittings shall be installed with metallic-lined underground warning tape located approximately 18 inches below grade to allow detection by a metal detector. There will be no separate payment for underground warning tape installation.

END OF SECTION

SECTION 02320

BORROW MATERIALS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Gravel Borrow
 - 2. Processed Gravel Borrow for Pavement Sub-base
 - 3. Stone Borrow
 - 4. Ordinary Borrow

1.2 REFERENCES

- A. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- B. ASTM C117 - Standard Test Method for Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing
- C. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil using Standard Effort (12,400 ft-lbf/ft³)
- D. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
- E. ASTM D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb./ft³)
- F. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head)
- G. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
- H. ASTM D2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- I. ASTM D3017 – Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
- J. AASHTO – Standard Specification for Transportation Materials and Methods of Sampling and Testing, 1986 Edition as amended
- K. Commonwealth of Massachusetts Department of Public Works “Standard Specification for Highways and Bridges”, 1988 Edition as amended

1.3 SUBMITTALS

- A. Representative Samples of borrow materials taken from the source. Tag, label, and package the Samples as requested by Engineer. Provide access to the borrow site for field evaluation and inspection.

- B. Provide sieve analysis (ASTM C136) and permeability analysis (ASTM D2434) from certified soils testing laboratory for all borrow materials. Take and test a sample, at no additional cost to the Owner for each 1,500 cubic yards of borrow material placed.
- C. Provide standard proctor analysis (ASTM D698) from certified soils testing laboratory for all borrow materials.

1.4 QUALITY ASSURANCE

- A. No borrow shall be placed prior to the approval of samples by the Engineer.

1.5 PROJECT/SITE CONDITIONS

- A. Existing Conditions
 - 1. Comply with any environmental requirements and restrictions.
 - 2. Keep all public and private roadway surfaces clean during hauling operations and promptly and thoroughly remove any borrow or other debris that may be brought upon the surface before it becomes compacted by traffic. Frequently clean and keep clean the wheels of all vehicles used for hauling to avoid bringing any dirt upon the paved surfaces.

PART 2 PRODUCTS

2.1 ORDINARY BORROW

- A. Ordinary Gravel borrow shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings, and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50. The intent of this project is to reuse as much existing material on site as possible.

Ordinary Borrow shall comply with Section M1.01.0 of the MASSDOT Standard Specifications for Highways and Bridges.

2.2 GRAVEL BORROW

- A. The compacted gravel borrow to be used for pavement subbase shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50. Gravel Borrow shall also conform to Section M1.03.0 of the MASSDOT Standard Specifications for Highways and Bridges.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Prior to the placement of borrow material, site preparation shall be completed as required by the Contract Documents, and approved by the Engineer.
- B. Ensure that all materials are properly stockpiled on site to prevent contamination by other materials.
- C. Place borrow material over the entire area in uniform lifts and compact to 95% of maximum dry density.

- D. Utilize stockpiled borrow prior to using off-site borrow.
- E. Utilize gravel borrow in all locations where a surface treatment has not been specified but requires a firm finish surface.
- F. Processed gravel for pavement subbase is intended to provide a stable foundation for driveways, sidewalk and roadway repair where a gravel base has been specified.
- G. Borrow shall be used as a replacement for unsuitable materials where poor soil conditions below the invert or subbase depth of the trench are encountered during the progress of the work. Extra excavation and the type of borrow, as determined by Engineer, shall be used only in those locations where its use is ordered by Engineer. The intent of the borrow is to provide a stable foundation for the pipe as a replacement of unsatisfactory material, not as an aid to dewatering trenches. Its use shall be limited to those areas in which Engineer orders its use in writing.
- H. Shape borrow used for pipe foundation material so that it supports the pipe properly and will not damage the pipe, bells, collars, or the pipe fittings.
- I. Place all borrow to keep it free of other materials and to prevent segregation.

END OF SECTION

SECTION 02503

TESTING OF SANITARY SEWER AND STORM DRAINAGE SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Testing of Gravity Sewer Systems
 - 2. Testing of Pressure Sewer systems

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 TESTING OF GRAVITY SEWER SYSTEMS

- A. All gravity sewers shall be tested for allowable leakage by low pressure air test or by an infiltration or exfiltration water test as described herein.
- B. Low Pressure Air Test
 - 1. After completing backfill of a section of pipe, conduct a Line Acceptance Test using low-pressure air. The test shall be performed according to the specified procedures and under the supervision of the Engineer. Testing procedures noted in the following paragraph shall be explicitly followed.
 - 2. Pneumatic plugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be introduced into the plugs to 25 psig. The sealed pipe shall be pressurized to 5 psig. The plugs shall hold against this pressure without bracing and without movement of the plugs out of the pipe.
 - 3. After a manhole reach of pipe has been backfilled and cleaned, and the pneumatic plugs are checked by the above procedure, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. At least two minutes shall be allowed for the air pressure to stabilize. After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control panel to the air supply shall be disconnected. The portion of the line being tested shall be termed "Acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any groundwater that may be over the pipe) shall not be less than the time shown for the given diameters and lengths in Table 1 (at the end of this section).
 - 4. Air tests shall cover a 1.0 psig pressure drop; 0.5 psig pressure drop tests are not acceptable.

5. In areas where groundwater is known to exist, install a one-half inch diameter capped pipe nipple, approximately 10" long, through the manhole wall on top of one of the sewer lines entering the manhole. This shall be done at the time the sewer line is installed. Immediately prior to Line Acceptance Test, the groundwater shall be determined by removing the pipe cap, blowing air through the pipe nipple to remove any obstructions, and then connecting clear plastic tube to the nipple. The hose shall be held vertically and a measurement of the height shall be taken after the water has stopped rising in this plastic tube. The height in feet shall be divided by 2.3 to establish the pressure in pounds per square inch (psig) that will be added to all readings. (For example, if the height of water is 11-1/2 feet, then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig, and the 2.5 psig to 7.5 psig. The allowable drop of one pound per square inch and the timing remain the same.)
6. The maximum starting test pressure should not exceed 9 psig, regardless of groundwater level above the pipe. If the groundwater level is such that the added pressure would be greater than 5.5 psig (12.7 feet), the pipe section may be tested using a starting pressure of 9 psig.
7. Each pipe nipple installed to measure groundwater levels should be recapped subsequent to the air testing procedure to prevent future infiltration.
8. As an alternative to installing a pipe nipple in a manhole to measure the height of groundwater, the Contractor shall excavate a test pit over the pipe to determine the height of groundwater.

C. Vacuum Test for Manholes - Gravity Sewer Lines

1. After a manhole has been constructed, conduct a Manhole Acceptance Test using the following vacuum test procedure:
 - a. Plug all lift holes with an approved non-shrink grout.
 - b. Plug all pipes entering the manhole, taking care to securely brace the plug from being drawn into the manhole.
 - c. The test head shall be placed at the inside of the top of the cone section and the seal inflated in accordance with the manufacturers' recommendations.
 - d. Draw a vacuum of 10 inches of mercury and shut off the vacuum pump. With the valves closed, the time shall be measured for the vacuum to drop to 9 inches. The manhole shall pass if the time is greater than:
 - 1 min. 0 sec. for 0-ft. to 10-ft. deep manholes
 - 1 min. 15 sec. for 10-ft. to 15-ft. deep manholes
 - 1 min. 30 sec. for 15-ft. to 25-ft. deep manholes
 - e. If the manhole fails the initial test, necessary repairs shall be made with a non-shrink grout. Retesting shall proceed until a satisfactory test is obtained.

D. Infiltration/Exfiltration Test

1. All gravity type sewers shall be subjected to either an infiltration or an exfiltration test unless otherwise specified. The type of test required will be contingent upon groundwater conditions in the area where lines are to be tested. These tests shall include losses or gains through manholes as well as through pipe walls and joints, as well as through house connection fittings and pipe. No building shall be connected to a newly installed sewer until such time as the sewer has been satisfactorily tested.
 2. Where lines are installed in areas having a high groundwater level, an infiltration test continuing for at least four (4) hours shall be carried out by the Contractor under the supervision of the Engineer. Various sections of the sewer shall be isolated through the use of watertight plugs and the quantity of water entering the pipe during a predetermined time shall be measured. If the conditions are such that groundwater table varies depending on surrounding influence and time of the year or if the table elevation is unknown at the time of testing, the Contractor will be required to excavate test holes as directed by the Engineer.
 3. Where lines are installed in relatively dry areas, an exfiltration test shall be imposed on the sewer. This test shall be carried out by isolating various sections of the line through the use of watertight plugs and filling the line with water to a predetermined level. The loss of water in a predetermined time shall be determined by measuring the quantity of water required to refill the line to the original level.
 4. The length of line tested at one time shall be as directed by the Engineer and shall be dependent upon the grade of the sewer.
 5. Losses through manholes shall be included in determining the loss in a line. For exfiltration test, manholes will be filled to the bottom of the cone or flat top section and allowed to stabilize before beginning test. Refilling to reference line may be required before commencing test.
 6. The maximum acceptable loss, through either infiltration or exfiltration, shall not exceed 100 gallons per mile per 24 hours per inch of diameter of the pipe tested. When two (2) or more pipeline sections are tested at the same time, the allowable leakage for the shortest section shall be used as the acceptable loss for the entire length being tested.
- E. Allowable Deflection Test for PVC or HDPE Pipe (Sewer or Drain Pipe) - Unless otherwise specified, all PVC or HDPE Pipe shall be tested for allowable deflection in accordance with the procedure noted below.
1. Pipe deflection measured not less than sixty days (60) after the backfill has been completed as specified shall not exceed five (5.0) percent. Deflection shall be computed by multiplying the amount of deflection (average outside diameter less twice the average wall thickness diameter when measured) by 100 and dividing by the nominal diameter of the pipe.
 2. Deflection shall be measured with a rigid mandrel (Go-No-Go) device cylindrical in shape and constructed with a minimum of nine or ten evenly spaced arms or prongs. Submit drawings of the mandrel with complete

dimensions for each diameter of pipe to be tested. Hand pull the mandrel through all sewer and drain lines.

3. Uncover any section of pipe not passing the mandrel and replace the bedding and backfill to prevent excessive deflection. Retest repaired pipe until acceptable.

F. Test Failures

1. In case leakage or deflection exceeds the above specified amount, locate the failure and repair them at no expense to the Owner.
2. Pipelines with shear-type breaks, fishmouths or damaged gaskets, cracked bells or couplings, hairline fractures, or structural damage shall be replaced in kind. Mechanical sleeve couplings, poured concrete collars or similar repairs are not permitted. The use of pressure grouting repair techniques will not be allowed without the written consent of the Engineer.
3. After repairs have been made, the line shall be re-tested and the process of repairing and re-testing shall be repeated until results within the above specified limits are obtained.

G. Alignment of Gravity Sewers and Drains

1. Gravity sewers and drains shall be laid accurately to line and grade.
2. After completion of the construction, including backfilling, it must be possible to sight from manhole to manhole THROUGH THE PIPE. This accuracy of laying the pipe can be easily checked as construction progresses.
3. In the event that the completed main fails to meet the requirement for alignment because of horizontal displacement, the Contractor will be allowed to construct intermediate manholes at his own cost. In the event that the completed sewer main fails to meet the requirement for alignment because of vertical displacement, remove and replace the sewer to the proper grades.

3.2 TESTING OF PRESSURE SEWER SYSTEMS

A. Tests Required on Pressure Systems

1. Syphons and force mains, upon completion of the pipelines, shall be filled with water and tested.
2. Arrange for and bear the expense of providing all water required for tests. Furnish, install, and remove all temporary plugs, valves, gauges, and connections required for making the tests. Wherever necessary for the stability of the line, install temporary supports, blocking, bracing or ballast.
3. A pressure test and a leakage test are to be run simultaneously. The pressure for these two tests is to be measured at the lowest part of the line and is to be either 100% higher than normal operating pressure or 150 psi if the former exceeds 150 psi. The test is to be conducted for a period of four (4) hours or until such time as the Engineer indicates acceptance of the pipeline.
4. On pipelines where the elevation along the route of construction varies substantially, the Engineer reserves the right to require the Contractor to valve

off and test portions of the line. Also on extensive construction jobs, the Engineer reserves the right to require the testing of individual portions of the line as construction proceeds rather than await completion of the entire project in order to undertake a pressure or leakage test.

B. Time for Making a Test

1. No pipeline is to be placed under pressure or subjected to hydrostatic pressure until at least 5 days have elapsed after the concrete thrust blocks have been installed. If high early strength concrete is used in the concrete thrust blocks, the hydrostatic pressure can be applied to the main after 2 days have elapsed from time of construction of the thrust blocks.
2. Rubber jointed pipelines may be subjected to hydrostatic pressure and inspected for leakage at any convenient time after the trench has been partially backfilled. Partial backfilling shall consist of filling along the center of the pipe length and leaving the joint open for inspection.
3. Pipelines using a rubber type joint and on other such pipelines or at such locations as are approved by the Engineer, the Contractor will be allowed to complete backfilling, prior to undertaking the leakage and pressure tests. The carrying out of backfilling prior to the conducting of the necessary tests will be at the option of the Contractor with the exception of intersections, driveways, crosswalks and other such locations where holding open the trench will adversely affect the public.

C. Procedure

1. Slowly fill each section of pipeline to be tested with water up to normal operating pressure.
2. Expel all air from the pipeline. Make taps at points of highest elevation in the pipeline in order to completely remove all air.
3. After the line has been placed under normal operating pressure and all air has been expelled, the pressure and leakage test will be started. The pipeline under test is to be raised to the specified pressure. Furnish a pump, pipe connections, gauges and necessary apparatus and connections to the new main. Raise the pressure in the main to the specified test pressure by means of the pump and maintain the specified pressure for a period of four hours or until the Engineer indicates that the pipeline is satisfactory.

D. Examination under Pressure

1. Carefully examine all exposed pipes, fittings, valves, and joints during the open-trench test.
2. Remove and replace any cracked or defective pipes, fittings, or valves discovered in consequence of this pressure test with sound material in the manner provided under the applicable pipe section and the test shall be repeated until satisfactory to the Engineer.

E. Leakage Test

1. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved section thereof, necessary to maintain the maximum specified leakage test pressure after the pipe has been filled with water and the air expelled.
2. No pipe installation will be accepted until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = \frac{ND\sqrt{P}}{3,700}$$

in which L equals the allowable leakage, in gallons per hour; N is the number of joints in the length of the pipeline tested; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pounds per square inch gauge. (The allowable leakage according to the formula is equivalent to 35 U.S. gal. for pipe with rubber joints per 24 hours per mile of pipe per inch nominal diameter, for pipe in 12-foot lengths evaluated on a pressure basis of 150 psi.)

3.3 PAYMENT FOR TESTS

- A. No separate payment shall be made for preparing or carrying out tests of pipelines or structures. The Contractor shall furnish all materials, equipment, gauges, pumps, specials, temporary tappings in line, and water or other things required for making the tests. An allowance for these tests shall be included in the cost for furnishing and installing manholes and pipe. The manholes and pipe as installed under this Contract will be 100% tested.

**TABLE I
SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015**

1 Pipe Diameter (in.)	2 Minimum Time (min:sec)	3 Length for Minimum Time (ft)	4 Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)								
				100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.	
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24	
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48	
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38	
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04	
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41	
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31	
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33	
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48	
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15	
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53	
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46	

Uni-Bell PVC Pipe
Association Publication
Uni-B-6-90

END OF SECTION

02503-7

SECTION 02515

POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. PVC Gravity Pipe and Fittings
 - 2. PVC Pressure Pipe and Fittings
 - 3. PVC Low Pressure Pipe and Fittings for grinder pump systems.
- B. Related Sections
 - 1. Section 02315 - Excavating, Backfilling and Compaction
 - 2. Section 02317 – Underground Warning Tape
 - 3. Section 02320 - Borrow Material
 - 4. Section 02503 – Testing of Sanitary Sewer and Storm Drainage Systems

1.2 REFERENCES

- A. ASTM D2241 - Specification for Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR).
- B. ASTM F477 - Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- C. ASTM D3034 - Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
- D. ASTM D2444 - Standard Test Method for Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight).
- E. ASTM D2412 - Standard Test Method for External Loading Properties of Plastic Pipe by Parallel-Plate Loading.
- F. ASTM D3139 - Standard Specifications for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
- G. ASTM D3212 - Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- H. ASTM F679 - Specification for Polyvinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
- I. ASTM D1869 - Standard Specification for Rubber Rings for Asbestos-Cement Pipe.
- J. AWWA A21 - Ductile Iron Pipe and Fittings.
- K. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., For Water Distribution.

1.3 SUBMITTALS

- A. Submit specifications and shop drawings for materials and equipment furnished under this Section.
- B. Prior to first shipment of pipe, submit certified test reports that the pipe for this Contract was manufactured and tested in accordance with the ASTM Standards specified herein.

1.4 QUALITY ASSURANCE

- A. Each type of PVC pipe and fittings shall be from a single manufacturer.
- B. Inspection of the pipe will also be made by the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the job site.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Gravity Pipe
 - 1. Polyvinyl chloride (PVC) pipe shall be of the size indicated on the Drawings or as specified and shall conform to the latest revision of ASTM D3034, Type SDR 35 for diameters less than or equal to 15-inch diameter and ASTM F679 for pipe greater than 15-inch diameter. Standard laying lengths shall not exceed 13.0 feet for main line pipe and 6.5 feet for lateral pipe.
 - 2. Joints shall be elastomeric gasket joints and shall provide a watertight seal. Assembly of joints shall be in accordance with ASTM D3212.
 - 3. The minimum "pipe stiffness" (load divided by change in inside diameter in direction of load application) at 5% deflection shall be at least 46 psi for pipe tested in accordance with ASTM D2412.
 - 4. No shattering or splitting shall be evident when 150 ft.-lbs. and 210 ft.-lbs. is impacted on 4-inch and 6-inch diameter pipe, respectively, in accordance with ASTM Method of Test D2444.
 - 5. Pipe lengths and fittings to be used on the project shall be clearly marked on the outside in bold type with the name of the manufacturer, pipe size, pipe material, pipe class, and ASTM designation.
 - 6. Gravity Pipe House Connections
 - a. Gravity pipe house connections, wyes and tees are to be laid in the run of the main pipeline, the wyes and tees shall be the same material as the main line and shall conform in material, joints and class with the line into which they are to be laid.
 - b. Eighth and sixteenth bends and end plugs are to be of the same material and class or strength designation as the pipe for the house connection.
 - c. Unless noted on the Drawings, house service piping shall be 6-inch diameter and shall be of the same material as the main line PVC pipe.
 - 7. Lateral Chimneys

- a. Pipe and fittings shall be 6-inch diameter and be of the same material as the main line PVC pipe.
- b. Concrete used for construction of chimneys shall be 3,000 psi.

B. Pressure Pipe

1. Polyvinyl Chloride (PVC) pressure pipe shall be of the size indicated on the plans and shall conform to the requirements of the AWWA C900 Standards for PVC900 DR 18 Pressure Pipe for Water with cast iron pipe equivalent outside diameters. Joints shall use elastomeric gaskets and be in accordance with ASTM D3139. Gaskets shall conform to ASTM F477.
2. The standard laying length shall not exceed 20 feet. The minimum “pipe stiffness” (load divided by change in inside diameter in direction of load application) at 5% deflection shall be at least 46 psi for pipe tested in accordance with ASTM Specifications D2412.
3. Bends shall be constructed of cast iron or ductile iron in accordance with AWWA A21.10 and A21.53, with mechanical joint ends.
4. Pipe and fittings shall be clearly marked on the outside indicating the name of the manufacturer, nominal diameter, and the ASTM or AWWA designation or both for the DR18 Polyvinyl Chloride Pressure Pipe.

C. Low Pressure Pipe

1. Polyvinyl Chloride (PVC) pipe for low pressure sewers shall be of the same size indicated on the Drawings and shall be PVC, Type 1120, ASTM 2241, Class 200 (SDR-21). Joints shall use elastomeric gaskets conforming to ASTM D1869. Connections to tees, brass fittings and end caps shall be made using solvent welded joints.
2. The standard laying length shall not exceed 20 feet. Pipe and fittings shall be clearly marked on the outside indicating the name of the manufacturer, ASTM designation and the nominal diameter.
3. House Connections and Valves
 - a. Low pressure sewer connections from each sewage grinder pump station shall be PVC, Type 1120, ASTM D2241, Class 200 (SDR-21). Joints shall use elastomeric gaskets conforming to ASTM D1869. The piping shall be connected to the 1¼ -inch pump station discharge fitting using a 1¼-inch to 1½-inch increaser.
 - b. The standard laying length shall not exceed 20 feet. Pipe and fittings shall be clearly marked on the outside indicating the name of the manufacturer, ASTM designation and the nominal diameter.
 - c. Bends used shall use elastometric gaskets and shall have a poured in-place or precast concrete thrust block bearing against undisturbed soil. Bends shall be SDR-21, Class 200 and capable of withstanding pressure surges.
 - d. Low pressure services shall connect to the gravity sewer using a stainless steel saddle. An end cap, suitable for withstanding line test

pressure shall be supplied and installed. A 2-inch x 4-inch marker pole is to be installed at each service connection termination.

- e. Curb stops shall be threaded bronze ball valves and shall open left. Curb stops shall not be stop/waste-type. Valves shall be Red Head Model B2230, Mueller, Ford or approved equal.
- f. Each curb stop shall be provided with its own extension type cast iron 3-inch road box and lid assembly. The lid shall have the word "sewer" imprinted on it. Box extensions for deep installations shall also be provided as required. A total of four (4) tee handle wrench operators suitable to operate the curb stops installed shall be provided.
- g. Each service connection shall have a check valve installed on the upstream side of the curb stop. The check valve shall have a PVC body, an internal flapper type suitable for direct burial and threaded connections.

PART 3 EXECUTION

3.1 HANDLING PIPE AND FITTINGS

- A. Take care in loading, transporting, and unloading to prevent injury to the pipe. Do not drop pipe or fittings. Examine pipe and fittings before installing, and no piece shall be installed which is found to be defective.
- B. If any defective pipe is discovered after it has been installed, remove and replace it with a sound pipe in a satisfactory manner. Thoroughly clean pipe and fittings before installing, keep clean until they are used in the work, and conform to the lines, grades and dimensions required when installed.
- C. Pipe ends requiring cutting shall be cut square without damage to the remaining pipe. Bevel cut pipe ends 1/8-inch at approximately 30 degrees to provide proper assembly of the joint. Beveling can be done with a coarse file or portable grinder.
- D. Support stored pipe from below at not more than 3 ft. intervals to prevent deformation. Do not stack pipe higher than 6 ft. Store pipe and fittings in a manner which will keep them at ambient outdoor temperatures. Provide temporary shading as required to meet this requirement. Simply covering of the pipe and fittings which allows temperature buildup when exposed to direct sunlight will not be permitted.

3.2 INSTALLATION

- A. No single piece of pipe shall be laid unless it is generally straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16 inch per foot of length. If a piece of pipe fails to meet this requirement check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.
- B. Install piping and fittings true to alignment and grade. If necessary, each length of pipe shall be cleaned out before installation.
- C. Excavation, trenching and back filling procedures shall be in accordance with Section 02315.
- D. All sections of pipe will be air tested in accordance with Section 02503.

- E. Dense graded stone bedding for the pipe shall be in accordance with Section 02320.
- F. Install underground warning tape over pipe in accordance with Section 02317.
- G. Install PVC pipe on a bed of 1/2"-3/4" crushed stone with a minimum depth of 6-inches. The crushed stone shall completely encase the pipe and cover the pipe to a grade 6-inches over the top of the pipe to a minimum width of 12-inches on each side of the pipe. Bell holes shall be made in a crushed stone such that the pipe shall be uniformly supported throughout the entire length of the barrel section.
- H. Deflections in Pipe Alignment.
 - 1. Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions or where long-radius curves are permitted, the amount of deflection allowed shall not exceed that required for satisfactory making of the joint, and shall be approved by the Engineer.
 - 2. Prior to deflecting the pipeline, the spigot of the pipeline should be marked flush with the bell end to assure that the spigot is not withdrawn excessively as the result of the deflection. After the pipe is deflected, an adequate depth of jointing material must remain on the side where the spigot is away from home and an adequate width of caulking space must remain on the opposite side of the pipe at the face of the bell.
 - 3. The maximum deflection recommended by the manufacturer when using any pipe system must be observed when deflecting a pipeline.
 - 4. In general, all radius curves called for on the Drawings or permitted at the time of construction are to be made using full lengths of pipe. The use of short lengths of pipe and extra joint in order to make a smaller radius turn will not be allowed without the written approval of Engineer.
- I. Unsuitable Laying Conditions
 - 1. No pipe shall be laid in water, in an unsuitable trench or during unsuitable weather conditions.
- J. Chimney Construction Methods
 - 1. Whenever indicated on the Contract Drawings or directed by the Engineer, the Contractor shall install a house connection chimney. House connection chimneys will be authorized by the Engineer only where the difference in elevation between the main pipe invert and the house water table (sill) is at least 13 feet and the main line pipe is at least 10 feet deep.
 - 2. The Contractor shall carefully place the pipe and fittings forming the house service chimneys in accordance with the standard detail for "House Connection Chimney." The pipe fittings shall be braced and supported as necessary to ensure their staying in proper position while the concrete encasement is being placed. Chimneys shall be constructed in such a manner that loads are not transferred to the mainline.

END OF SECTION

SECTION 02530

MANHOLES AND CATCHBASINS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Precast concrete manholes
 - 2. Cast iron manhole frames and covers
- B. Related Sections
 - 1. Section 02503 – Testing of Storm Drainage Systems.

1.2 REFERENCES

- A. ASTM C32 - Standard Specification for Sewer and Manhole Brick (made from clay or shale).
- B. ASTM A48 – Standard Specification for Gray Iron Castings.
- C. ASTM C150 – Standard Specification for Portland Cement.
- D. ASTM C207 – Standard Specification for Hydrated Lime for Masonry Purposes.
- E. ASTM C478 – Standard Specification for Precast Reinforced Concrete Manhole Sections.
- F. ASTM C443 – Standard Specification for Joints for Circular Concrete Sewer and Culvert Piping Using Rubber Gaskets.
- G. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.
- H. ASTM C990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

1.3 SUBMITTALS

- A. Submit shop drawings, showing details of construction, reinforcing, joints, pipe connections to structures, manhole rungs, manhole frames and covers, and manhole chimneys.
- B. Submit weights of manhole frames and covers.

1.4 QUALITY ASSURANCE

- A. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Engineer, or other representative of the Owner. Such inspection may be made at the place of manufacture, or on the work after delivery, or at both places, and the materials shall be subject to rejection at any time on account of failure to meet any of the Specification requirements; even though samples may have been accepted as satisfactory at the place of manufacture. Material rejected after delivery to the job shall be marked for identification and shall be

removed from the job at once. Materials which have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced.

- B. At the time of inspection, the materials will be carefully examined for compliance with the latest ASTM designation specified and these Specifications, and with the approved manufacturer's drawings. Manhole sections shall be inspected for general appearance, dimension, "scratch-strength", blisters, cracks, roughness, soundness, etc. The surface shall be dense and close-textured.
- C. Imperfections in manhole sections may be repaired, subject to the approval of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at 7 days and 5,000 psi at 28 days, when tested in 3" by 6" cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.
- D. Personnel shall have confined space entry training as appropriate for the work to be performed.

PART 2 PRODUCTS

2.1 PRECAST CONCRETE MANHOLE SECTIONS

- A. Precast concrete barrel sections and transition top sections, shall conform to Specifications for Precast Reinforced Concrete Manhole Sections, ASTM C478 and meet the following requirements:
 - 1. The wall thickness shall not be less than 5 inches for 48-inch diameter reinforced barrel sections, 6 inches for 60 inch diameter reinforced barrel sections and 7 inches for 72 inch diameter reinforced barrel sections.
 - 2. Top sections shall be eccentric except that flat top sections shall be used where shallow cover requires a top section less than 4 feet as shown on the Drawings.
 - 3. Barrel sections shall have tongue and groove joints.
 - 4. All sections shall be cured by an approved method and shall not be shipped nor subjected to loading until the concrete compressive strength has attained 3,000 psi and not before 5 days after fabrication and/or repair, whichever is longer.
 - 5. Precast concrete barrel sections with precast top slabs and precast concrete transition sections shall be designed for a minimum of H-20 loading plus the weight of the soil above at 120 pcf.
 - 6. The date of manufacture and the name and trademark of the manufacturer shall be clearly marked on each precast section.
 - 7. Precast concrete bases shall be monolithically constructed. The thickness of the bottom slab of the precast bases shall not be less than the barrel sections or top slab whichever is greater. Precast concrete bases shall be constructed with a 6-inch extended base.
 - 8. Knock out panels for piping shall be provided in precast sections at the locations shown on the Drawings. They shall be integrally cast with the section, 2½ inches

thick and shall be sized as shown on the Drawings. There shall be no steel reinforcing in knock out panels.

9. The side wall height of the base section shall be a minimum of 12 inches above the top of the pipe coming into the manholes.

2.2 BRICK MASONRY

- A. Bricks shall be good, sound, hard and uniformly burned, regular and uniform in shape and size, of compact texture. Underburned or salmon brick will not be acceptable and only whole brick shall be used unless otherwise permitted. In case bricks are rejected by the Engineer, they shall be immediately removed from the site of the work and satisfactory bricks substituted therefor.
 1. Bricks for the channels and shelves shall comply with the latest specifications of ASTM C32 for Sewer Brick, Grade SM.
 2. Bricks for building up and leveling manhole frames shall conform to ASTM C32 Grade MS.
 3. Poured concrete inverts will not be allowed.
- B. Mortar used in the brickwork shall be composed of one-part Type II Portland cement conforming to ASTM C150 to two parts sand to which a small amount of hydrated lime not to exceed 10 lbs. to each bag of cement shall be added.
- C. Sand used shall be washed, cleaned, screened, sharp and well graded as to different sizes and with no grain larger than will pass a No. 4 sieve. It shall be free from vegetable matter, loam, organic or other materials of such nature or of such quantity as to render it unsatisfactory.
- D. Hydrated lime shall conform to ASTM C207.

2.3 MANHOLE FRAMES AND COVERS

- A. Manhole frames and covers shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sand holes and defects of any kind which render them unfit for the service for which they are intended. Manhole covers and frame seats shall be machined to a true surface. Castings shall be thoroughly cleaned and subject to hammer inspection. Cast iron shall conform to ASTM A48, Class 30B.
- B. Manhole covers shall have a diamond pattern, pickholes and the word "SEWER" cast in 3 inch letters. Manhole frame and covers shall be Manufactured by LeBaron Foundry; Mechanics Iron Foundry; Neenah Foundry or approved equal.
- C. Manhole frames and covers shall comply with the detail shown on the Drawings.

2.4 JOINTING PRECAST MANHOLE SECTIONS

- A. Tongue and groove joints of precast manhole sections shall be sealed with a preformed flexible joint sealant. The preformed flexible joint sealant shall conform to ASTM C990.

2.5 MANHOLE RUNGS

- A. Manhole rungs shall be either of cast aluminum alloy 6061-T6, drop front design, 14 inches wide with an abrasive step surface, or of steel reinforced, copolymer, polypropylene, plastic. Manhole rungs shall conform to OSHA requirements.

2.6 PIPE CONNECTIONS

- A. Pipe connections shall be accomplished in the following ways:
 - 1. For all pipe types except PVC, fill tapered hole around pipe with non-shrink waterproof grout, such as Hallemite; Waterplug; Embeco; or equal, after the pipe has been set into the structure.
 - 2. For PVC pipe connections, a flexible pipe-to-structure connector shall be used.
 - a. The flexible connectors shall be designed to provide a positive seal between the connector and the structure wall and between the connector and the pipe.
 - b. The flexible boot shall be manufactured of EPDM synthetic rubber in accordance with ASTM C443 and C923 and shall be 3/8 inch thick or greater.
 - c. The external bands shall be made entirely of 304 series non-magnetic stainless steel.
 - d. The flexible connectors shall be provided with a wedge-type or toggle-type expander to secure the pipe in the structure opening.
 - e. The flexible connectors shall meet the following criteria, in accordance with ASTM C923:
 - 1) Shall not leak when subjected to a head pressure of 10 psi for 10 minutes.
 - 2) Shall have the ability to deflect 7 degrees in any direction without leakage under the head pressure conditions described above.
 - 3) Shall not leak when subject to a load of 150 lbs./in. pipe diameter and the head pressure conditions described above.

2.7 DAMPPROOFING

- A. Dampproofing coating shall be an asphalt compound specially made to adhere to below grade concrete structures.
- B. The dampproofing shall be Hydrocide 648 by Sonneborn Building Products; Dehydratine 4 by Tamms Industries; RIW Marine Liquid by Toch Brothers, or approved equal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Installation
 - 1. Manholes shall be constructed to the dimensions shown on the Drawings and as specified in these Specifications. All work shall be protected against flooding and flotation.

2. Precast concrete barrel sections shall be set so as to be vertical and with sections in true alignment with a ¼ inch maximum tolerance to be allowed. The joints of precast concrete barrel sections shall be sealed with the preformed flexible joint sealant used in sufficient quantity to fill 75% of the joint cavity. The outside and inside joint shall be filled with non-shrink mortar and finished flush with the adjoining surfaces. Backfilling shall be done in a careful manner, bringing the fill up evenly on all sides. The precast sections shall be installed in a manner that will result in a watertight joint.
3. Holes in the concrete barrel sections required for handling or other purposes shall be plugged with a non-shrink grout or non-shrink grout in combination with concrete or rubber plugs, and finished flush on the inside.

B. Pipe Connections

1. General
 - a. Pipe stubs for future extensions shall be connected to the structures as shown on the drawings and the stub end closed by a suitable watertight plug.
2. Flexible Pipe-to-Structure Connectors
 - a. The flexible pipe-to-structure connectors shall be used for PVC pipe.
 - b. The flexible connectors shall be installed in accordance with the manufacturer's recommendations.
3. Grouting
 - a. All pipe types except PVC shall be grouted into place in the existing structure using non-shrink, water-proof grout.
 - b. After the new pipe has been set in place, completely fill the hole around the new pipe with non-shrink, water-proof grout.
 - c. In addition, place a 6 inch thick concrete encasement a total of 12 inches in length around the pipe stub adjacent to the wall of the structure. Concrete shall have a 28 day compressive strength of 3,000 psi.

C. Manhole Rung Installation

1. Aluminum manhole rungs shall be cast into precast sections, on 12-inch centers, by the manufacturer that casts the precast sections. Those parts of the rungs which are embedded shall receive a heavy coating of zinc chromate or other approved paint.
2. Steel reinforced copolymer polypropylene plastic steps shall be press fitted by hand driven hammer into preformed holes in cured precast sections, on 12 inch centers, by the manufacturer that casts the precast sections.

D. Brickwork

1. Mortar shall be mixed only in such quantity as may be required for immediate use and shall be used before the initial set has taken place. Mortar shall not be retained for more than one and one-half hours and shall be constantly worked over with a hoe or shovel until used. Anti-freeze mixtures will not be allowed

in the mortar. No masonry shall be laid when the outside temperature is below 40°F unless provisions are made to protect the mortar, bricks, and finished work from frost by heating and enclosing the work with tarpaulins or other suitable material. The Engineer's decision as to the adequacy of protection against freezing shall be final.

2. Channels and shelves shall be constructed of brick as shown on the Drawings. The brick channels shall correspond in shape with the lower half of the pipe. The top of the shelf shall be set at the elevation of the crown of the highest pipe and shall be sloped 1 inch per foot to drain toward the flow through channel. Brick surfaces exposed to sewage flow shall be constructed with the nominal 2" x 8" face exposed (i.e., bricks on edge).
3. Manhole covers and frames shall be set in a full mortar bed and bricks, a maximum of 12 inches thick for conical tops and 6 inches thick for flat top sections, and shall be utilized to assure frame and cover are set to the existing grade. The manhole frames and covers shall be reset to final grade prior to placement of final paving.

E. Dampproofing

1. Outer surfaces of precast manholes shall be given two coats of bituminous dampproofing at the rate of 30-60 sq. ft. per gallon in accordance with manufacturer's instructions.

3.2 LEAKAGE TEST

- A. Sewer Manholes shall be leak tested in conjunction with the pipeline in accordance with Section 02503

3.3 CLEANING

- A. New manholes shall be thoroughly cleaned of silt, debris and foreign matter of any kind, prior to final inspection.

END OF SECTION

SECTION 02740

BITUMINOUS CONCRETE PAVEMENT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Bituminous concrete paving.
- B. Related Sections
 - 1. Section 02315 - Excavation, Backfilling, Compaction and Dewatering
 - 2. Section 02320 – Borrow material

1.2 REFERENCES

- A. Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges", 1988 Edition as amended.
- B. AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, 1990 Edition, as amended.

1.3 SUBMITTALS

- A. Product information and mix design for each mix specified under this Section.
- B. Product data sheets for all additives proposed in the mix design.
- C. Certificate indicating the mixes specified meet or exceed the requirements specified herein.
- D. Certificate indicating the mix plant conforms to TAI Manual MS-3, Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges".

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with TAI Manual MS-8., Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges".
- B. Mixing Plant: Conform to TAI Manual MS-3, Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges".
- C. Obtain materials from same source throughout.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General
 - 1. Bituminous materials shall conform to the requirements of these Specifications.
 - 2. Bitumen delivered to a project or to a mix plant must be accompanied by a proper certificate signed by the producer's authorized representative.

Shipments of material not accompanied by a certificate will not be accepted for use in the work.

- B. Bituminous Concrete Paving shall be Class I, Type I-1, as specified in Sections 460 and M3.11.0 of the above referenced Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges", 1988 edition, as amended.
- C. Cutback Asphalts: Materials shall be blends of asphalts cements and suitable solvents. They shall be homogeneous, free from water, and conform to the requirements of AASHTO M 81 for the rapid curing type and AASHTO M 82 for the medium curing type.
- D. Asphalt Primer: Material shall be suitable for priming concrete and masonry surfaces prior to the application of waterproofing asphalt. It shall conform to the requirements of AASHTO M 116.
- E. Asphalt Emulsions: Materials shall be homogeneous and shall show no separation after mixing within thirty days after delivery. They shall conform to the requirements of AASHTO M 140 with the following exception: Viscosity determination will not be required for material sampled at the point of delivery.
- F. Cationic Emulsified Asphalt: Material shall be a homogeneous for a minimum of 3 months. The material shall conform to the requirements of AASHTO M 208.
- G. Protective Seal Coat Emulsion: Material shall be a homogeneous emulsion consisting of coal tar pitch dispersed in water by means of a mineral colloid. Any separation or coagulation of its components shall be capable of being overcome by moderate stirring. The material shall contain no asphaltic materials or chemical emulsifiers. When tested according to prescribed methods it shall meet the following requirements:

	Minimum	Maximum
Percent Water (AASHTO T 55)		50
Percent Non-Volatile Matter (ASTM D 2939, Sec. 7)	48	
Percent Ash in Non-Volatile Matter (ASTM D 2939, Sec.9)	20	45
Percent Solubility of Non-Volatile Matter in CS ₂ (AASHTO T 44)	40	
Resistance to Water (ASTM D 446)	No blistering, loss of adhesion or re-emulsification	
Resistance to Petroleum Solvents (ASTM D 446 – with Solvents substituted for water)	No penetration and no loss of adhesion	

- H. Hot Poured Joint Sealer: Sealer shall be composed of a mixture of materials which will form a resilient and adhesive compound capable of effectively sealing joints in concrete and shall conform to the requirements of AASHTO M 173.
- I. Joint and Crack Sealer, Asphaltic-Fiber: Material shall consist of a blend of asphalt cement (AC-20) and polyester fibers. The asphalt-fiber blend shall consist of 6% fiber mass to mass of asphalt.

- J. Calcium chloride shall meet requirements of AASHTO M-144 and shall be spread wherever directed to control dust conditions. The Engineer may direct the Contractor to employ sprinkling of water in lieu of calcium chloride for dust control.
- K. Tack coat shall consist of either emulsified asphalt, Grade MS-1 conforming to Section M3.03.0, or cutback asphalt, Grade MC-70 or MC-250 conforming to Section M3.02.0 of the above-referenced Specifications.

PART 3 EXECUTION

3.1 PAVING – GENERAL

- A. Install bituminous concrete pavement in accordance with Section 460 of the Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges", 1988 edition, as amended.
- B. Place binder course as soon as possible after the gravel base has been prepared, shaped and compacted for Town streets and driveway/sidewalk repair.
- C. Place and compact binder course by steel-wheeled rollers of sufficient weight to thoroughly compact the bituminous concrete.
- D. Maintain pavement under this Contract during the guarantee period of one year and promptly (within 3 days of notice given by the Engineer) refill and repave areas which have settled or are otherwise unsatisfactory for traffic.
- E. All pavement thicknesses referred to herein are compacted thicknesses. Place sufficient mix to ensure that the specified thickness of pavement occurs wherever called for.
- F. In no case will pavement be placed until the gravel base is dry and compacted to at least 95% maximum density at optimum moisture content.
- G. No mix shall be placed on wet or damp surfaces.
- H. Regardless of any temperature requirements, no mix conforming to the requirements of these specifications shall be placed after October 31 or before May 1 of any year.
- I. All manhole frames, catch basin frames and utility boxes are to be set to the grade of the binder course until such time as the top course is placed. Then reset the frames to the grade of the top course. Frames and utility boxes shall not be allowed to protrude above the surface of the binder course. All excavated materials removed for raising of the frames and utility boxes are to be replaced with concrete. This ring of concrete shall be filled flush with the surrounding binder course.
- J. Furnish and spread calcium chloride on disturbed surfaces to control dust conditions.
- K. The contact surfaces of curbs, castings, and other structures shall be painted with a tack coat prior to placement of paving.
- L. Along curbs, structures and all other places not accessible with a roller, the paving mixture shall be thoroughly compacted with tampers. Such tampers shall not weigh less than 25 pounds and shall have a tamping face no more than 50 square inches in size. The surface of the mixture after compaction shall be smooth and true to the established line and grade.

- M. When the air temperature falls below 50°F, extra precautions shall be taken in drying the aggregates, controlling the temperatures of the materials and placing and compacting the mixtures.
- N. No mixtures shall be placed when the air temperature is below 40°F, or when the material on which the mixtures are to be placed contains frost or has a surface temperature ENGINEER considers too low.
- O. No vehicular traffic or loads shall be permitted on the newly completed pavement until adequate stability has been attained and the material has cooled sufficiently to prevent distortion or loss of fines. If the climatic or other conditions warrant it, the period of time before opening to traffic may be extended at the discretion of the Engineer.
- P. Existing drainage patterns shall not be altered by the new pavement construction unless otherwise shown on the Drawings.
- Q. Maintain binder course in a condition suitable for traffic throughout the construction period. Defects shall be repaired within 3 days of notification.
- R. Prepare the binder course for placement of the top course. The binder course shall be regraded, placing additional bituminous concrete where settling has occurred, repairing the existing surface and replacing broken or damaged sections at no additional cost to the Owner. The binder course surface shall be in all respects acceptable to the Engineer before the final pavement is placed. The surface shall then be broom cleaned.
- S. Following preparation of the binder course, apply the tack coat at 0.10 gallons per square yard and place the top course.
- T. Apply joint adhesive to all longitudinal joints for proper adhesion of the new bituminous concrete pavement to the existing.
- U. Pavement markings damaged during the course of the work shall be repaired in accordance with Section 02760.
- V. Following all paving, the area along the edge of all pavements, sidewalks, berms, waterways, etc. shall be backed up with gravel, or loam and seed as required, so that it is flush with the adjacent paving. Whenever possible the final surface of the backup material shall slope away from the surface edge to allow proper sheeting of runoff.

3.2 BITUMINOUS CONCRETE BERM

- A. Install 6" thick compacted gravel base below the area to be repaired.
- B. The berm shall match the existing berm as closely as possible and be either Type 1, 2, or 3 as detailed in the Mass. Department of Public Works Construction Standards 1977.
- C. Closure between berms installed hereunder and existing berm shall be the same shape and texture as the machine installed bituminous concrete berm.
- D. The ends of the existing berm shall be cut with a saw prior to construction of bituminous concrete curb repairs.

- E. Construction methods and procedures for bituminous concrete curb shall be in accordance with Section 500 of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges", 1988 edition, as amended.

END OF SECTION

SECTION 02920

LAWNS AND GRASSES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Restoration of all vegetated areas disturbed during construction including:
 - a. Lawn areas
 - b. Grass surfaces
 - c. Tree belts
2. Products specified herein include loam, starter fertilizer, lime, and lawn seed.

B. Related Sections

1. Section 01570 – Temporary Erosion Controls
2. Section 02315 – Excavation, Backfill, Compaction and Dewatering
3. Section 02740 – Bituminous Concrete

1.2 REFERENCES

- A. ASTM D5539 – Standard Specification for Seed Starter Mix

1.3 QUALITY ASSURANCE

- A. Seed shall be placed only between the periods from April 15th to June 1st, and from August 15th to October 1st, unless otherwise approved by the Engineer.

1.4 SUBMITTALS

A. Submit the following for approval:

1. Lawn seed mixture including percent by weight of each seed type, and manufacturer/supplier name.
2. Suitable laboratory analysis of the soil to determine the quantity of fertilizer and lime to be applied.
3. Lime and starter fertilizer application rates based on laboratory soil tests.

PART 2 PRODUCTS

2.1 MATERIALS

A. Loam

1. Loam shall consist of fertile, friable, natural topsoil typical of the locality without admixture of subsoil, refuse or other foreign materials and shall be obtained from a well-drained arable site. It shall not be a swampy mulch nor shall it contain excessive quantities of sand or clay. It shall be free of stumps,

roots, heavy or stiff clay, stones larger than 1-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter.

2. The loam shall have an acidity range, such that its pH ranges from 5.5 to 7.6.

B. Starter Fertilizer

1. Starter fertilizer shall bear the manufacturer's name and guaranteed statement of analysis, and shall be applied in accordance with the manufacturer's directions.
2. Shall be Scott's Starter Fertilizer, or equal, with timed nitrogen release to prevent burning.

C. Lime

1. Lime shall be pelletized type for prolonged time release to soil.

D. Lawn Seed

1. Lawn seed shall be a fresh, clean, new crop seed. The weed seed content shall be less than 0.5% by weight. The seed shall contain a high percentage of perennial grasses.
2. Seed shall be Scotts Play Area Mixture, Scotts Pure Premium Sun and Shade Brand (North) Grass Seed Mixture, or equal.

PART 3 EXECUTION

3.1 PREPARATION

- A. The Contractor shall salvage all existing loam, which shall be stockpiled at an acceptable on-site location. Under no circumstances shall existing topsoil be removed from the project site for another use by the Contractor.
- B. The ground surface shall be fine graded and raked so as to prepare the surface of the loam for lime, fertilizer and seed.
- C. The Contractor shall perform a laboratory soil test on the proposed loam before placing any lime, fertilizer, or seed. This work shall be in accordance with ASTM D5539 (Standard Specification for Seed Starter Mix).

3.2 APPLICATION

- A. Fertilizer and lime shall be applied to the surface of the ground in accordance with the manufacturer's instructions, and based on the results of the certified soils test.
- B. The seed shall then be placed using a drop or rotary spreader at the rate recommended by the seed manufacturer for the intended use of the lawn or grass area being restored.
- C. After spreading of the seed, lightly rake the surface to work the seed in. The surface shall then be rolled.

3.3 MAINTENANCE

- A. Maintain loamed and seeded areas by mulching, covering, netting, watering, fencing, etc., until an acceptable stand of vegetation is approved by the Engineer.

- B. Suitable signs and barricades should be placed to protect the seeded areas. After the grass has started, all areas and parts of areas that fail to show a uniform stand of grass for any reason whatsoever, shall be reseeded until all areas are covered with a satisfactory growth of grass.

3.4 SPECIAL CONSIDERATIONS

- A. Following the final top course of paving all pavement edges, waterways, sidewalks, berms, etc. shall be brought to grade with loam, fine graded, raked, seeded, and rolled to the satisfaction of the Engineer. Whenever possible the final surface of the loam backup shall slope away from the surface edge to allow proper sheeting of runoff. The Contractor shall be solely responsible for protecting, maintaining, and repairing this work until a satisfactory start of healthy grass is established.
- B. Upon removal of the haybales and siltation fence, the Contractor shall loam and seed all disturbed areas.
- C. In locations where the project area passes through existing grass, weed brush or tree-surfaced areas that are not covered by a specific lawn repair item, surface restoration shall be as follows:
 - 1. After completion of backfilling, the existing loam and surface materials, which were salvaged during excavation, shall be returned to the top of the trench.
 - 2. After natural settlement and compaction has taken place, the trench surface shall be harrowed, dragged and raked as necessary to produce a smooth and level surface.
 - 3. The area is then to be sowed with “orchard grass” or “rye grass” or other such materials to hold the soil and produce a growth similar to that existing prior to construction.
 - 4. The cost of repairing the trench surface in this manner shall be included in the Item ‘Loam & Seed’.

END OF SECTION

DIVISION 3 – TOWN OF LONGMEADOW, MASSACHUSETTS
Plan of 2019 Western Drive Sewer Main Improvement Project.
COMPLETE SET 4 SHEETS